IHF
Bayerisches Staatsinstitut für
Hochschulforschung und Hochschulplanung

# Contributions to HIGHER EDUCATION RESEARCH

1 | 2026

Themenheft:

Die Zukunft der Hochschule:
Global, nachhaltig und inklusiv

Special Issue:

The Future of the University:
Global, Sustainable, and Inclusive

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# Imprint

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# Orientation, Themes and Target Groups

Contributions to Higher Education Research *(Beiträge zur Hochschulforschung)* is a prominent academic journal in the field of higher education research in German-speaking countries. While the majority of articles are published in German, submissions in English are equally welcome. The journal, available in both open access and print format, is characterised by its high-quality standards, broad thematic spectrum, and extensive reach. It combines academic rigour with practical relevance and invites submissions from various disciplines and approaches. The journal has a long tradition, being established in 1979 and transitioning to biannual publication in 2023. It covers a wide range of topics in higher and tertiary education, including research at institutional, regional, and systemic levels, both in national and international perspective.

Key areas of interest include:

- Governance of higher education and research institutions
- Steering, management, and leadership in higher education
- Digitalization and artificial intelligence in higher education and research
- Funding of higher education
- Quality assurance and performance measurement
- Curriculum reform, degree programs, and the student experience
- Transitions between school, higher education, and the labour market
- Research and academic careers, including early career researchers
- Gender inequality in academia
- The relationship between higher education, research, and industry
- Internationally comparative higher education research
- Science research

The journal publishes various article formats, including research articles based on quantitative or qualitative empirical analysis or comparative studies, literature surveys, standpoints, and insights into practice. All articles – except standpoints – undergo a rigorous double-blind peer review process. The journal serves as a platform for the exchange of research results and as a forum for higher education researchers and practitioners. Each year, the journal publishes one issue that reflects the entire spectrum of higher education research and one special issue, for which a call for papers is usually announced. Manuscripts in German or English can be submitted at any time to beitraege (at) ihf.bayern.de. There are no publishing fees.

The journal is directed at researchers interested in questions related to higher education and its development, as well as practitioners in higher education and research policy, administration, leadership, and management. All issues of Contributions to Higher Education Research are published in print and on the website at www.bzh.bayern.de. The individual articles can be searched by different categories. This is the first issue to also appear on the new website https://openjournals.fachportal-paedagogik.de/bzh.

# Content

# Editorial

This Special Issue of the Contributions to Higher Education Research *(Beiträge zur Hochschulforschung)* explores the future(s) of the university and hence the future(s) of higher education from a global perspective, linking it with sustainability and inclusion. These topics are examined through various lenses and perspectives providing spotlights on research, university management and governance, policies, systems and structures, and on teaching and learning. In the wake of the Annual Conference of the Association of Higher Education Research in Hagen, Germany in 2024, this volume includes empirically based critical analyses of the present and the past as well as contributions that rethink and reimagine higher education. Most of these contributions take their focus and umbrella framework from the global policy work of the United Nations (UN). More specifically, most articles are underpinned by both the UN´s 2030 Agenda and its Sustainable Development Goals (SDGs), as well as UNESCO's Futures of Education initiative.

First, the *Overview Article* by *Eva Cendon, Mpine Makoe and Irina Haury* sets the context and the scene for this volume, by proving an overview on higher education from a global perspective. The authors trace the UN 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs) as a transformational vision for the world as well as for (higher) education. Looking at current concepts and future needs, the authors expand the field from a global view, then delve into the state of the art of inclusion, before turning attention to sustainability – always reconnecting their thoughts to policies and current research in higher education. Finally, they discuss alternative routes for higher education that transcend a Eurocentric, Western perspective to broader, contextualised and future oriented imaginaries, taking *Ubuntu* as a philosophy of the global South and possible guiding principle to develop alternative futures in higher education.

After this introduction, the *Research Article* by *Diana Alférez-Rosales, Eric Alberto Emiliano-Gómez and Rosalba Badillo-Vega* takes Open Science and the UN´s Sustainable Development Goals as points of departure. The authors understand Open Science (OS) and Open Science Practices (OSP) as vehicles for a more rapid dissemination of knowledge and for enhancing transparency. The authors' focus is on Mexico, where OS has long been a common practice, not least because of researchers' and universities' limited resources for publications. Their methodological approach uses a bibliometric study of scientific publications of a public university in Mexico in an attempt to demonstrate how higher education institutions (HEIs) can promote OSP that foster the dissemination of research linked to the SDGs, while advancing greater equity in scientific production.

While the second *Research Article* takes a more general approach to the SDGs, the third *Research Article* focuses on SDG 4, Quality Education, and especially on Education for Sustainable Development (ESD) and Global Citizenship. *Fady Guirgis, Milena Jostmeier, Swantje Notzon, Tobias Breuckmann, Rebecca Froese, Daria-Maria Gerke, Iulia-Maria Stroila and Lea Wilkens* take us to the European context, to Münster, a town in West Germany, where they analyse sustainability engagement and sustainability-related activities in three HEIs. Using the Whole Institution Approach (WIA) as a framework, they employ survey data to explore differences in perceptions, priorities, and commitment to sustainability between HEIs and status groups, integrating the perspectives of the different stakeholders inside HEIs – professors, technical and administrative staff, as well as students.

The next *Research Article* moves our focus to the future of teaching and learning as one central field in higher education. Looking at distance learning as a possible format of the future, *Caroline Trautwein, Roxana Bettinger, Julian Rebien, Anna Maria Pampel and Michael Hast* take a look at the most critical stage – the study entrance phase. With a scoping review capturing the global scenery of distance education, the authors explore the opportunities and challenges for successful onboarding of so-called non-traditional students. This descriptor can include students who come from vocational backgrounds, those who may have family or care responsibilities, or students who lack a "classic" standard university entrance qualification. In understanding the entry phase as a strategic moment which can help determine student success or failure, the authors finally connect their findings to UNESCO´s principles regarding the future of (higher) education.

From this global perspective, the fifth *Research Article* narrows our view again to the European context. *Lisa Steiner, Cordelia Menz and Sylvia Mandl* take up SDG 4, Quality Education, with its claim on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. Based on the assumption that higher education should provide students with a safe and inclusive space in order to contribute to their mental health, the study moves beyond mere access to promote a Higher Education culture of inclusion and psychological safety. Using logistic regression and ANOVA, the analyses demonstrate a link between discrimination and mental health problems, while social integration mitigates this link.

Two *Insights Into Practice* provide us with perspectives from the Global South and critical accounts and diagnoses of the present while opening up perspectives for the future(s) of higher education. *Stephina Modiegi Ntsoane's* conceptual paper delves into the South African higher education context, and examines, from a critical decolonial perspective, the extent to which policies are dominated by Euro-North American theories. In contrast, she offers the *Ubuntu* philosophy as an alternative framework

for understanding inclusion, thereby opening up the possibility of understanding and of conceiving higher education as a space that actively breaks down structural inequalities and strengthens all communities through joint design and knowledge exchange. *Romeela Mohee, Mpine Makoe, Buhlebenkosi Tshili and Ourvashee Roopchun* take us on a journey to redefine higher education on the African island of Mauritius. They offer us insights into a national initiative to develop a roadmap for the future of education in Mauritius' higher education system. To this end, a methodical analysis of the environment (SWOT) was combined with consultative stakeholder workshops focusing on a vision for the future in 2040. This resulted in four overarching priorities forming the basis for designing resilience strategies for the future of higher education in Mauritius.

The professionalisation of offboarding processes is addressed in a *Standpoint* by *Mathilde Niehaus and Kathrin Staufenbiel*. Such processes offer great potential in the context of demographic change in Germany, but also in other, similarly ageing (European) countries, and the associated shortage of skilled workers, lack of resources, and rapid changes in the current world of work. A precise and appreciative offboarding approach throughout the entire separation process, in the areas of administration, knowledge management, and support, can create sustainability in human resources management, which can ultimately fill or at least bridge personnel shortages.

Two *Book Recommendations* set the tone in terms of a global, sustainable and inclusive higher education: *Irina Haury* opens with a look into the anthology by Anna Kelly, Lisa Padden and Bairbre Fleming on *Making Inclusive Higher Education a Reality. Creating a University for All. Buhlebenkosi B. Tshili* provides insights into the collaborative open access publication with authors from all over the globe on *Higher Education for Good: Teaching and Learning Futures*, edited by Laura Czerniewicz and Catherine Cronin. Both recommendations invite readers to think further about institutional transformation processes and pedagogical innovations in the spirit of inclusive, future-oriented higher education in a global context.

Concluding the volume, in *Last but Not Least* Puleng LenkaBula, the vice chancellor of the University of South Africa and Ada Pellert, the former rector of FernUniversität in Hagen, provide insights into their experiences as leading distance universities. They share their understanding of a future-oriented leadership, highlight three remarkable features of distance universities, explore the biggest challenge facing in leading these institutions in present times, and finally outline how they prepare their universities for an uncertain future in a challenging era.

*Eva Cendon (Germany), Mpine Makoe (South Africa) and Irina Haury (Germany)*

# Abstracts

**Eva Cendon, Mpine Makoe, Irina Haury: Higher Education in a Global Persepctice: Inclusive, Sustainable, and Future-Proof?**

This overview article attempts to take a future-oriented approach to higher education from a global perspective, informed by both research findings and policy-driven perspectives. After first spotlighting developments promoted and driven by supra-national organisations such as the United Nations, the article explores higher education research through three thematic strands – globalisation, inclusion and sustainability. By analysing and assessing the current state of research from a global perspective, the authors aim to present not only achievements, but also existing gaps and unfulfilled promises. The discussion centres around outlining common challenges and issues, as well as an outlook for an alternative, future-oriented, and even disruptive route for higher education from a global South perspective.

*Keywords: globalisation, inclusion, sustainability, future*

**Diana Alférez-Rosales, Eric Alberto Emiliano-Gómez, Rosalba Badillo-Vega: Open Science and the Sustainable Development Goals: A Bibliometric Study in Mexico**

This paper analyses the relationship between Open Science (OS) practices and the Sustainable Development Goals (SDGs), on the assumption that OS practices may contribute to their achievement. A bibliometric study examines research publications in OS and traditional science at a public university in Mexico, focusing on gender, academic discipline, and publication volume. Publications from 2021, based on 745 affiliated researchers, were analysed using Scopus and Web of Science (WoS) indexes. Findings suggest researchers use OS and traditional publishing practices almost equally, with OS practices gaining importance. Researchers in Science, Technology, Engineering and Mathematics (STEM) as well as medical sciences show the highest Open Access (OA) publishing rates, while the percentage of male researchers publishing in open access exceeds that of female researchers. Regarding the SDGs, the highest number of OA publications were linked to SDG 3 (Good Health and Well-Being) and SDG 9 (Industry, Innovation and Infrastructure), a pattern consistently observed in both WoS and Scopus. In conclusion, this study provides a first descriptive insight into the adoption of OS practices in a Mexican public university and highlights their potential role in promoting equity in scientific production and contributing to the dissemination of research linked to the SDGs.

*Keywords: open science, sustainable development goals, academic disciplines, gender, bibliometric study*

**Fady Guirgis, Milena Jostmeier, Swantje Notzon, Tobias Breuckmann, Rebecca Froese, Daria-Maria Gerke, Iulia-Maria Stroila, Lea Wilkens: Different Eyes on Sustainability: Stakeholder Perspectives in German Higher Education Under the Whole Institution Approach**

This article examines how sustainability is perceived, prioritized, and enacted across status groups and institutional profiles in three higher education institutions (HEIs) in Münster, Germany, using survey data from 1,035 participants and drawing on the Whole Institution Approach (WIA). Results indicate that societal transformation and community engagement are prioritized, while curriculum integration is less developed, highlighting the need to strengthen curricular sustainability integration. Perceptions and priorities vary significantly across HEIs and groups, underlining that achieving a holistic WIA requires considering all perspectives. The findings further show that members of HEIs are more engaged in sustainability activities in their private or community contexts outside the university than within it. Student participation is lowest compared to other status groups, reflecting structural and cultural barriers and emphasizing the importance of enabling students as active agents of change. Inclusive participation, systemic support, innovation, and external collaboration are crucial for HEIs to act as effective sustainability drivers.

*Keywords: whole institution approach, sustainability in higher education, institutional differences, status group perspectives*

**Caroline Trautwein, Roxana Bettinger, Julian Rebien, Anna Maria Pampel, Michael Hast: Distance Learning as the Higher Education Format of the Future? The Importance of the Study Entrance Phase**

Worldwide, the popularity of distance learning is growing, making digitally delivered teaching and learning formats increasingly important, not only for today but also in the future. These formats' flexibility and accessibility particularly appeal to non-traditional students. However, academic success among distance learners tends to be lower and dropout rates are higher compared to on-campus students. The transition into distance learning represents a critical phase for successful learning. The article addresses the question of why the study entrance is central to a future higher education that breaks down educational barriers and promotes the academic success of distance learners. Based on a scoping review – conducted by searching five databases (ERIC, PubMed, Google Scholar, PsycINFO, Scopus) and ultimately including 60 sources – this article explores the opportunities and challenges for successful learning during the study entrance phase and provides recommendations for teaching.

*Keywords: distance education, study entry phase, study success, non-traditional students*

**Lisa Steiner, Cordelia Menz, Sylvia Mandl: Multifactorial Discrimination and Student Mental Health: Implications for More Inclusive Higher Education**

Higher education institutions should offer their students a safe, inclusive space that protects their mental health. Addressing this requires a holistic approach fostering a culture of belonging and psychological safety within academic communities. This research explores the association of multifactorial discrimination with student mental health and the potential of social integration to mitigate this effect in order to identify possible levers for higher education institutions. Logistic regression analysis indicates that discrimination is a significant predictor of mental health problems with social integration moderating this relationship. Additionally, an ANOVA reveals that students who experience discrimination rate psychological counselling services less positively than those without such experiences. This highlights the need to strengthen social integration of students at higher education institutions and psychological counselling especially for those facing discrimination.

*Keywords: student mental health, discrimination, social integration, inclusivity, psychological counselling*

**Stephina Modiegi Ntsoane: Rethinking Higher Education Policies for Inclusivity through a Decolonial Lens: A Historical and Future-Oriented Analysis of South African Education**

South Africa's higher education system remains shaped by colonial and apartheid legacies that embedded systemic inequalities in access, curriculum, and governance. Despite decades of reform, these historical injustices continue to marginalise African knowledge systems and lived experiences. This conceptual paper uses a decolonial lens to critically examine how Euro-North-American epistemologies have dominated education policy formulation, often at the expense of local perspectives rooted in African values. The analysis foregrounds Ubuntu as an alternative framework for rethinking inclusivity, emphasising interconnectedness, collective dignity, and social justice. By tracing the evolution of education policy from missionary schooling in the 1800s through apartheid's Bantu Education to contemporary reforms, the paper highlights how inclusivity has often been narrowly framed. It argues for an expanded understanding of inclusivity that moves beyond access to encompass epistemic and cultural representation. The paper concludes by proposing a transformative policy approach grounded in decolonial thought and Ubuntu ethics, envisioning higher education as a space that actively dismantles structural inequalities and empowers all communities through co-creation and shared knowledge.

*Keywords: decolonial lens, ubuntu, inclusivity policies, higher education, systemic inequalities, euro-north-american centric, epistemic justice*

**Romeela Mohee, Mpine Makoe, Buhlebenkosi Tshili, Ourvashee Roopchun: Building Resilience Strategies Towards the Futures of Higher Education Sector in Mauritius**

The shifting global landscape has spurred the higher education sector in Mauritius to reassess its trajectory to meet the evolving needs of society. To guide this transformation, the Mauritian government embarked on a futures of education roadmap, towards reshaping the futures of higher education in Mauritius. Since this was a national initiative, the strategic foresight was used to formulate strategic goals that will guide the futures of higher education in Mauritius. The foresight approach began with environmental scanning through a SWOT analysis to better understand the Higher Education landscape. In a second step, insights were drawn through a series of consultative workshops with education stakeholders who were asked to visualise the Mauritian Higher Education Landscape in 2040. The data derived from these workshops was analysed through content analysis. Through this analysis, four main themes emerged as most relevant: technology enhanced, economically responsive, personalised learning and nationally and globally relevant. These key findings provided a platform for conceptualising and developing resilience strategies towards the futures of higher education in Mauritius.

*Keywords: technology enhanced higher education, economically responsive higher education, personalised learning, nationally and globally relevant higher education, resilient strategies*

**Mathilde Niehaus, Kathrin Staufenbiel: Professional Offboarding Processes for Sustainable and Future-Oriented Universities**

Professional offboarding processes offer great potential facing the shortage of skilled professionals through demographic changes, lack of resources and fast changes in the current work era. A precise and appreciative approach regarding administration, knowledge management and the professional accompaniment throughout the separation process leads to better and more sustainable solutions to fill or bridge personnel gaps. While companies have increasingly recognized this potential, professional offboarding processes are not yet treated as a strategic solution by the human resource management of colleges and universities. Possible reasons for this are described. We present how colleges may increase sustainability in their human resource management through professional offboarding processes. As examples we focus on offboarding due to fixed-term contracts and on offboarding due to retirement, a topic of urging relevance, especially in Germany and other similarly aging (European) countries

*Keywords: offboarding, shortage of skilled professionals, governance*

# Higher Education in a Global Perspective: Inclusive, Sustainable, and Future-proof?

Eva Cendon, Mpine Makoe, Irina Haury

This overview article attempts to take a future-oriented approach to higher education from a global perspective, informed by both research findings and policy-driven perspectives. After first spotlighting developments promoted and driven by supra-national organisations such as the United Nations, the article explores higher education research through three thematic strands – globalisation, inclusion and sustainability. By analysing and assessing the current state of research from a global perspective, the authors aim to present not only achievements, but also existing gaps and unfulfilled promises. The discussion centres around outlining common challenges and issues, as well as an outlook for an alternative, future-oriented, and even disruptive route for higher education from a global South perspective.

*Keywords: globalisation, inclusion, sustainability, future*

## 1 Introduction

The world has been dealing with multiple crises for several years – recently it has been confronted with the now omnipresent climate crisis, the various wars around the world, economic crises, poverty and hunger, inequalities and social instability, as well as the influx of refugees and displaced people (de Wit & Altbach, 2021; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020b). As the United Nations (UN) claims, these crises demonstrate the multiple facets of the unsustainable world we live in (United Nations [UN], 2023). The message is quite clear: "*The survival of our societies and our shared planet depends on a more sustainable world*" (UN, 2023). And with it, the future itself is at stake. Developing a "*blueprint for our common future*" (UN, 2023) demands a reenvisioning of shared futures, a capacity for innovation and cooperation with multiple actors, openness to inter- and transdisciplinary approaches, and above all, education.

The UN's 2030 Agenda for Sustainable Development set the tone and the transformational vision for the world by unveiling *Transforming our World: the 2030 Agenda* at the 2015 UN conference in New York. This agenda, which is playing a vital role in education, is preceded and framed by the "*United Nations Decade of Education for Sustainable Development (DESD)*" (2005-2014) (Combes, 2005; Mulà & Tilbury, 2009). Conceptually, the 2030 Agenda builds on the three dimensions of sustainable development that were

already an essential part of the DESD (Combes, 2005): the economic, the social and the environmental dimension (UN, 2015). The plan rests upon the five pillars of people, planet, and prosperity, supporting peace and building upon global partnerships, enhanced by multi-stakeholder partnerships and later expanded to include a sixth pillar, which highlights cities as central places of living (Schreiber-Barsch & Mauch, 2019, p. 517; UNESCO, 2016, p. 14). In its broad approach, the 2030 Agenda for Sustainable Development *"unites global development and environmental goals in one framework"* (UNESCO, 2016, p. 5). The 2030 Agenda is operationalised through a normative framework comprising 17 Sustainable Development Goals (SDGs). Each goal is concretised by sub-goals or target indicators (UN, 2015, p. 5). The SDGs are formulations of global political goals with which a transformation towards sustainable development is to be achieved at global level by 2030 (for an overview, refer to Freitag, 2024). The Agenda sees the contribution of (higher) education as critical, as outlined in SDG 4, Quality Education: *"Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"* (UN, 2015, p. 19). The focus on equal access eliminates all discrimination in education, be it of gender, vulnerable groups such as persons with disabilities, indigenous peoples or children in vulnerable situations, as well as promoting Education for Sustainable Development (ESD) and Global Citizenship, which are of specific relevance for higher education (UN, 2015). Hence, higher education is expected to address the goals of inclusion and sustainability in a global context, empowering people to navigate these challenges and help contribute to a better future for all. The ongoing challenges will need to be met not by responding but rather by transforming the changing world, as stated by UNESCO's Futures of Education initiative (UNESCO, 2020b).

Although the 2030 Agenda and its goals are not a binding treaty, they *"involve the entire world, developed and developing countries alike"* (UN, 2015, p. 7) and, as such, represent a sort of social contract for the global community, built on international law (Messner, 2018, p. 179). Nevertheless, it is acknowledged that each country must set its own targets, *"taking into account national circumstances"* (UN, 2015, p. 16) and use *"different approaches, visions, models and tools […] to achieve sustainable development"* (UN, 2015, p. 17). However, the 2030 Agenda and the SDGs have been criticised by scholars, practitioners, and activists. Discontentment amongst critics stems from issues surrounding *"climate injustice as well as widespread hunger, wars, political extremism, and systemic discrimination*" (Grotlüschen et al., 2023, p. 44). Even more far-reaching is the criticism levelled against the *"corporate capture of climate politics"* (Guerrero, 2018, p. 34) and that the *"mainstream development agendas, like those of the UN, can be understood as situated within a contested but enduring modern/colonial global imaginery"* (Stein et al., 2019, p. 283).

While we readily acknowledge the criticisms and take them seriously, this article will focus on the potential of higher education and the role that it can play in transforming

the world into a better, more sustainable, socially just and inclusive place – thereby broadening perspectives beyond a Eurocentric, Western view to a more global one. In the following sections, we will take a closer look at global higher education in general and then turn to the role of inclusion and, consequently, sustainability in higher education. A joint discussion follows in which we will outline some common issues and finally posit an outlook for alternative or even more radical (in the sense of fundamental), future-oriented and even disruptive route for higher education, including a perspective from the global South.

## 2 Globalisation

Over the past few decades, the world faced major disruptions created by emerging technologies, rapid shifts in economies, climate change and pandemics that had a major impact on higher education and its role in shaping the global agenda. These unprecedented disruptions have magnified the need for systems and structures that help support the higher education sector in connecting to the global world (Knight, 2013; Matthews, 2022). In many ways, these 21st-century epoch-making developments not only disrupted higher education but also forced the sector to rethink its entire mission within the globalised space. Since time immemorial, universities have been established as national assets with the purpose of capacitating citizens and generating knowledge through research with an aim of contributing to the economic growth of the country (Matthews, 2022). In this context, universities were operating as isolated institutions with little or no interest to the nations beyond their borders. As countries increasingly became part of the connected world, there has been more movement of students and academics between and among countries. This increase in student and academic mobility led to more collaborative research activities, the development of joint degree programmes, the improvement of education outcomes, and the overall enhancement of a university's global standing.

UNESCO's (2024) most recent statistics show that the number of students who enrolled in Higher Education Institutions (HEIs) outside of their countries of origin was estimated at 6.9 million in 2022, and over 4.6 million students are studying in 38 OECD countries. The considerable growth in the number of students and academics who study and work in other countries led to the need to develop globally recognised standards. In response to this need, the UN adopted the first treaty on global higher education through the Global Convention on the recognition of Qualifications in Higher Education with a directive to provide a framework to guide practices in the globalised education sector (UNESCO, 2019). Since then, five regional conventions have been signed with the purpose of providing legal frameworks that will facilitate recognition of qualifications across borders (UNESCO, 2019), and these treaties gave rise to the legitimisation of global higher education.

Global higher education includes student and staff mobility, academic cooperation, and knowledge transfer (Knight, 2013; Marginson, 2023; Teichler, 2009). UNESCO (2022) defines global education as a system that equips people with knowledge and understanding of diverse cultures, locations and backgrounds in preparation for operating in a global world, while Marginson (2022b) defines it as a system that connects institutions to the global world. Moreover, the terms globalisation and internationalisation have been used interchangeably by different scholars (Knight, 2013; Marginson, 2023; Teichler, 2009). For Knight (2003), *internationalisation* is a process of *"integrating international, intercultural or global dimension into the purpose, functions or delivery of higher education"* (p.2). The description of *globalisation* goes beyond nation-states but includes economic, cultural, and political processes that have major impacts on higher education (Marginson, 2023). Finally, the term *global* differs from internationalisation and globalisation and has its own distinct meaning in that it refers to issues that are of global significance, i.e. that affect us all: In a constantly changing world, higher education plays a critical role in addressing global challenges such as climate change, inequalities in education, socio-economic circumstances, digital divide and social justice matters (Marginson, 2022b). The 21st-century environment requires a global higher education that is going to address the many challenges of this era. Despite the benefits linked to global higher education, inequalities remain a challenge. Resource-rich institutions that are mostly based in the global North tend to attract students from other parts of the world because of their reputation and research prowess. Access to unique study and work opportunities was among the chief reasons students and academics chose to live in other countries. However, many of those who leave their home countries do not return, resulting in a major dearth of highly skilled workers needed to participate in the economic growth of their respective countries (Sarpong & Adelekan, 2024). Africa still remains *"the weakest player"* (Teferra, 2014, p. 15), as the movement of African students even within the continent is limited – except for South Africa as the "*only meaningful regional hub of scholarship for Sub-Saharan African students"* (Teferra, 2014, p. 15).

This inequality stems from the colonial imposition of European models of education in many English-speaking countries in the global South. To understand the impact of these models on global higher education, according to Schildermans and Tröhler (2024) there is a need to critically examine the undercurrent complexities of power, colonial foundations and historical realities – shaped in a *"globalist imaginary"* (p. 1) – that acts as a collective vision and a world view, conceptualising our world as a global community, shaped through a Westernised global lens. This globalist imaginary shapes our visions and how we conceptualise future(s). It acts as a *"homogenising force"* in discourses around the knowledge economy, the success of rankings and the discussions around excellence, and constricts the imagination on (desirable) futures of higher education. It *"configures and constrains discourses on higher education futures, while*

*at the same time retroactively reconstructing the history of higher education in terms of a process of global isomorphism, thereby suggesting a more or less logical line of development over centuries"* (Schildermans & Tröhler, 2024, p. 2). Mills (2022) argues that colonial hierarchies are deeply embedded in post-colonial nations despite efforts of decolonial activism in South African universities. In many parts of the African continent, policies and structures that govern higher education are mostly dominated by colonial frameworks that do not cater for African needs (Schildermans & Tröhler, 2024). These lingering legacies of higher education contribute to the exclusion of epistemologies from the global South. Education in Africa was and is still shaped by the British and French colonisers. Long after independence, African countries had still not developed "home grown" education models tailored to post-colonial higher education. Systems, structures, policies and practices remain as relics of colonial dominance in every part of the educational system in Africa.

Critics of global education have pointed out that what is considered local/regional/global knowledge is skewed towards the global North (Marginson, 2022a; Mills, 2022; Sarpong & Adelekan, 2024). English remains the lingua franca for business, academic, and scientific knowledge, and has redefined global education that is exclusive to those who can speak the language. Global North knowledge is treated as universal and relevant, while knowledge from other countries is not recognised. The use of English in global science, a language spoken by 5% of the world's population, legitimises the exclusion of other languages (Marginson & van der Wende, 2007; Mills, 2022). Most research citation indexes in the Elsevier (Scopus) and Clarivate (Web of Science) tend to characterise what universities consider as reputable scientific work and determine the performance of universities that get rewarded by world rankings (Marginson et al., 2025). The ownership of publishers and databases that use the English language are responsible for the expansion of the Anglophone cultural hegemony.

Despite the rise of global higher education, according to Marginson (2023), funding and governance of higher education are still in the hands of national governments. Therefore, global higher education cannot be separated from the hegemony that created it. If higher education is to be truly global, scholars need to critically reflect and engage with the dynamic interplay of social, political, economic, and cultural narratives that shaped it (Schildermans & Tröhler, 2024). There is a need, therefore, to critically examine and analyse the past that led to the design of the current higher education systems with the aim of envisioning and re-imagining the future. To be able to overcome the globalist imaginary and to pave the way for re-imagining the futures of higher education, Schildermans and Tröhler (2024) point to five necessary shifts: (1) emphasising the significance of context, (2) examining regional ontologies, (3) investigating in a transnational and comparative manner relationships between different developments, (4) incorporating questions of power and inequality and (5) *"exploring the*

*complex dynamics of cultural exchange, recognising the agency of non-European regions in shaping their educational systems"* (Schildermans & Tröhler, 2024, p. 9). They summarise: *"This approach disrupts the prevailing narrative of a globalised higher education landscape by acknowledging the diverse and interconnected histories of universities globally"* (Schildermans & Tröhler, 2024, p. 9).

## 3 Inclusion

While the higher education landscape is constantly transforming, as in the field of technology, and such rapid developments are impacting the future of higher education (Yusuf et al., 2024; Yusuf & Tambuwal, 2018), research shows that higher education is far from being inclusive and that people continue to be excluded from education (Altunoğlu, 2024; Naylor et al., 2021; Sengupta et al., 2019), despite the potential of technological advancements, among others. Considering the growing diversity in studentship globally, there is a critical need for new approaches towards viable inclusive higher education (UNESCO, 2022). The UN defines inclusion as the *"dynamic state of feeling, belonging and operating in which diversity is valued"* (UN, 2021, p. 8) and the Futures of Education Initiative (UNESCO, 2021) claims that the *"future of our planet must be locally and democratically envisioned"* (p. vii), aiming for *"cooperation between all actors in education, guided by a commonly accepted ethic of inclusion"* (p. 108). The principle of "Education for All" is a commitment to the active inclusion of disadvantaged groups in education and is an internationally agreed consensus for education that should apply to all and be universal (UNESCO, 2022, p. 3). Envisioning inclusive higher education is the direct opposite of stigmatisation, discrimination, racism or exclusion. A sense of inclusion is said to contribute to better academic performance and promote mental and physical health (Taff & Clifton, 2022), helping to create a more holistic understanding of belonging. According to UNESCO (2021), such a holistic understanding of inclusion should consider diverse cultures, locations and backgrounds.

In the field of teaching and learning, inclusion is often defined as *suitable learning conditions for all students* from marginalised groups, including students with disabilities, those who reside in rural areas and those who are at risk of exclusion. Here, exclusion also comprises inaccessible or incompatible (digital) tools such as digital platforms or learning materials that are not adapted to students' needs (Reinders et al., 2021; Reyes et al., 2022; Vorlíček et al., 2023; Wilkens et al., 2021). Existing difficulties at the level of teaching and learning regarding students with disabilities (SwD) are evident at the University of South Africa: The identified main concerns include a lack of awareness and processes of identifying SwD, inaccessible learning material for SwD, a lack of capacity to support SwD, shortcomings in course design and implementation of disability policies and strategies (Zongozzi, 2022; Prinsloo & Uleanya,

2022). This shows the necessity for universities to invest in implementing inclusive teaching methods at a structural level, including training and continuing education programmes for teachers and thus addressing teachers' attitudes towards inclusion of students with disabilities (Martins et al., 2018; Vorlíček et al., 2023).

In the realm of technology, *digital accessibility* is a broadly discussed and agreed-upon topic to enhance inclusion. A successful implementation can be supported through the use of training to increase faculty's competence in digital accessibility and course design. Particularly recommended are the following aspects: (1) involvement of all teachers in specific training programmes to promote institutional awareness, (2) inclusion of students with disabilities in the training programmes, and (3) training on relevant legislation, as part of ten recommendations by Bong & Chen (2024). In this context, *assistive technologies* (AT) can play a significant role for students with disabilities. Such AT include screen readers or magnifiers for visually impaired or hearing aids for hearing impaired students, and enable students to participate and engage academically, help them overcome learning difficulties, and even improve mental health issues (Fernández-Batanero et al., 2022; Kulkarni, 2019; McNicholl et al., 2021; Yenduri et al., 2023). However, there are several potential obstacles that need to be taken into account. They include inadequate training of teachers, device limitations, or lack of support (McNicholl et al., 2021). An additional critique comes from the South African context, where Ndlovu (2021) points out that AT does not constitute full inclusion because it rests upon an individual-level solution. In contrast, she recommends applying Universal Design for Learning (UDL), a comprehensive approach that enables inclusive learning through a framework, characterised by the core principles of flexibility, engagement, representation, action, and expression (CAST, 2024). While Ndlovu's approach uses the originally North American idea of UDL at a South African HEI, she proposes a theoretical conceptualisation for the provision of AT, to prevent over-generalisation, because knowledge transfer between the West and the South can only be successful when it is adapted to the specific context.

Other rapidly developing technologies are *AI-driven solutions* and adaptive learning systems, which can create inclusive learning environments and increase access to educational resources (Mitre & Zeneli, 2024; Salazar et al., 2024). The benefits of AI tools are discussed as they apply to low-income, first-generation, minority, and rural students in overcoming challenges by providing individualised assistance when it comes to accessing academic resources (Johnson & Davis, 2024). These include AI tools that have the ability to convert text into speech to help students with reading difficulties to absorb information from university-level textbooks more quickly and accurately. Meanwhile, people with autism can use AI tools such as *Social Express* and *Calm Counter* to help them overcome challenges relating to communication, social behaviour, and executive functions (p. 53). However, Sarkar (2025) argues that it is

crucial that "*inclusion is not a downstream ethical consideration, but an upstream design decision"* (p. 6309), which will help to close the AI inclusivity gap.

Looking ahead, it is essential that long-term studies track the impact of AI in specific learning settings as well as in collaboration with the different higher education sectors, as this will be key for an ethical AI development to support all students, according to Bhatnagar and Sharma (2024). Other critical tasks include reducing algorithmic biases and ensuring AI transparency (Batista et al., 2024). On the institutional side, Popenici and Kerr (2017) see a need for reevaluating pedagogical models of teaching and learning, as AI will increasingly take on tasks, as well as influence the role(s) of teachers. Therefore, universities should remain vigilant and rethink their role in order to preserve their values and educational goals (p.13).

According to the target agreement of the UN's 2030 Agenda and SDG 4, HEIs are responsible for creating inclusive governance. However, there are still shortcomings in its establishment (Neyşci, 2025; Oswal et al., 2025). Obstacles include the conditions of access for students from disadvantaged groups (Matsieli & Mutula, 2024; Oswal et al., 2025). To address structural deficiencies such as access conditions, Oswal et al. (2025) recommend that HEIs establish uniform guidelines that combine international best practices, accompanied by regular reviews of the policies (Oswal et al., 2025; Zabeli et al., 2021). Neyşci (2025) considers inclusive governance to be part of higher education that creates social justice, by not only improving physical access, but also strengthening equity for students in terms of learning success. This broader interpretation encompasses the principles of equal representation, participatory governance, and the equitable distribution of resources to support disadvantaged groups and help them succeed in their studies, while promoting prosperity and democratisation processes in society as a whole (Neyşci, 2025).

The successful implementation of inclusion in higher education requires, therefore, a comprehensive understanding of inclusion that considers contextual references. To this end, it remains essential to consistently engage with the voices of all stakeholders, including marginalised groups, and utilise the outcome to create equitable education in the future.

## 4 Sustainability

The search for adequate approaches in HEIs to address issues of sustainability and to implement Education for Sustainable Development (ESD) dates back to the early 2000s (Corcoran & Wals, 2004; refer to an overview by Holst, 2023). An integrative approach to sustainability that links the different core functions and systems of the university was first described by an action research project in the Australian context (McMillin & Dyball, 2009, p. 56). The authors state a fragmented status of sustainability educa-

tion in most universities, being isolated in specific courses, not necessarily linked to research, and separated from campus operations. Due to this fragmentation, the results remain within narrow limits (McMillan & Dyball, 2009). To overcome these shortfalls, McMillan and Dyball (2009) coined the term *"whole-of-university approach"* (p. 57) for higher education that links research on sustainability with campus operations and with the curriculum and embeds it in a *"pedagogy of place"* (Rohwedder, 2004). Here, the campus itself serves as a *"readily available laboratory for hands-on projects, and acts as shadow curriculum for the students to apply to the campus what they learn from the campus"* (McMillin & Dyball, 2009, p. 58). With this move, the environmental performance of the university improves, while, at the same time, ecological literacy within the university community as a whole can rise. And, as Holst (2023, p. 1015) states, *"all learning is embedded within its socio-physical contexts."*

Although the last decade has flourished with respect to different attempts to follow Whole Institution Approaches (WIAs) in (higher) education to sustainability, and with studies reviewing their implementation and impacts (e.g., Findler et al., 2019; Lozano et al., 2015; Menon & Suresh, 2020), it is only recently that a systematic qualitative analysis of international literature was conducted to assess the conceptual debate about WIAs (Holst, 2023). Five core principles of WIAs emanated from the analysis. *The* central feature that was identified was the *institutional coherence* ("walk the talk"), which means the entire experience in the institution, including learning inside and outside the classroom, formally, non-formally and informally. This was followed by *continuous learning* of the organisation, becoming a learning organisation that learns, unlearns, and relearns ; having the capacity to change by providing the opportunity for *participation* of all members of the organisation who share ownership of the institution while recognising its power relations. The fourth principle focused on the *responsibility* of the individuals as members of the organisation who jointly act for sustainability; and lastly *long-term commitment* – not only those that serve the aims of sustainability, but also those who act flexibly, are innovative, and have a willingness to take risks, taking into account the complexity of educational settings. The areas of action of WIAs include a pro-active and participatory *governance;* education for sustainable development in *curriculum and teaching* embedded in *community and networks* – within the region in a reciprocal manner. This will be done through *sustainable operations and campus management;* sustainability in *research* within the topic selected, drawing on disciplinary, inter- and transdisciplinary forms of knowledge production and dissemination, new partnerships and research collaborators (e.g., students); sustainable *capacity building* that empowers staff to develop sustainable Human Resource (HR) strategies and quality conditions; and lastly, *active communication* on sustainability that is inclusive and clear. These areas of action are framed by an *organisational culture of sustainability* that may be developed during the process of collective learning and collaborative action. The development of WIAs relies on contextual factors and exter-

nal conditions, including prioritisation of regional, national and international policies; sufficient and long-term funding; and access to expertise and support (Holst, 2023). Although it is precisely this demand for an organisational culture of sustainability that has come into greater focus (e.g., Tilbury, 2013), it has still not been further conceptualised and operationalised (Holst et al., 2025).

A systematic review on cultures of sustainability in international literature revealed the following fragmentations: first, in conceptualisations of the culture and how they manifest and change; second, the lack of differentiation between normative target perspectives of a culture of sustainability and descriptions of the status quo; third, the assessment of cultures of sustainability, especially with regard to invisible elements; fourth, the unclear pathways to change; and finally, the specific characteristics of HEIs that are relevant (Holst et al., 2025). Taking these outlined gaps as a starting point, cultures of sustainability need to be reconceptualised and differentiated between a *"culture of sustainability at HEIs as a normative orientation and the description of the current status"* (Holst et al., 2025, p. 500). Descriptions of the current status of specific cultures provide evidence for what supports or hinders sustainability. Future research from this identified perspective need to focus on the features of cultures of sustainability for gaining *"a more systematic understanding for pathways of change"* and provide *"space to the contested meanings of sustainability and their related struggles within academic communities"* (Holst et al., 2025, p. 501), focussing not only on single HEIs, but on higher education systems and their underlying rules and assumptions. Furthermore, understandings of sustainability are context-specific, as shown by Lotz-Sisitka (2004), who described the close relationship between social justice and ecological sustainability in post-apartheid South Africa, *"with environmental issues and risks being closely linked to human rights and social responsibilities in numerous policies, including the Constitution of 1996"* (Lotz-Sisitka, 2004, p. 319).

In a global view, Education for Sustainable Development (ESD) with its broad perspective and its emphasis on empathy, solidarity and action-taking is attributed to building a future *"not only to the successes of individuals, but also to the collective survival and prosperity of the global community"* (UNESCO, 2020a, p. 14). However, there appears to be a problem inherent in the higher education system itself, as Daniella Tilbury (2024) reminds us that the *"highest achieving graduates from the best academic universities go to lead fossil industry."* Hence, there seem to be paradigms deeply embedded in our higher education knowledge systems and relationships that are contributing to unsustainable development. Based on this, are universities acting as reproducers of the status quo, and *"as mirrors in our society",* or will they *"become social disruptors"* (Tilbury, 2024)?

Implementing sustainability in higher education needs to take the institution as a *whole* into perspective, including a context-related understanding of sustainability. Nevertheless, to reach and change society to become more sustainable, it requires a greater focus on the output of higher education, the graduates as future leaders, and the question of what students learn to become change agents and disruptors *for* the future, instead *of* the future.

## 5 Discussion

Having explored the three thematic strands of globalisation, inclusion and sustainability in higher education against the backdrop of the UN 2030 Agenda and the SDGs, a north-south divide emerges, despite the various achievements. Criticisms revolve primarily around the challenges posed by mainstream agendas, global isomorphism, excluded epistemologies, languages, contexts, and regions, and narrow viewpoints. At the same time, and in a broader sense as intended by the authors, our *"planet is in trouble and our survival as a species is in jeopardy"* (Von Kotze & Walters, 2023, p. 18). In view of the current imperialist attitudes and behaviours by politicians that continue to put universities and their autonomy under pressure, there is an urgent need to find new ways of re-imagining futures and making higher education future-proof. This seems even more urgent as even the *"mainstream development agenda"* (Stein et al., 2019, p. 283) of the UN and its sub-organisations[1] are under attack. Emphasising context, examining regional ontologies and recognising agencies of non-European regions (Schildermans & Tröhler, 2024) can help to lead this search, not only for developing futures but for getting a grip on the present in a sort of *"relationality approach"* (Lange, 2024, p. 252). As Elisabeth Lange advises, this approach *"can help us compost the aspects of modernity that feed the dynamics threatening all life on Earth. Through composting, we allow for aspects of these permanencies to break down and recycle them into new potentialities that can constitute breakthrough, as in the emergence model of social change"* (Lange, 2024, p. 240). Donna Haraway (2016), moving in a similar direction, urges us to be truly present, instead of being torn between awful pasts and apocalyptic futures, and to engage in new forms of (posthuman) *"unfinished configurations of places, times, matters, meanings"* (p. 1).

All these aforementioned changes of perspective and new assemblages transcend a Eurocentric, Western perspective to broader, contextualised and future-oriented imaginaries. For a change of perspective, a future vision from the global South rooted in the (South) Africa past shall be sketched – as an alternative to the aforementioned

[1] The United States, as one of the founders of the United Nations, declared on 22 July 2025 that the United States will withdraw from UNESCO on 31 December 2026. They justified this, among other things, by stating that *"UNESCO works to advance divisive social and cultural causes and maintains an outsized focus on the UN's Sustainable Development Goals, a globalist, ideological agenda for international development at odds with our America First foreign policy"* (Bruce, 2025).

– and lately crumbling globalist imaginary of HEIs in a global context. This vision – *Ubuntu* – could assist in finding ways to disinter the *"deeply embedded"* paradigms and to put them to disposal while HEIs are trying to *"become social disruptors"* (Tilbury, 2024).

*Ubuntu*, a Southern African-wide ethical paradigm, meaning *Umuntu ngumuntu ngabantu,* which is a person is a person through people, expresses the obligation to look after one another and the environment, believing that all our wellbeing is mutually contingent. *"As an ethics of interrelationships, it is situated in the communitarian social fabric of caring and sharing"* (von Kotze & Walters, 2023, p. 26). This ethical paradigm links to sustainable futures by acknowledging and learning from the past (von Kotze & Walters, 2023). *Ubuntu* as philosophy can be connected to other alternative philosophies across the world, which are related to the search for living well as *buen vivir* in Latin America or *"svadeshi, swaraj* and *apargrama* in India" (Acosta & Abarca, 2018, p. 132). Through *Ubuntu,* it is therefore possible to work towards inclusive higher education, as is particularly evident in Africa (Shandu-Phetla et al., 2024). This underlines the need to continue thinking about a transformation of global higher education in this direction, not least by means of rupturing Western paradigms. Especially with a view on new forms of co-belonging that transcend national affiliations, and that allow local as well as global connections, while still staying contextualised, *Ubuntu* could be an agent of transformation also with regard to sustainability and the future of our planet. Finally, the view on how we teach our students, on how we engage them in forms of transformative learning, while supporting them in developing attitudes and learning to care, makes universities and the higher education systems future-proof. And it makes our graduates the so eagerly awaited future leaders and *"social disruptors".*

## 6 Conclusion

This article provided an overview of higher education in a global perspective, taking our starting point from the predominant multiple crises in the ecological, economic, political and social spheres - showing the multilayered facets of the unsustainable world we live in. The UN 2030 Agenda for Sustainable Development sets the transformational vision for the world as well as for (higher) education, and the critical role it should play. While taking into account the criticisms of the agenda, it is important to sketch global higher education and the issues connected to it to critically examine undercurrent power relations, colonial foundations and historical realities to work towards the options for future research. Finally, we discussed alternative routes for higher education that transcend a Eurocentric, Western perspective to broader, contextualised and future-oriented imaginaries. We concluded with *Ubuntu,* as a philosophy of the global South that could help us while reconciling with the past to connect

to the present and to develop alternative futures in higher education, both for institutions as a whole, as well as for teaching, learning and research.

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# Open Science and the Sustainable Development Goals: A Bibliometric Study in Mexico

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This paper analyses the relationship between Open Science (OS) practices and the Sustainable Development Goals (SDGs), on the assumption that OS practices may contribute to their achievement. A bibliometric study examines research publications in OS and traditional science at a public university in Mexico, focusing on gender, academic discipline, and publication volume. Publications from 2021, based on 745 affiliated researchers, were analysed using Scopus and Web of Science (WoS) indexes. Findings suggest researchers use OS and traditional publishing practices almost equally, with OS practices gaining importance. Researchers in Science, Technology, Engineering and Mathematics (STEM) as well as medical sciences show the highest Open Access (OA) publishing rates, while the percentage of male researchers publishing in open access exceeds that of female researchers. Regarding the SDGs, the highest number of OA publications were linked to SDG 3 (Good Health and Well-Being) and SDG 9 (Industry, Innovation and Infrastructure), a pattern consistently observed in both WoS and Scopus. In conclusion, this study provides a first descriptive insight into the adoption of OS practices in a Mexican public university and highlights their potential role in promoting equity in scientific production and contributing to the dissemination of research linked to the SDGs.

*Keywords: open science, sustainable development goals, academic disciplines, gender, bibliometric study*

## 1 Introduction

Open Science (OS) has emerged as a paradigm that is transforming scientific research, promoting open access (OA) to the knowledge generated by the scientific community. This movement aligns with the growing need to democratise information and foster international collaboration, providing equitable access to research results and scientific data (Steinhardt et al., 2023). In this context, OS not only seeks to break down barriers to access to knowledge, but also presents itself as a great opportunity to advance the Sustainable Development Goals (SDGs), a set of global goals established by the United Nations (UN) in order to address the planet's most pressing challenges, such as climate change, poverty, gender equity, and quality education (United Nations [UN], 2015). The interrelationship between the OS and the SDGs is crucial, as it allows the rapid dissemination of knowledge that can accelerate the achievement of these global targets

and fosters collaboration between different actors (Camkin et al., 2022). In the same vein, the shift towards open access policies enhances transparency and accelerates the formulation of evidence-based policies, which is vital for addressing global challenges (Zagrodzka et al., 2024). Universities, as generators of knowledge, play a central role in this process. Not only do they contribute to scientific advancement through the production of academic publications, but they also directly influence the creation of policies and the implementation of sustainable solutions. However, the adoption of Open Science Practices (OSP) varies considerably between institutions and countries. In Latin America, and specifically in Mexico, OS has long been a common practice, partly due to the limited resources available for publications in many universities. In recent years, however, it has gained greater relevance as a paradigm, driven by public policies that promote it (National Council of Humanities, Science and Technology [CONACyT], 2017) and for the commitment of universities to transparency and equity in access to scientific information. Despite these advances, there is still a lack of studies that examine the OSP within public universities, which constitute a significant component of the country's higher education system, and its potential contribution to the achievement of the SDGs.

The present study seeks to fill this gap through a bibliometric analysis of the scientific publications of a public university in Mexico[1]. Bibliometric analysis is a powerful tool that allows quantifying scientific production and offers a detailed view of trends and patterns in research (Tomás-Górriz & Tomás-Casterá, 2018). Through this methodology, the analyses seek to identify whether there are significant differences in the number of publications depending on the academic discipline, the gender of the authors, and the relationship of the publications with the SDGs. In addition, the level of adoption of OSPs in the university is explored, evaluating how many of the university's publications are in OA. One of the most innovative aspects of this study is its focus on the relationship between scientific publications and the SDGs. Academic research can play a crucial role in achieving these goals by offering evidence-based solutions to global challenges. Therefore, it is essential to know to what extent university research is oriented towards these ends and how it contributes to progress in areas such as gender equality, poverty reduction, or environmental sustainability. Likewise, the exploration of gender equity in scientific production is of special interest, given that the equal participation of women and men in research is an essential pillar to achieve the Sustainable Development Goals (SDGs).

In summary, this study seeks not only to provide an overview of the current state of scientific production in a public university in Mexico, but also to contribute to the dialogue on how higher education institutions can promote OSP that foster the dis-

[1] The overall results of the analysis are available in this link: https://www.bibliotecas.uaslp.mx//opac-tmpl/bootstrap/archivos/informe/Ana%CC%81lisis%20de%20la%20produccio%CC%81n%20cienti%CC%81fica%202022.pdf.

semination of research linked to the SDG, while advancing greater equity in scientific production.

## 2 Literature Review

The SDGs are goals established by the member states of the United Nations (UN) that represent the most relevant priorities of the world and the international community to address problems that affect all countries at different levels and that no country can solve individually. The SDGs aim to reduce extreme poverty, inequality, injustice, climate change, etc. (UN, 2015). To meet them, academia and research are of central importance for developing solutions and innovations. With regard to goal 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), academia plays a crucial role through its teaching and research activities, which directly support this objective. Within this context, OS can further contribute, as one of the purposes of this paradigm shift is to democratise scientific production and decentralise science, promoting access to scientific knowledge free of charge and on equal terms (Anglada & Abadal, 2018).

Similarly, Goal 17 (Partnerships to achieve the Goals) highlights that knowledge sharing between countries and organizations can contribute to the achievement of the SDGs according to target G of the SDG (The Global Goals, 2025b). In this sense, OS represents a paradigm shift in scientific practices that benefits collaboration and the achievement of goal 17 since among its main objectives is the promotion of transparency in academic practices, encompassing initiatives such as public databases and open peer review (Bautista Valdivia et al., 2023). Consequently, there is a pressing need for science to evolve following the principles of OS in order to improve openness, integrity, and reproducibility, thus avoiding unethical practices and generating greater collaboration among researchers because this paradigm shift has the potential to reduce inequality gaps and promote collaboration (Steinhardt et al., 2023). Additionally, due to inequality in terms of access to scientific and technological knowledge and resources, it is increasingly difficult to achieve what is proposed in the SDGs (Camkin et al., 2022). For this reason, the UNESCO (2021) recommends the adoption of OS, as it points out that this movement allows multilingual scientific knowledge to be open, accessible and reusable for all, with the purpose of sharing information that benefits science and society, increasing scientific collaborations and opening the process of knowledge creation, as well as its evaluation and communication to all social actors. Discussing OS involves addressing a shift in the traditional scientific model. This shift means carrying out research work based on collaboration, OA and transparency. OS is not limited to unrestricted scientific papers but also includes openness regarding databases, peer review processes, code, laboratory annotations, and all results generated through scientific work (Anglada & Abadal, 2018). The OS movement represents

a significant shift towards making scientific values such as rigor, transparency, and replicability accessible to everyone (Trinh et al., 2025). This approach addresses challenges in modern research, where the lack of accessible data and detailed methodologies often hinders reproducibility, ultimately contributing to the production of better, more reliable science (Anglada & Abadal, 2018). These policy reforms may respond to the need to make effective use of the resources provided by public funding, as Mexico invests less than 1 % of its Gross Domestic Product (GDP) in science (Data México, n. d.), whereas most developed countries allocate 2 % or more of their GDP to science and technology (National Center for Science and Engineering Statistics [NCSES], 2025; Statistisches Bundesamt [Destatis], 2025)

According to Fressoli and Arza (2018), this shift towards OA can lead to a more efficient use of the economic resources invested in science, as sharing data can accelerate scientific production and improve its quality, it can also result in a wider dissemination of research findings and, at the same time, enable scientific production to better respond to current social needs. That is why Camkin et al. (2022) propose that the increased use of OS can accelerate the achievement of the SDGs, because the paradigm shift could generate greater collaboration and transparency.

OS provides many benefits in a variety of ways, which is why it has been adopted in many countries around the world. For example, in the United Kingdom, measures have been created to promote OS, such as the OA policy of the Research Councils UK (RCUK)[2]. This policy dictates that researchers who have funded their publications with government funding must publish articles in one of two ways: the gold route, in which the author pays a fee to make their article OA, and the green route, in which articles are published in OA databases (Levin et al., 2016).

Likewise, in Mexico, initiatives such as the general guidelines for OS proposed by CONACyT (2017) have been adopted. These guidelines govern the future actions of this council in terms of OS, in order to promote the accessibility of scientific research financed with public resources and maximise the dissemination of scientific and technological knowledge and innovation. In addition, in Mexico the regulations on OA to publications were also promoted, its purpose is to modify the Science and Technology Law with the aim of integrating OS policies and promoting the use of OA (Bautista Valdivia et al., 2023).

In this sense, universities play a crucial role as stakeholders in fostering this cultural transformation within research and teaching (UNESCO, 2021) by ensuring equitable access to knowledge and education through the teaching of sustainable development,

[2]For further information regarding these policies, please refer to the following link: https://www.ukri.org/wp-content/uploads/2020/10/UKRI-020920-OpenAccessPolicy.pdf.

gender equality or human rights SDG 4 (Quality Education) (The Global Goals, 2025a). Undoubtedly, higher education contributes to this, among other things through the outcomes of the research carried out by its members, which is mainly visible through scientific publications. However, in recent years, confidence in scientific discoveries that could contribute to the design and application of pedagogical tools and techniques has been lost, due to the recent reproducibility crisis and unethical practices (Gehlbach & Robinson, 2021). For this reason, OS is a valuable resource for improving scientific practices in favour of regaining the trust of teachers and students in science, integrating more transparent practices such as the pre-registration of hypotheses and methodology before data analysis (Wentzel, 2021). Openness also allows scientific knowledge, which sometimes seems encrypted in complex academic language, to be transmitted more easily and in a language that the educational community and civil society can understand in a simple way, because OS makes knowledge more accessible to science communicators (Wentzel, 2021).

For this reason, it is important to analyse the characteristics of the scientific publications of the members of university communities in order to develop policies and programmes for the improvement of scientific practices. In this sense, bibliometric studies are an important tool for knowing and evaluating the performance of scientific activity, as well as its impact on the community, allowing objective tools to be provided in decision-making on the allocation of funds for research and even in the professional promotion of researchers (Tomás-Górriz & Tomás-Casterá, 2018). Bibliometric studies make it possible to know and evaluate scientific progress in a detailed and objective way, providing valuable information on the productivity, quality and impact of research in different areas of knowledge.

Furthermore, it is important to understand the expectations of scholarly publishing in a wide range of disciplines as it is vital for their self-understanding and for decision-making such as the allocation of research funds, the authorisation and supervision of the development of interdisciplinary programmes, and the development of strategic plans based on the knowledge of their strengths, needs, opportunities, and vulnerabilities of university units (Olejniczak et al., 2022). Likewise, the disciplinary differences of scientific journals have an impact on OA policies, an example of this is the high percentage of OA publications in disciplines such as biomedical sciences due to the requirements established by funders and high public interest (Demeter et al., 2021). Other disciplines that most frequently publish in OA are medical sciences, life sciences, natural sciences, and engineering (Zhu, 2017). Through the analysis of indicators in bibliometric studies such as the number of publications, citations and collaboration networks, it is possible to identify the most dynamic fields of research or those that require greater support or attention to enhance progress in order to achieve important goals in science (Matcharashvili et al., 2014).

In turn, science is essential to support the proposals to solve the problems raised in the SDGs (Martín Rivero et al., 2022). In this sense, any research project that seeks to contribute to sustainability can aim at social inclusion, with gender being one of the aspects of this (Khalikova et al., 2021). Diversity allows scientific organisations to gain innovation that leads to smarter and more creative teams that open the door to new discoveries (Nielsen et al., 2017). Therefore, it is relevant to diversify and increase opportunities in the scientific world and publications for women through the use of OSP (Kruschick & Schoch, 2023). To achieve gender equity, universities must promote gender diversity including in the academic community and be attentive to gender equity in the design of research and solutions (Khalikova et al., 2021).

Undoubtedly, bibliometric studies related to OS play an important role in measuring compliance with objectives 4 and 17, since through them it is possible to analyse scientific advances or contributions to these objectives. For example, a study with data from the National Research Council in Italy analysed the variables of gender, discipline, and publication in OS, finding that there is still a gender disparity among researchers who publish in OS, especially in STEM disciplines, and this gap decreased in the medical and agricultural sciences (Ruggieri et al., 2021). Similarly, the analysis of Spanish scientific production in OA carried out by De Filippo and Lascurain-Sánchez (2023) observed national and international publication programmes, revealing that universities had a greater presence in national studies, while international programmes had more diverse participating institutions, which would be a goal of SDG 17. The study points out that the data derived from bibliometric analysis are essential for the formulation of policies or strategies aimed at promoting collaborative efforts in the field of open international publications among Spanish universities (De Filippo & Lascurain-Sánchez, 2023).

In the case of Mexico, Patiño et al. (2024) conducted a bibliometric analysis of the SciELO [Scientific Electronic Library Online] database to determine which of the journals indexed to SciELO Mexico seek to comply with policies for OS practices, such as open data, early publication of manuscripts, and transparency in peer review (Patiño et al., 2024). In this study, the data generated by 161 journals from the current collection of SciELO Mexico during the second half of the semester of 2023 were analysed. The results showed that 96 of the 161 journals analysed have no development of policies for OS, 64 show an incipient development of such policies, while only 1 presents a moderate development. Therefore, it is important to strengthen the work of publishers in order to achieve a transition to OS (Patiño et al., 2024). Another example of the importance of bibliometric studies is a study carried out in Mexico in order to know the role and development of women's participation in Mexican scientific production registered in Web of Science (WoS) from 1900 to 2000 in the area of exact sciences and engineering. This study serves as a chronicle of the role of women and

what changes were fundamental to improve their participation and integration into academia (Luna Morales et al., 2018).

For all of the above, understanding the current state of scientific production in universities is crucial, as it allows institutions to formulate effective resource management policies and plans. In the context of this work, these ideas serve as a point of reference for a university in the configuration of decisions related to gender policies and in the development of programmes and initiatives that promote open scientific production in all disciplines where the adoption of OS practices is important.

Therefore, this paper aims to analyse the correlation between OS practices and the achievement of the SDGs. To this end, a bibliometric study is conducted to identify research publications available in OS and closed science at the Autonomous University of San Luis Potosí (UASLP) in Mexico. Thus, the study will analyse the correlation between the gender of researchers, discipline, and the number of research publications in OS.

## 3 Methodology

To answer the previous inquiries, data from the analysis of publications from the year 2021 were utilised. The data were collected from a list of 745 researchers affiliated with a public university in Mexico, compiled by the university's Library System, which included not only full-time professors but also PhD students and lecturers (UASLP, 2023). The retrieval of the publications was carried out between December 2021 and June 2022 using the Scopus of El Sevier and WoS of Clarivate databases. In addition, the profiles of researchers in networks and academic portals (ORCID, Research Gate, Academia.edu, Loop Frontiers, Google Scholar, etc.) were examined to obtain complementary information. Only publications with international standardised numbers or persistent identifiers were included in the selection process. In total, 990 publications were identified and reviewed.

Two samples were used to carry out the analysis of the scientific production. The first sample (Group A) consists of 873 publications from 2021 that meet the quality criteria to be indexed to Scopus and Scival. The second sample (Group B) is made up of both group A and 130 publications collected from academic networks and portals with the purpose of including publications that are not in international indexes but are valuable for the assessment of the scientific production of the university.

In this sense, group A was used for the analysis of scientific production in terms of the academic discipline or area of knowledge, publications made in OA and publications by SDGs. Regarding group B, it was used to analyse the participation in the scientific production of the university in terms of the gender of the researchers. This distinction

was necessary because the two groups were built from different sources of information, which provide data in a non-uniform way and therefore cannot be analysed in the same manner. Group A comprises the articles indexed in Scopus and Scival, which directly generate indicators such as scientific production by academic discipline, type of document, affiliation, country, funding received, OA status, and links to the SDGs. Group B, by contrast, includes the university's entire body of publications from 2021, combining those indexed in Scopus with additional outputs retrieved from other resources such as ORCID, Google Scholar and ResearchGate. In this way, the integration of Group B relied on additional resources that do not necessarily classify all the categories covered by Scopus, but they make it possible to provide a more detailed overview of scientific production with respect to the variable of gender.

Likewise, from group B, 608 journal titles were identified and analysed in Clarivate's Journal Citation Reports (JCR) to obtain the Impact Factor (IF) and Quartile (Q) indicators. In the case of journals not included in the index, they were searched in Scopus and Scimago Journal Bank to record their CiteScore, similar to JCR's IF, and Quartile.

To this end, a database was created in order to eliminate duplication of records, identify collaborative publications by academic entity and classify them by document types. For the analysis, the database did not include books or book chapters. Publications were classified by discipline according to Scopus, as this index is where most publications are located. Subsequently, the journals were searched in JCR to obtain the IF and Quartile. While journals that are not in JCR were searched in Scopus and Scimago Journal Rank to record their CiteScore and Quartile. After having integrated the indicators into a matrix, the data were filtered to order them by discipline, then by Quartile and finally by IF to obtain measures of central tendency of each category to show the publication trend and the most outstanding cases.

In the case of the analysis of publications in OA by discipline and SDGs, as well as the gender of researchers, it involved a thorough examination using both Scopus and WoS databases. To identify the disciplines, searches were conducted focusing on different affiliations of the university. This data was subsequently filtered by year and the OA status to create thematic reports, utilising the Scopus classification of disciplines. It's important to note that the publications are not mutually exclusive, meaning that a single publication can be categorised into multiple thematic areas. Regarding the analysis of OA publications based on the gender of researchers, researchers affiliated with the university as full-time professors were categorized to determine the gender associated with each publication, labelled as female (F) or male (M). Additionally, a third category (X) was designated for OA publications that involved collaboration between full-time professors of both genders. This analysis was conducted in both Scopus and WoS.

Finally, for the analysis by SDGs of the OA publications, reports were made for each of the 17 SDGs in Scopus and WoS. The SDGs were assigned to the publications using filters in the search results, both in WoS and in Scopus. In the case of WoS, this process is based on a category-by-category mapping scheme, where the SDGs are linked to clusters of micro-topics through a Leiden-type community algorithm (InCites Benchmarking & Analytics, 2025; Traag et al., 2019). Finally, an Excel database was created to eliminate duplicates and categorise the SDGs associated with each publication. It should be noted that a publication may address two or more SDGs.

## 4 Results

### 4.1 Academic Discipline

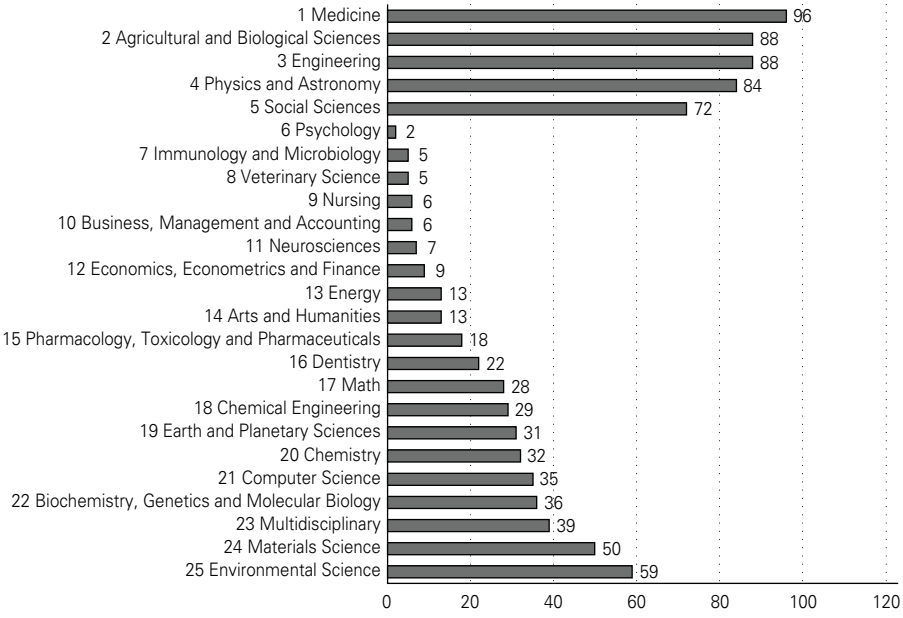
To analyse the number of publications by area of knowledge, the sample of 873 publications indexed in Scopus was used. Health topics were the most researched by the scientific community of the university, since Medicine was the discipline with the highest number of publications (96) representing 10.9 % of the university's publications (see Figure 1). These results can be understood in light of the fact that the university has a strong emphasis and tradition in the field of Medicine, which is why it is the discipline with the greatest relevance in the institution. The next disciplines with the highest number of publications in 2021 are Agriculture and Biological Sciences (10 %), Engineering (10 %), Physics and Astronomy (9.6 %), Social Sciences (8.24 %) and Environmental Sciences (6.7 %). The university has a greater number of researchers in the areas of Exact Sciences and Health Sciences, with the School of Engineering, the School of Medicine and the School of Sciences being the academic entities with the largest population of researchers. For this reason, it is observed that at the university, greater emphasis and funding is given to research classified in the Health Sciences and sciences belonging to STEM (Demeter et al., 2021; Zhu, 2017).

Regarding the analysis of the IF and the Quartile of the 608 journals, it was found that 71 % of the journals in which the members of the university published are in JCR. 42 % of these journals have a high IF and belong to Q1 and Q2. Likewise, in both JCR and Scopus, Medicine is the area of knowledge with the highest indicators, followed by Physics and Astronomy, Engineering and Chemistry. These are the areas with the highest number of publications, in addition to the fact that most of the journals in which it is published belong to Q1 and Q2, so research has greater visibility. In the case of Medicine, 21 of these journals have an IF higher than the average for the subject area, which is 5.096.

To know the trend of the impact of the publications, the median IF for each area of knowledge was obtained. Most of the journals chosen to publish concentrate on IF from 2 to 3. Similarly, it was found that there are several thematic areas that do not

have enough values to reach a trend indicator. For example, in the case of Medicine, most publications are concentrated in journals with IF 3 to 4. In this analysis, Medicine is below Energy and Biochemistry, since together the publications are closer to an IF of 3.9; this occurs because the publication in The Lancet provides an average well above the rest of the publications because it has a very high IF.

**Figure 1:** Number of Publications by Discipline

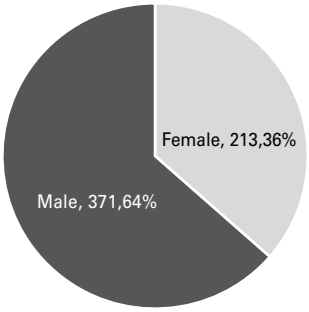



## 4.2 Gender

Regarding the gender of the researchers, a total of 584 researchers were found where 371 are male and 213 are female (see Figure 2). The distribution of researchers according to their gender in academic entities and their publications were analysed. Scientific production by gender is relative to the majority of men or women in each dependency. It was observed that in most of the largest dependencies of the university there is still a gender gap since in the School of Engineering there are 51 male and 12 female researchers. In the School of Sciences there are 41 male and 16 female researchers, in the Institute of Physics 31 male and 4 female researchers. Likewise, schools were found where the presence of female researchers is very minimal or non-existent, as is the case of the School of Social Sciences and Humanities (15 male researchers and 2 female) and the School of Economics (9 male researchers and 0 female). In three schools, female researchers outnumber male researchers, namely Chemical Sciences (24 vs. 33), Accounting and Administration (6 vs. 12), and Nursing and Nutrition (3 vs.

13). It is relevant to note that 72 % of female researchers at the School of Chemical Sciences had publications in 2021, which is particularly significant given the strong female participation in a STEM discipline.

**Figure 2:** Percentage of Male and Female Researchers

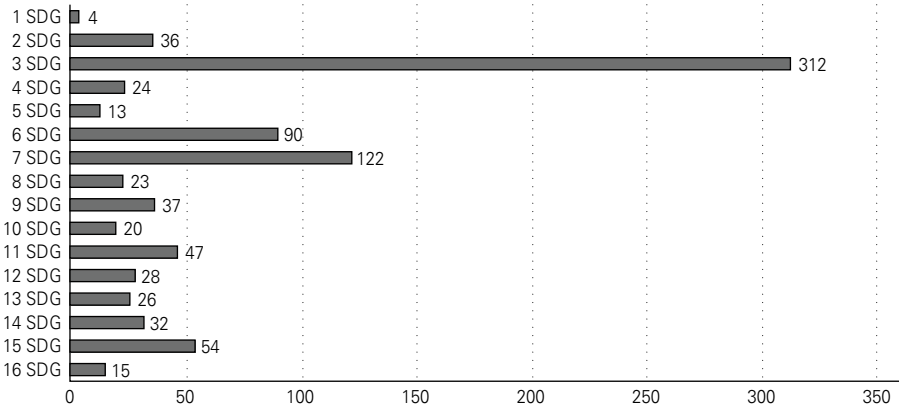



### 4.3 Sustainable Development Goals

312 publications referring to SDG 3 "Good Health and Well-being" were found (see Figure 3). This is related to the strong emphasis on Health Sciences and Medicine at the university, in addition to being disciplines of high public interest (Demeter et al., 2021). The SDG with the second highest number of publications was SDG 7 "Affordable and clean energy" with 122 publications, followed by SDG 6 "Clean water and sanitation" with 90 publications[3]. In addition to the fact that these disciplines are the ones in which OA is most frequently published (Zhu, 2017). Finally, only 24 publications related to SDG 4 (Quality Education) were found, while SDG 17 (Partnerships for the Goals) was not considered for analysis due to the complexity of identifying publications that contribute to the goal.

[3]The university gives relevance to the sciences belonging to STEM and environmental sciences for water care since the university is located in a desert climate.

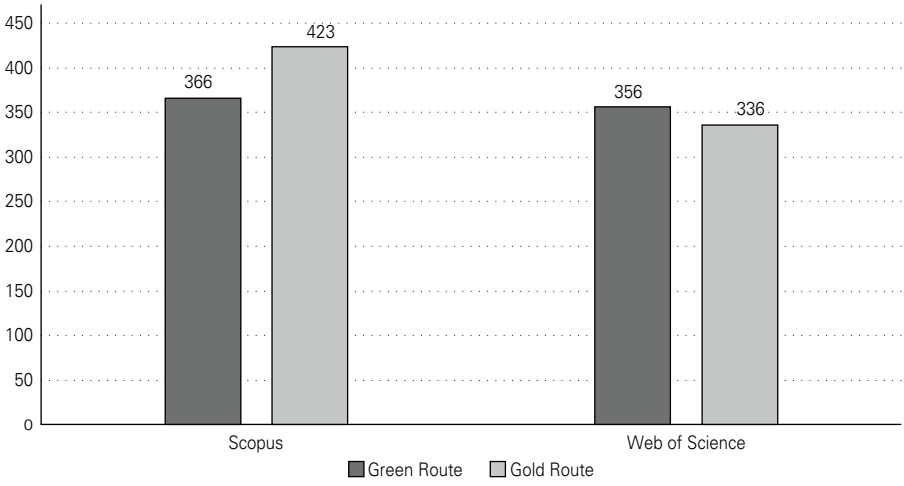
**Figure 3:** Number of Publications by SDG




## 4.4 Open Science

Regarding the OA publications, a total of 692 articles were found in WoS, of which 356 (51.4 %) were published using the green route and 336 (48.5 %) were published in the gold route. In Scopus, 789 articles were identified, of which 366 (46.38 %) were published in the green route and 423 (53.6 %) in the golden route. In addition, there is a high number of research projects that receive public funding, so they are published in OA to comply with the legal guidelines of OS provided by CONAHCYT, which is the main funding agency for university research. Likewise, it is important to note that in Mexico, OA publishing is frequent due to the low number of financial resources (Bautista Valdivia et al., 2023).

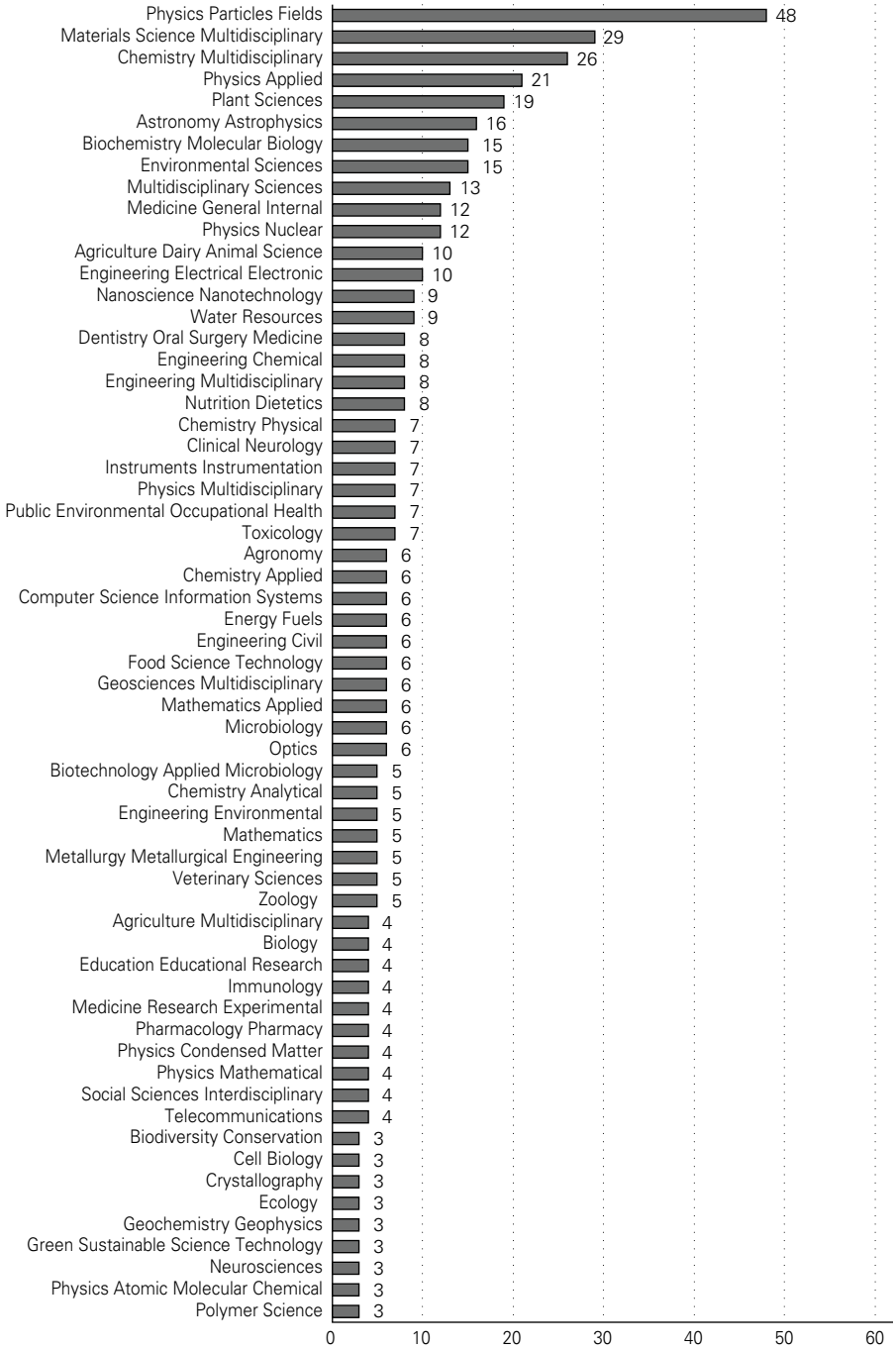
**Figure 4:** Open Access Publications or Subscription Access Publications



### 4.5 Open Science & Academic Discipline

After identifying the OA publications in WoS (356) and Scopus (366), thematic analysis was conducted based on the Scopus discipline classification. For WoS (refer to Figure 5), 48 (13.483 %) of the OA publications were categorised under Physics Particles Fields, 29 (8.146 %) under Materials Science Multidisciplinary, 26 (7.303 %) under Chemistry Multidisciplinary, and 21 (5.899 %) under Physics Applied. In the case of Medicine, it was observed that although this discipline has the highest number of publications overall, among OA publications, it accounted for 3.371 % (12 publications), ranking after the STEM fields.

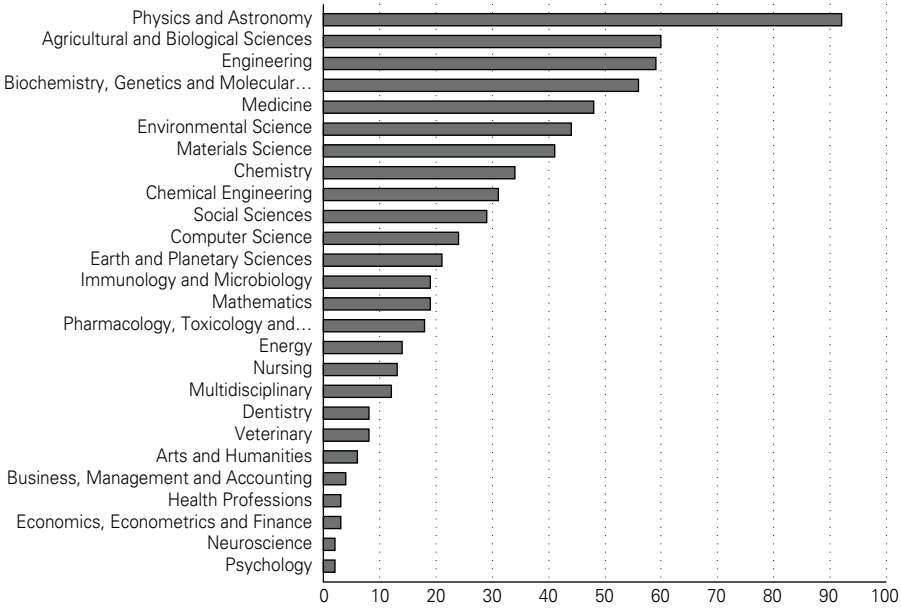
**Figure 5:** Open Access Publications per Academic Discipline in WoS



Likewise, in Scopus (refer to Figure 6), the analysis revealed that the disciplines with the highest number of OA publications are as follows: Physics and Astronomy with 92 publications (25.137 %), Agricultural and Biological Sciences with 60 publications (16.393 %), Engineering with 59 publications (16.120 %), Medicine with 56 publications (15.301 %), and Biochemistry, Genetics and Molecular Biology with 48 publications (13.115 %). It is important to mention that the disciplines excluded from Figure 5 are those that reported having only one open access publication, such as Law, History, and Nursing, among others.

In both analyses, it is evident that the disciplines with the highest number of OA publications are STEM fields, largely due to the significant public funding allocated for their development (Demeter et al., 2021; Zhu, 2017). While Medicine ranks lower than the broader STEM categories in terms of the number of OA publications, it remains one of the disciplines with a substantial publication output. This trend may be attributed to the strong tradition and emphasis that institutions place on the medical field, in addition to the fact that they were published at the time of the COVID-19 pandemic.

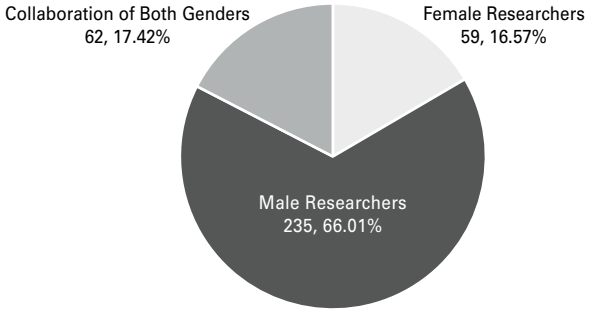
**Figure 6:** Open Access Publications per Academic Discipline in Scopus



### 4.6 Open Science & Gender

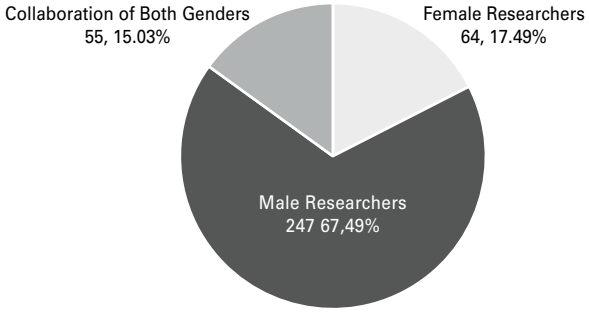
OSP can be facilitators for a greater presence of female researchers (Kruschick & Schoch, 2023), but this has not been yet a determining factor at the analysed university. Out of the 356 OA publications found in WoS, female researchers represent only 16.57 % of the participation in OA publications, while male participation stands at 66.01 % (see figure 7). Similarly, in Scopus, among the 366 publications, only 17.49 % are attributed to female researchers, in contrast to 67.49 % by male researchers (see figure 8). Moreover, it is important to highlight that there is also the presence of collaboration between female and male researchers, representing 17.42 % in WoS and 15.03 % in Scopus.

**Figure 7:** Female and Male Researchers who Publish in Open Access in WoS.




In this context, STEM fields tend to have a higher number of articles published in OA, primarily because research in these areas is often publicly funded (Demeter et al., 2021; Zhu, 2017). Although most researchers in STEM at the university are men, and this sector has seen the highest number of OA publications, this could explain the disparity in the number of female researchers publishing in OA compared to their male counterparts.

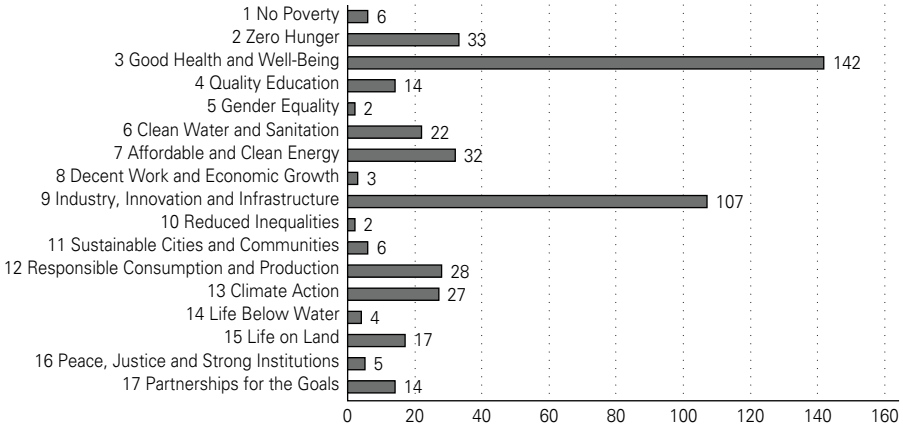
**Figure 8:** Female and Male Researchers who Publish in Open Access in Scopus.



### 4.7 Open Science & Sustainable Development Goals

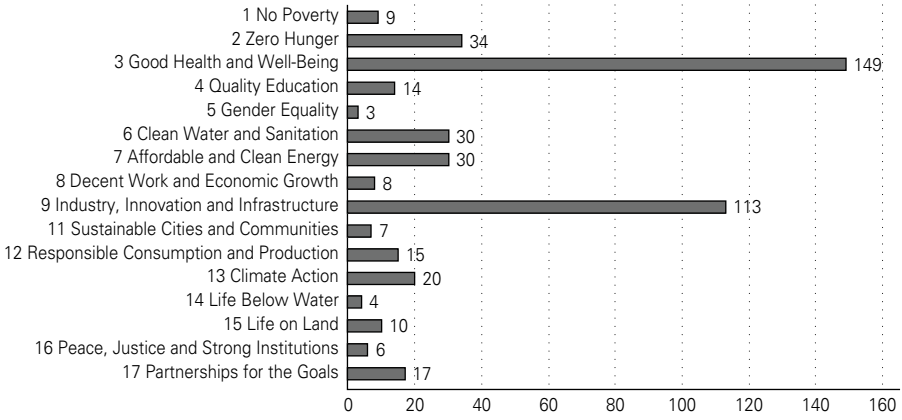
According to the WoS database, the SDGs that recorded the highest number of OA publications were SDG 3 (Good Health and Well-Being), with 142 publications, and SDG 9 (Industry, innovation and infrastructure), with 107 publications. These results are consistent with the data obtained in Scopus, where SDG 3 also leads in the number of OS publications, with a total of 149, followed by SDG 9, with 113 articles (Figures 9 and 10).

**Figure 9:** Number of Open Access Papers per SDG in WoS




This aligns with the principle that OS should serve societal needs (Camkin et al., 2022). The publication period of these articles coincided with the COVID-19 pandemic, which may explain the high number of studies related to SDG 3. Similarly, the significant contribution to SDG 9 could be linked to the socioeconomic characteristics of the city where the university is located, known for its strong industrial presence.

**Figure 10:** Number of Open Access Papers per SDG in Scopus




Furthermore, the Sustainable Development Goals with the lowest number of OA publications were SDG 5 (Gender Equality), with two publications in WoS and three in Scopus as well as SDG 10 (Reduced Inequalities), with two publications in WoS and none in Scopus (see Figure 9 and 10). Added to these are SDG 16 (Peace, Justice and Strong Institutions), SDG 1 (End Poverty) and SDG 8 (Decent Work and Economic Growth), which recorded fewer than seven publications in both Scopus and WoS. This low representation could be since these goals are not directly linked to STEM disciplines, which could influence a lower investment in their scientific development.

The findings of this study suggest that the university exhibits a clear tendency to utilise OA publishing at a level comparable to traditional publishing models. This trend may foster the democratic distribution of knowledge, particularly in regions characterised by limited investment in science, where the ability to access the most recent publications freely or at low cost can significantly enhance researchers' scientific output.

Regarding the SDGs, while the transition to OS does not directly ensure their achievement, it can serve as a catalyst for increasing scientific production. A higher volume of research outputs may, in turn, generate articles that contribute to advancing the SDGs. Moreover, and consistent with Camkin et al. (2022), our findings suggest that OS could promote collaboration among diverse stakeholders, thereby strengthening the potential of academic research to address global challenges.

## 5 Conclusions

Analysing a paradigm shift how scientific output is distributed to the global scientific community is undoubtedly a relevant topic. OS and all its components imply a cultural change in the way of doing research that has gradually taken root in different universities around the world. Hence, analyses that allow us to review the extent to which this paradigm shift relates to other phenomena, such as the advancement of the SDGs and gender parity in academic publications, become necessary. In this sense, a bibliometric analysis of a public university's scientific publications reveals several key findings. First, it is observed that the disciplines with the highest volume of publications are the health sciences and exact sciences, which reflect the institution's tradition in these fields and its contribution to scientific knowledge in areas of high demand. This may also be a consequence of the research carried out in the context of the pandemic and published in 2021.

Besides, a notable gender gap persists, with men publishing more than women, especially in disciplines such as engineering and exact sciences, except in the chemical sciences, where female participation in publications is higher. This is also consistent in the analysis of publications in OS, where a greater participation of female researchers has not yet been noted. While in some areas such as Chemical Sciences, Nursing and Nutrition women already outnumber men, in others the disparity remains significant. This suggests the need for institutional policies that foster more balanced participation across disciplines, addressing gender gaps in fields traditionally dominated by men and ensuring equitable representation overall.

Regarding the Sustainable Development Goals, the SDG to which the university's research contributes the most is health-related, which is consistent with the high production in health sciences this specific university. Finally, the analysis on access to publications indicates that researchers use both OS practices and traditional publishing practices almost equally, this shows that OS practices are extensively used. It is important to notice, that in Mexico, although universities are familiar with traditional publishing practices, only a few have the financial means to adopt the gold route. As a result, there is a growing perspective that advocates for a non-profit publication model that emphasises academic integrity and improves access to scientific knowledge, so Mexican researchers resort more frequently to the green route and are therefore more accustomed to publishing according to what OS proposes. This result shows a significant openness towards OS, although there is still room to promote greater free access to knowledge, facilitating scientific advancement and global collaboration.

This research attempted to be a first descriptive approach to the analysis of the paradigm shift that OS represents in a public university in Mexico regarding gender, discipline and SDGs. In this regard, future research could undertake more comprehensive bibliometric studies, incorporating a detailed examination of both the personal characteristics of researchers and the institutional attributes of the various schools and disciplines within the university. A limitation of this study is that only a few researchers explicitly mention or relate their work to any of the SDGs. In Mexico, the SDGs have only recently begun to be included in research agendas, and their consideration remains limited; rather, it is often the thematic content of research that may be connected to these goals. Reflecting on this, studies of this kind can contribute to informing development of educational policies that encourage universities and research centres to engage more directly with the SDGs. To advance this agenda, longitudinal, inter-institutional and even international studies are recommended, as they would provide a broader and more contextualised understanding of these dynamics.

Of interest would also be a comparison of the results of this study with higher education institutions in other countries, as well as the use of qualitative studies that allow us to delve into the motivations, barriers and incentives of researchers to use Open Science Practices.

Undoubtedly, examining the phenomena underpinning the practice and adoption of Open Science constitutes an ongoing challenge that necessitates sustained scholarly attention, as this emerging paradigm may serve as a valuable instrument for addressing and potentially mitigating both current and future global challenges.

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# Different Eyes on Sustainability: Stakeholder Perspectives in German Higher Education Under the Whole Institution Approach

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This article examines how sustainability is perceived, prioritized, and enacted across status groups and institutional profiles in three higher education institutions (HEIs) in Münster, Germany, using survey data from 1,035 participants and drawing on the Whole Institution Approach (WIA). Results indicate that societal transformation and community engagement are prioritized, while curriculum integration is less developed, highlighting the need to strengthen curricular sustainability integration. Perceptions and priorities vary significantly across HEIs and groups, underlining that achieving a holistic WIA requires considering all perspectives. The findings further show that members of HEIs are more engaged in sustainability activities in their private or community contexts outside the university than within it. Student participation is lowest compared to other status groups, reflecting structural and cultural barriers and emphasizing the importance of enabling students as active agents of change. Inclusive participation, systemic support, innovation, and external collaboration are crucial for HEIs to act as effective sustainability drivers.

*Keywords: whole institution approach, sustainability in higher education, institutional differences, status group perspectives*

## 1 Introduction

### 1.1 Theoretical Background

The demand for a sustainable transformation of higher education is emphasized in international agreements such as the United Nations' Agenda 2030, particularly in Sustainable Development Goal 4 (SDG 4, Quality Education), which underlines the central role of universities as transformative actors in societal sustainability processes (Caeiro et al., 2020). Within this goal, Target 4.7 specifies the commitment to ensure that by 2030 all learners acquire the knowledge and skills needed to promote sustainable development, especially through education for sustainable development and the strengthening of global responsibility (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2017). Higher education institutions (HEIs) thereby

assume a dual role: on the one hand, they equip students with the cognitive, social, and methodological competencies needed to promote sustainability and transform society; on the other hand, they act as role models by embedding sustainable principles in their own structures and processes (Shephard, 2022, p. 45; UNESCO, 2021, pp. 30–34; Wheeler, 2008).

The implementation of institution-wide sustainability strategies, however, often remains fragmented. Many HEIs continue to pursue isolated projects rather than institution-wide strategies. Structural fragmentation, competing priorities, and the absence of systemic approaches limit their transformative capacity (Lozano et al., 2013). Empirical research shows that while teaching and curricula are essential for comprehensive sustainability integration, they alone are insufficient for achieving institution-wide transformative change (van Nguyen et al., 2025).

Beyond curricular content, institutional factors play a crucial role. Studies by Weiss et al. (2021) identify strong leadership, targeted incentives, and systematic institutional integration as key drivers of sustainability. Their meta-study of 133 case studies further emphasizes the importance of engaging both internal and external stakeholders to embed sustainability effectively. Complementing these findings, Ávila et al. (2017) show that insufficient leadership commitment and lack of administrative support often prevent bottom-up initiatives from realizing their full potential.

At the student level, studies by Leal et al. (2024) show that sustainable behaviour is strongly mediated by attitudes rather than knowledge alone, and that practical teaching formats, such as project-based learning, service learning, foster sustainable attitudes and a long-term sense of purpose. In line with this, Holst et al. (2024) demonstrate that institutions that effectively integrate these elements provide stronger learning environments for sustainability and promote motivation and sustainable behaviours beyond the university context.

Against this backdrop, the Whole Institution Approach (WIA)[1] provides a theoretical framework that systematically links these elements and embeds them within the institutional context. Successful WIAs are based on five core principles: coherence, continuous learning, participation, responsibility, and long-term commitment (Holst, 2023). These principles guide actions across governance, curriculum, research, operations, community engagement, capacity building, and communication.

[1] The WIA is part of a family of holistic frameworks aiming to integrate sustainability into entire educational institutions. It draws inspiration from the Whole-School Approach developed in primary and secondary education, which extends sustainability beyond the classroom to all school operations and governance (UNESCO, 2012, p. 46). This concept has been adapted for higher education as the Whole-of-University Approach, emphasizing sustainability in teaching, research, governance, and campus management (McMillin & Dyball, 2009).

Their interdependence highlights that sustainable transformation can only succeed through the interaction of all institutional elements. Beyond structural changes, WIA is a process-oriented tool requiring stakeholder participation, collaborative knowledge generation, and strategic planning (Christou et al., 2024). Participation across all status groups is crucial to foster shared understanding and coherent transformation (Holst, 2023; Scoones et al., 2020). International bodies such as UNESCO recommend the WIA as a key strategy for realizing transformative education and advancing sustainable development in higher education (Kohl et al., 2022).

In Germany, the HOCH-N[2] model represents a context-specific adaptation. It addresses the structural and governance-specific conditions of German HEIs and consolidates the original six fields of action into five[3] (Schopp et al., 2020; DG HochN, 2025). The WIA principles are reflected in HOCH-N and guide implementation across governance, teaching, research, operations, and community engagement and transfer.

### 1.2 Description of the Problem and Research Question

Although theoretical frameworks such as the WIA have been widely discussed, empirical evidence on how sustainability measures are perceived, prioritized, and implemented across different institutional actors and HEI types remains limited. Such perceptions and priorities are crucial indicators of both the effectiveness of implementation and the extent to which individual views align with institutional strategies. Previous research has mainly focused on individual aspects, such as curricular innovations, leadership, or barriers to implementation, while systematic comparisons between stakeholder groups – students, faculty, and administrative staff – are still rare, despite their importance for understanding how different perspectives among actor groups shape, support, or potentially hinder the institutionalization of sustainability. Moreover, the scope, direction, and practical implications of potential differences remain underexplored, and systematic empirical evidence is needed to assess how they influence the implementation and alignment of sustainability strategies within HEIs (Schopp et al., 2020; Disterheft et al., 2015).

This study investigates these gaps by examining sustainability engagement and sustainability-related activities across three HEIs in the Münster region: the University of Münster, the University of Applied Sciences Münster (FH Münster) and the Catholic University of Applied Sciences North Rhine-Westphalia (katho). It explores how percep-

[2]DG HochN stands for the German Society for Sustainability in Higher Education (Deutsche Gesellschaft für Nachhaltigkeit an Hochschulen e.V.), an initiative supporting the implementation of sustainability across German HEIs (DG Hoch-N, 2025).

[3]The original six fields of action – governance, teaching and education, research, operations, sustainability reporting, and knowledge transfer (Schopp et al., 2020) – were later refined into five areas by merging sustainability reporting under the umbrella of governance (DG HochN, 2025).

tions, priorities, and commitment to sustainability differ by institution type and status group, providing insights into context-specific dynamics and the practical application of the WIA. Differences are expected, for instance, between larger research-oriented universities and smaller universities of applied sciences with strong social or health profiles, as well as between students, faculty, and staff, who may hold distinct roles and responsibilities in sustainability processes. The research questions guiding this analysis are:

- How do perceptions of the WIA's sustainability dimensions (referring to respondents' views of their own institution) differ across the three HEIs and status groups?
- Which sustainability actions are prioritized, and how do these priorities vary?
- How strong is the commitment to sustainability-related activities among HEI members?

By addressing these questions, the study contributes to a deeper understanding of context-specific dynamics in sustainability integration and supports the theoretical and practical development of the WIA.

## 2 Methodology

This study is part of the SUNRISE LAB project[4], which follows a sequential mixed-methods design. It draws on survey data from three HEIs in Münster and conceptually builds on the HOCH-N framework. The survey items were developed based on 55 semi-structured interviews with students, staff, and external stakeholders across the participating HEIs. These interviews identified key themes and gaps in institutional sustainability discourses, ensuring that the survey items are both empirically grounded and relevant to the experiences of HEI members.

### 2.1 Materials and Survey Instruments

Data were collected using a self-developed online questionnaire via the University of Münster's survey platform, evasys. Items primarily used five-point Likert scales and captured sociodemographic data (e.g., HEI affiliation, status group, age, gender). The survey focused on participants' perceptions of sustainability integration within their own HEI in teaching, research, operations, and community engagement, as well as

[4]SUNRISE LAB is a Federal Ministry for Research, Technology, and Space (BMFTR)-funded project ("Sustainable University – real-world laboratories as drivers of the transformation toward sustainable universities," grant number: 01UN2207; runtime: 01.11.2022 – 31.10.2025). SUNRISE LAB combines research, practical implementation, and evaluation of transformation pathways across at least five individual real-world laboratories.

collaboration within and beyond the HEIs. Participants were also asked to prioritize key sustainability topics and report perceived barriers and support needs.

## 2.2 Sampling Procedure

The survey targeted all members of three HEIs in Münster: FH Münster[5], University of Münster[6] and katho[7]. All three institutions have adopted sustainability strategies and implemented concrete measures. Data collection took place from October to December 2023 via university-wide emails, informational events, and digital platforms. Participation was voluntary and anonymous, yielding 1,035 completed questionnaires. Response rates ranged from approximately 1.16 % to 2.02 %, which is low but not uncommon for large-scale, institution-wide online surveys. Factors such as voluntary participation, survey timing, and survey length may have influenced participation levels.

### Index for Assessing Sustainability

For this study, a sustainability index was developed to systematically capture and quantify the perception and evaluation of sustainability at HEIs in Münster. The index provides a structured tool to assess how sustainability is perceived, prioritized, and integrated within institutional structures. It emphasizes sustainability transformation across four core areas:

- **Curricula and Teaching (CT):** This dimension includes the integration of sustainability topics into courses as well as the empowerment of students as active agents of change. These items reflect the educational role of HEIs in fostering critical thinking, future-oriented competencies, and transformative learning (DG HochN, 2025; Holst, 2023, p. 1020; Rap et al., 2022; Rupnik & Avsec, 2025; Weiss et al., 2021).
- **Research and Transfer (RT):** This dimension addresses research activities that explicitly deal with sustainability issues and the exchange of knowledge with societal actors. The focus is on co-creation, innovation, and science-practice collaboration in the context of global challenges (Demele et al., 2021; DG HochN, 2025; Holst, 2023; Kirst & Schroth, 2022; Nölting et al., 2020).

[5]FH Münster – University of Applied Sciences, a public institution with over 15,000 students and approximately 1,300 employees across 12 departments, offering more than 100 bachelor's and master's programs in engineering, design, social sciences, and business.

[6]University of Münster – the largest HEI in Münster and one of Germany's largest universities, with around 45,000 students and 5,600 academic staff across 15 faculties.

[7]Catholic University of Applied Sciences North Rhine-Westphalia (katho Münster) – the largest state-recognized, church-sponsored university in Germany, specializing in social and health sciences, with more than 5,300 students across campuses in Aachen, Cologne, Münster, and Paderborn.

- **Community Engagement and Societal Transformation (CE/ST):** This dimension includes societal exchange and knowledge transfer, support for ecologically and socially sustainable startups, and the promotion of diversity, inclusion, and equity. It reflects the university's "Third Mission" and highlights its role in fostering inclusive, community-based transformation by integrating diverse perspectives and supporting sustainable initiatives. (Compagnucci & Spigarelli, 2020; DG HochN, 2025; Duarte, 2023; Jirapong et al., 2021; Nölting, 2024).
- **Operations and Infrastructure (OI):** This dimension captures ecological and organizational aspects of campus operations such as resource use, energy, mobility, and the protection of healthy ecosystems and biodiversity. It also includes elements related to health and nutrition, recognizing their relevance for sustainable campus environments and the well-being of university members. The selected items represent central levers for sustainable infrastructure management and the environmental performance of HEIs (Christou et al., 2024; Clement et al., 2015; DG HochN, 2025; Holst, 2023).

Governance was not operationalized as a separate dimension but systematically integrated across all four areas. This decision reflects the understanding that governance in HEIs is not an isolated field of action, but rather permeates all areas by shaping strategic priorities, participation structures, and decision-making processes throughout the institution (Leal Filho et al., 2019). By embedding governance aspects within each dimension, the study ensures that its transversal influence is adequately captured while maintaining the index's clarity and respondent accessibility.

An iterative process of expert consultation, pre-testing, and statistical validation was applied to refine the items, confirm the dimensional structure, and ensure the instrument's construct validity. The internal consistency of the item clusters was assessed using Cronbach's alpha, with reliability coefficients ranging from 0.70 to 0.90, indicating acceptable to high internal consistency.

**Table 1:** Indices and Dimensions of Sustainability

| Index Dimension | Variables | Cronbach's Alpha | Number of Items |
|---|---|---|---|
| **Curricula and Teaching (CT)** | Integration of Sustainability in Curricula & Empowering Students | 0.80 | 2 |
| **Research and Transfer (RT)** | Research in Sustainability & Societal Exchange/Transfer | 0.70 | 2 |
| **Community Engagement/Societal Transformation (CE/ST)** | Societal Exchange/Transfer, Ecologically and Socially Sustainable Startups & Diversity | 0.70 | 3 |
| **Operations and Infrastructure (OI)** | Energy and Building & Mobility and Transport & The Protection of Healthy Ecosystems and Biodiversity & Health and Nutrition | 0.82 | 4 |
| **Sustainability Index (SI)** | Overall Sustainability of the Hei | .90 | 10 |

### 2.3 Methodological Approach to Data Analysis

The focus of the data analysis is on group comparisons to capture differences between HEIs and status groups in the perception of sustainability dimensions and the associated measures. Initially, tests for normality were conducted, which indicated that the data are not normally distributed. As a result, the Kruskal-Wallis test for group comparisons was applied, as it does not require the data to follow a normal distribution (Dodge, 2008; McKight & Najab, 2010). Additionally, Chi-square tests were used for categorical variables to investigate associations between HEIs, status groups, and various dependent variables. Effect sizes were reported using Cramér's V (V).

## 3 Results

### 3.1 Sociodemographic Data

The sample consisted of a total of 1,035 participants. The majority of respondents were affiliated with the University of Münster[8]. In terms of position within the HEIs, students represented the largest group[9]. The gender distribution showed that most participants identified as female[10]. Further details on the distribution of status groups within the HEIs can be found in the diagnostic report of the SUNRISE LAB project (Breuckmann et al., 2024).

[8] University of Münster: 65.8 %, FH Münster: 22.6 %, katho: 11.6 %

[9] Students: 51.6 %, Administrative/Technical/Operational staff (ATO): 18.3 %, Research associates: 18.2 %, Professors: 5.8 %

[10] Female: 59.6 %, Male: 38.1 %, Non-binary: 2.3 %

### 3.2 Dimensions of Sustainability in HEIs

Four sustainability indices capture respondents' perceptions of various aspects of their HEIs. Among these, Community Engagement and Societal Transformation (CE/ST) received the highest ratings (M = 3.31), while Curricula and Teaching (CT) was rated lowest (M = 2.82) (see Table 2). Overall perceived sustainability (SI) was moderate (M = 3.03).

**Table 2:** Descriptive Statistics of Sustainability Dimensions

| | N | Minimum* | Maximum | Mean | SD |
|---|---|---|---|---|---|
| Curricula and Teaching (CT) | 833 | 1 | 5 | 2.82 | 1.01 |
| Research and Transfer (RT) | 847 | 1 | 5 | 3.18 | .97 |
| Community Engagement/ Societal Transformation (CE/ST) | 963 | 1 | 5 | 3.31 | .89 |
| Operations and Infrastructure (OI) | 998 | 1 | 5 | 2.94 | .93 |
| **Sustainability Index (SI)** | **1016** | **1** | **5** | **3.03** | **.79** |

*Note:* Scale From 1 = Not Sustainable to 5 = Very Sustainable

Significant differences were observed between HEIs: FH Münster scored highest in CT, katho in CE/ST, and overall FH Münster ranked highest in SI. Significant differences between status groups were also evident: students perceived sustainability dimensions at their institution most positively, whereas professors were more critical in their assessments. The detailed results, including mean ranks and statistical indicators, are presented in Table 3.

**Table 3:** Sustainability Dimensions by HEI and Status Group

| Sustainability Dimension/Group | CT | | RT | | CE/ST | | OI | | SI | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sustainability Dimensions by HEI | | | | | | | | | |
| | *n* | **M** | *n* | **M** | *n* | **M** | *n* | **M** | *n* | **M** |
| **FH Münster** | *208* | **472** | *202* | **472** | *221* | **516** | *225* | **515** | *231* | **558** |
| **University of Münster** | *521* | **391** | *534* | **410** | *625* | **458** | *658* | **497** | *668* | **488** |
| **Katho** | *104* | **439** | *111* | **432** | *117* | **547** | *115* | **482** | *117* | **527** |
| ***Kruskal-Wallis-H*** | *18.591* | | *5.926* | | *14.515* | | *1.078* | | *10.317* | |
| ***Asymp. Sig.*** | **<.001**** | | 0.052 | | **<.001**** | | 0.583 | | **0.006**** | |
| | Sustainability Dimensions by Status Group | | | | | | | | | |
| | *n* | M | *n* | M | *n* | **M** | *n* | **M** | *n* | **M** |
| **Students** | *501* | 403.9 | *465* | 414.6 | *509* | **479.9** | *519* | **527.6** | *530* | **525** |
| **Research associates** | *151* | 363.4 | *153* | 371.9 | *175* | **399.6** | *181* | **408.1** | *184* | **414.7** |
| **Professors** | *54* | 387.9 | *58* | 362.9 | *59* | **415.8** | *58* | **362.2** | *59* | **407** |
| **Administrative, technical, and Operational Staff** | *74* | 356.9 | *121* | 390.8 | *163* | **442.6** | *181* | **401.4** | *182* | **428.2** |
| ***Kruskal-Wallis-H*** | *5.742* | | *5.99* | | *14.322* | | *53.936* | | *34.925* | |
| ***Asymp. Sig.*** | 0.125 | | 0.112 | | **0.002**** | | **<.001**** | | **<.001**** | |

*Note:* Asymp. Sig. = Asymptotic Significance, ** = The Differences are Highly Significant

The integration of sustainability topics in teaching showed an overall mean of 2.50 (SD = 1.32), with significant differences between HEIs. FH Münster reported the highest level of integration (M = 3.0, SD = 1.36), followed by the University of Münster (M = 2.4, SD = 1.31) and katho (M = 2.2, SD = 1.0), with the differences being statistically significant (H = 36.75, $p < 0.001$).

### 3.3 Prioritization of Sustainability Topics Based on Their Relevance

In the evaluation of sustainability topics[11], *empowering students to think and act sustainably*, as well as *sustainable resource, energy, and building management,* were rated as most important, while areas such as *ecologically and socially sustainable startups* received lower priority. Table 4 provides a detailed overview of the prioritization of sustainability topics by relevance.

[11] The topics listed in Table 4 were based on the semi-structured interviews (described in Section 2), ensuring coverage of key sustainability priorities relevant to HEIs.

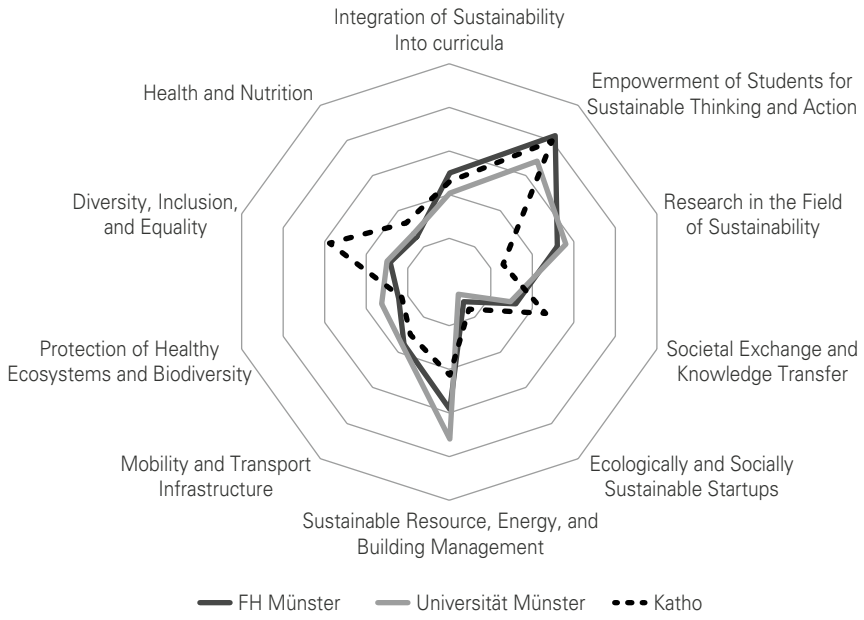
**Table 4:** Prioritization of Sustainability Topics by Relevance

| | N | Total* | %** |
|---|---|---|---|
| Empowering Students to Think and Act Sustainably | 680 | 2388 | 18,14 |
| Sustainable Resource, Energy, and Building Management | 671 | 2179 | 16,55 |
| Research in the Field of Sustainability | 546 | 1725 | 13,10 |
| Integration of Sustainability Into Curricula | 457 | 1416 | 10,76 |
| Mobility and Transportation Infrastructure | 433 | 1170 | 8,89 |
| Diversity, Inclusion, and Equality | 340 | 1068 | 8,11 |
| Societal Exchange/Transfer | 403 | 1038 | 7,88 |
| Protection of Healthy Ecosystems and Biodiversity | 378 | 979 | 7,44 |
| Health and Nutrition | 368 | 910 | 6,91 |
| Ecologically and Socially Sustainable Startups | 128 | 292 | 2,22 |

*Note:* *Respondents could select up to five priorities. The values in the 'Total' column represent the weighted relevance based on the frequency and ranking of the responses. **Percentage of total.

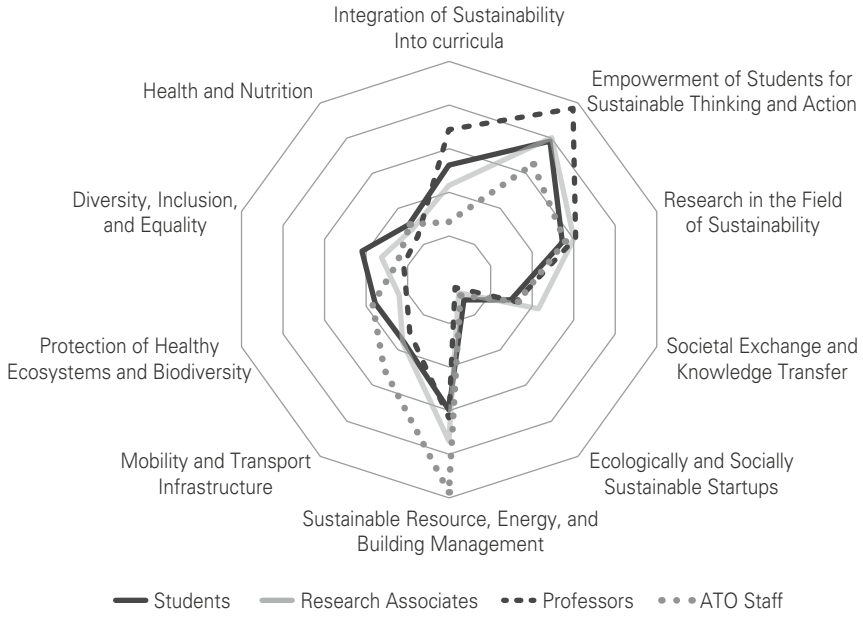
Common focal points and institutional differences are shown in the radar chart (Fig. 1): while the University of Münster emphasizes *sustainable resource, energy, and building management*, katho places greater focus on *diversity, inclusion, and equality*. Additionally, *research and knowledge transfer* were given lower priority at katho compared to the other HEIs.

**Figure 1:** Prioritization of Sustainability Topics by HEIs



Prioritization of sustainability topics varies significantly across status groups within HEIs (Fig. 2). While administrative, technical, and operational staff (ATO staff) primarily focus on *sustainable resource, energy, and building management* as well as *mobility and transport infrastructure*, professors place greater emphasis on *empowering students for sustainable thinking* and *integrating sustainability into curricula*. Research associates prioritize *societal exchange and knowledge transfer*, whereas students emphasize *diversity, inclusion, and equality* more strongly. The topic of *ecologically and socially sustainable startups* and *Health and Nutrition* is ranked as less relevant by all groups. The detailed results are presented in the next radar chart.

**Figure 2:** Prioritization of Sustainability Topics by Status Group




### 3.4 Engagement for Sustainability

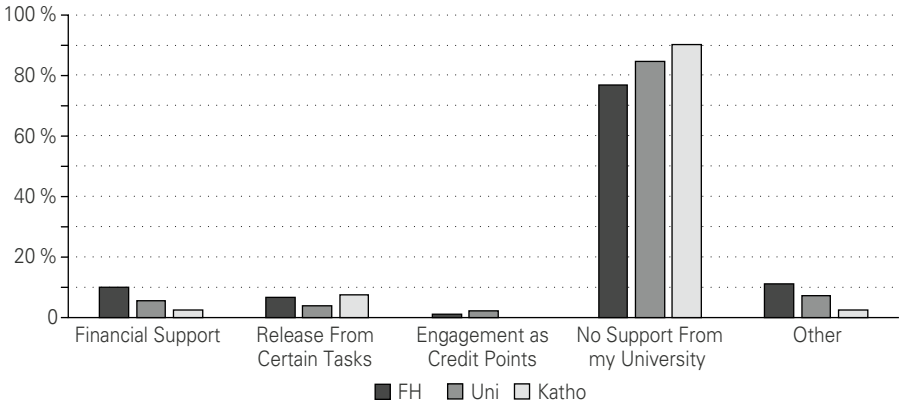
Regarding engagement for sustainability, half of the respondents (n = 520) reported no active involvement, while over one-third (n = 429) engage outside and about one-quarter (n = 226) within their HEIs. Significant differences emerged between status groups, $\chi^2(9) = 126.21$, $p < .001$, $V = 0.38$, indicating a moderate effect size; students were overall less engaged than other groups. By contrast, differences between HEIs were small but significant, $\chi^2(2) = 13.96$, $p = .03$, $V = 0.12$.

Thematically, engagement preferences largely mirrored the overall prioritization of sustainability topics (see Table 4). Three significant institutional differences were found: lower interest in *ecologically and socially sustainable startups* at katho compared to

the University of Münster and FH Münster, $\chi^2(2) = 20.98$, $p < .001$, $V = 0.21$; stronger emphasis on *diversity, inclusion, and equality* at katho, $\chi^2(2) = 9.05$, $p = .011$, $V = 0.14$; and higher prioritization of *sustainable resource, energy, and building management* at the University of Münster, $\chi^2(2) = 10.64$, $p = .005$, $V = 0.15$.

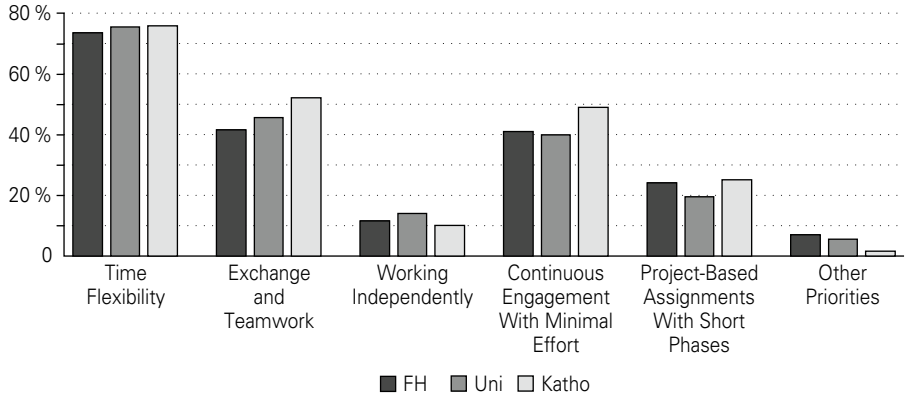
Institutional support was generally perceived as lacking: 83.5 % of respondents received none, while only 6 % reported *financial support* and 4.7 % *release from certain tasks*. Slight differences were observed between HEIs, $\chi^2(2) = 10.68$, p = .004, V = 0.15, with FH Münster providing comparatively more support. No significant differences were found between status groups, $\chi^2(3) = 4.33$, p = .23, V = 0.098.

**Figure 3:** How Does Your HEI Support Your Engagement in Sustainability-Related Activities Efforts?




Regarding the conditions for engagement in sustainability-related activities, 75 % of respondents identified *time flexibility* as the most important factor, followed by opportunities for *exchange and teamwork* (45 %). *Continuous engagement with minimal time effort was* preferred by 41 %. The results from the three HEIs show a high degree of similarity (see Figure 4). No significant differences were found between the HEIs or the status groups.

**Figure 4:** Conditions for Engagement

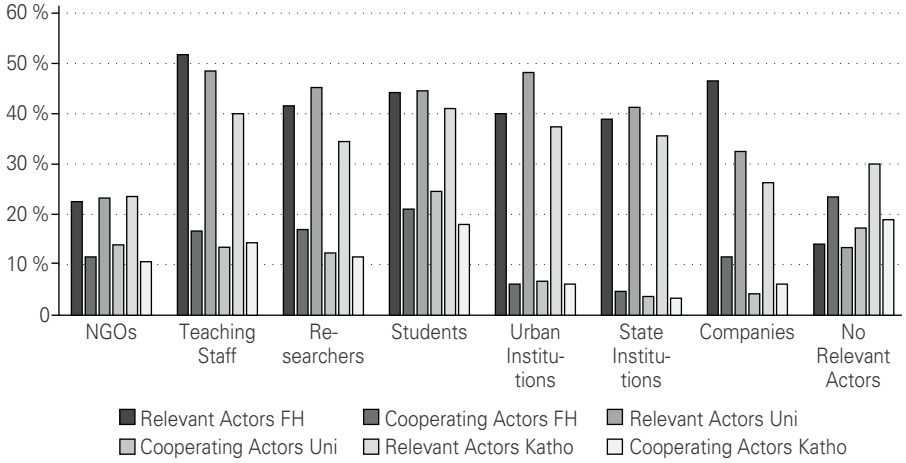



### 3.5 Sustainability Networks and Stakeholders

When asked which stakeholders are considered particularly relevant for sustainability at the HEI, over half of the respondents identified *Teaching staff* as central actors for sustainability. They were followed by *companies, students, researchers,* and *urban institutions*, each of which were recognized as relevant by more than 40 % of the respondents. *Government institutions* were regarded as important by 39 % of the respondents. However, a noticeable discrepancy exists between the perceived relevance of Actors and the actual collaboration with them (see Fig. 5).

Significant differences between HEIs were found only for the relevance and collaboration with companies, with small effect sizes ($\chi^2(2) = 20.25$, $p < .001$, $V = 0.14$; $\chi^2(2) = 14.53$, $p < .001$, $V = 0.12$). FH Münster reported the highest values in both areas.

**Figure 5:** Relevant and Cooperating Actors for the Three HEIs

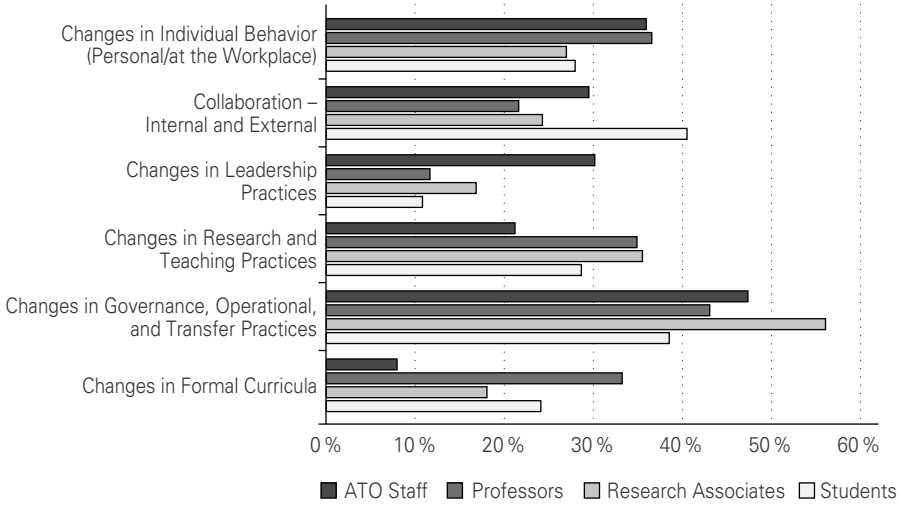



### 3.6 Key Leverage Areas for Sustainability

When asked which areas offered the greatest leverage to drive sustainable change at their HEIs, respondents most frequently highlighted *changes in governance, operational, and transfer practices* (45.2 %), followed by *collaboration with both internal and external stakeholders* (34.3 %), *changes in personal behaviour or at the workplace* (30.7 %), and *changes in research and teaching practices* (30.3 %). *Curriculum changes* were mentioned by 21.4 %, and *changes in leadership practices* by 16.6 %.

While no significant differences emerged between the three HEIs, notable differences were observed across status groups. *Changes in leadership practices* were rated as significantly more relevant by ATO staff ($\chi^2(3) = 38.99$, $p < .001$, $v = 0.20$), whereas professors placed greater importance on *changes to formal curricula* ($\chi^2(3) = 29.53$, $p < .001$, $v = 0.18$). Research associates rated *changes in governance, operational, and transfer practices* as particularly relevant ($\chi^2(3) = 18.63$, $p < .001$, $v = 0.14$), and students emphasized the importance of *internal and external collaboration* ($\chi^2(3) = 23.69$, $p < .001$, $v = 0.16$). No significant differences were observed *in changes to personal behaviour* across groups.

**Figure 6:** Key Areas of Action for Sustainability by Status Groups

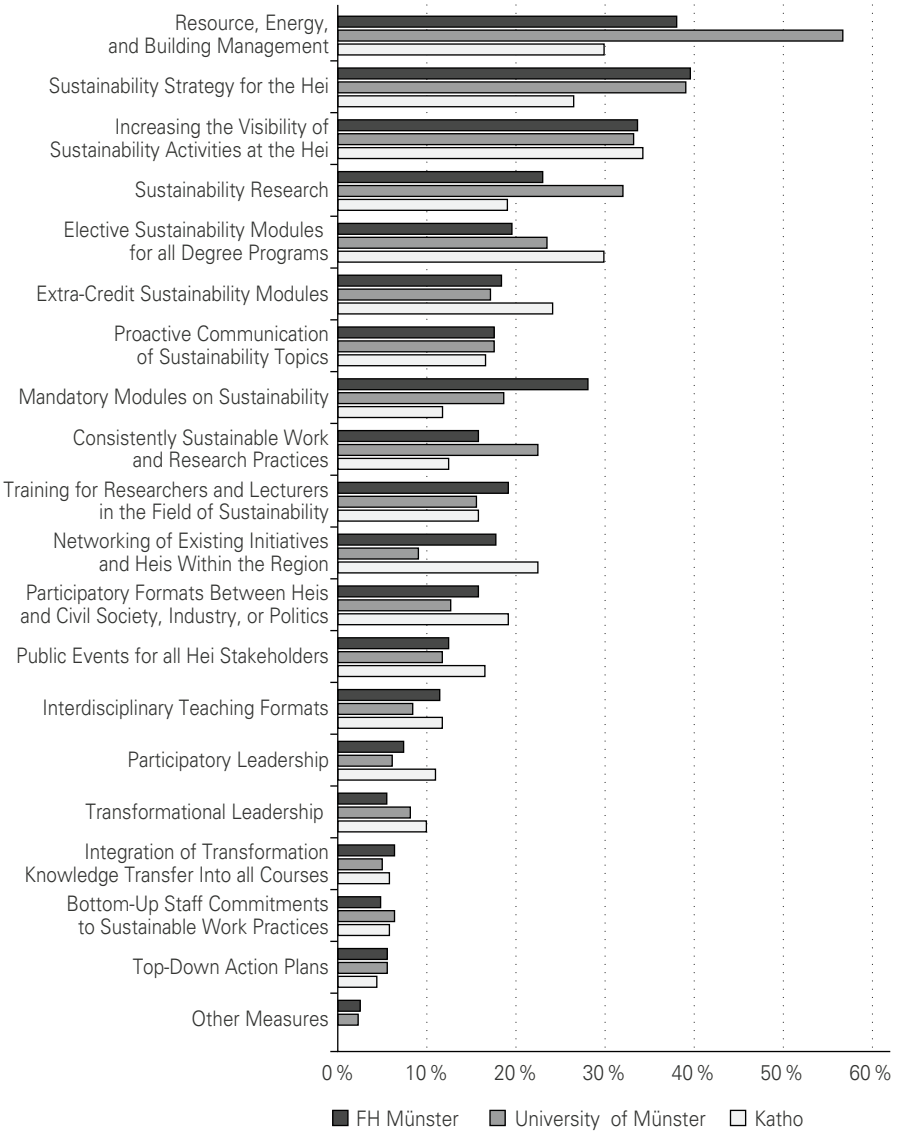



### 3.7 Key Drivers of Sustainable Change

When asked which measures offer the greatest leverage for driving sustainable change, respondents most frequently identified *sustainable resource, energy, and building management* (50.6 %), followed by the *sustainability strategy for the HEI* (38.8 %). *Increasing the visibility of sustainability activities* (34.4 %) and *sustainability research* (29.3 %) also received strong support, while *elective sustainability modules for all degree programs* were considered relevant by 23.9 % of respondents.

Significant differences emerged across HEIs for several sustainability measures. *Sustainable resource, energy, and building management* showed the largest variation ($\chi^2(2) = 44.61$, $p < .001$, $v = 0.21$), with the University of Münster rating it highest, while FH Münster and katho reported considerably lower values, corresponding to a small to moderate effect size. Differences were also observed in *networking initiatives* ($\chi^2(2) = 23.43$, $p < .001$, $v = 0.15$), where katho stood out with strong agreement and the University of Münster showed lower values. For *mandatory sustainability modules* ($\chi^2(2) = 16.06$, $p < .001$, $v = 0.13$), FH Münster showed comparatively higher support, while katho reported lower agreement. *Sustainability research* also differed significantly ($\chi^2(2) = 12.95$, $p = .002$, $v = 0.112$), with the University of Münster rating this measure particularly high. No significant differences were observed in the remaining areas between HEIs.

**Figure 7:** Key Drivers of Sustainable Change




Status group differences were small (V < 0.2) but significant: ATO staff rated *sustainable resource, energy, and building management* and *interdisciplinary teaching formats* highest, while research associates emphasized *sustainability research*.

# 4 Discussion

## 4.1 Perception and Prioritization of Sustainability Dimensions

Analysis of the sustainability dimensions shows that Community Engagement and Societal Transformation (CE/ST) is perceived as the most strongly implemented or integrated, whereas Curricula and Teaching (CT) receives comparatively lower ratings. The high values for CE/ST indicate that the participating HEIs actively recognize and demonstrate their societal responsibility and engagement as part of their "Third Mission" (Compagnucci & Spigarelli, 2020). The lower rating of CT suggests that sustainability is not yet fully or coherently integrated into educational content and methods, a pattern widely observed in previous studies (Holst, 2023; Lozano, 2010). This gap presents a key challenge for achieving SDG 4, particularly target 4.7, which emphasizes ensuring that all learners acquire the knowledge and skills necessary to promote sustainable development and highlights the importance of quality education and the development of sustainability competencies to empower students as future agents of change.

Respondents identified *empowering students to think and act sustainably* as the top priority, emphasizing educators' key role in fostering knowledge, values, and awareness for sustainable transformation (UNESCO, 2021).The second priority was *sustainable resource, energy, and facility management,* highlighting the importance of ecological and organizational sustainability levers on campus (Clement et al., 2015; Holst, 2023). *Ecological and socially sustainable startups* received the lowest priority, which may reflect varied awareness among respondents of the role of HEIs in supporting startups. It may also indicate that startups are more relevant to certain fields, leading some respondents to consider them less important. In fact, HEIs are an integral part of the innovation system of their region (Fritsch, 2015). Creating a startup culture at HEIs could be beneficial, supported by appropriate events, as well as contacts and advice for (potential) founders (Fritsch, 2015).

Significant differences in sustainability evaluations appear both across HEIs and status groups, reflecting the distinct profiles, disciplinary strengths, missions, and organizational conditions of each institution (Kohl et al., 2022). For instance, FH Münster was generally rated highest overall, particularly in Curricula and Teaching (CT), likely reflecting both active sustainability initiatives and their visibility within the institution. These differences are also influenced by the institutional profile of each HEI. Notably, katho shows a higher rating for Societal Transformation compared to the other HEIs surveyed, as illustrated in Table 3 and Figure 1. This reflects its strong social sciences orientation and focus on societal transformation in research, teaching, and community engagement.

Differences among status groups align with functional roles: professors tend to prioritize empowering students, whereas ATO staff focus on sustainable resource, energy, and facility management, reflecting their institutional responsibilities. These variations highlight the importance of engaging all stakeholders in a holistic, whole-institution sustainability approach (Christou et al., 2024, p. 2). Framing the analysis around these institutional and role-based differences provides a clear context for interpreting varied sustainability priorities and underscores the need to tailor strategies to the unique profile of each HEI.

### 4.2 Engagement for Sustainability: Barriers and Opportunities

About half of the respondents are engaged in sustainability-related activities. Notably, more people are engaged in sustainability outside HEIs than within. This could indicate that HEIs do not provide sufficient incentives or supportive structures to promote engagement within the institution (Wright & Horst, 2013). This is also reflected in the perceived lack of institutional support within HEIs, reported by 84 % of the respondents. Both financial resources and organizational support are rarely provided, which can hinder engagement. These results reinforce previous findings on the structural and cultural barriers for sustainability engagement in higher education, especially when sustainability is not institutionally anchored or rewarded (Aleixo et al., 2018; Leal Filho et al., 2019). HEIs therefore need to create stronger structures and measures to harness the potential of their members for sustainable action. Approaches such as linking courses with sustainability projects or recognizing engagement in the academic context could help increase participation (Bauer et al., 2024; UNESCO, 2021). Aligning such measures explicitly with the SDGs could further enhance motivation and provide a recognized framework for engagement.

Significant differences in activity level were observed between status groups, with students being notably less active. This is concerning, as students, as future "agents of change", play a central role in driving sustainable transformation within universities and society. This lower engagement may be due to factors such as the high study load from full-time studies combined with part-time work (Kroher et al., 2021; Pittman, 2004), as well as a decline in overall participation in sustainability-related activities among young adults (Bundesministerium für Umwelt und Verbraucher, 2023). Insufficient integration of sustainability into CT may limit meaningful engagement. HEIs should ensure educators and staff model sustainable behaviour and provide students with concrete participation opportunities, such as project-based learning, service-learning, or practical sustainability projects. Strengthening the link between teaching, institutional support, and student engagement can foster a culture of sustainability and empower students as active agents of change (Holst et al., 2024; UNESCO, 2021; Leal Filho et al., 2019; Barth et al., 2014).

### 4.3 Network and Stakeholders of Sustainability

Respondents highlighted companies, civil society organizations, and public institutions as particularly relevant stakeholders, in line with prior research identifying these actors as main drivers of sustainable development (Lozano, 2018). However, practical cooperation with these stakeholders appears limited. Barriers such as bureaucratic hurdles and complex administrative processes often impede joint sustainability initiatives (Kirst et al., 2024). These results reflect the challenges in stakeholder engagement within HEIs. The lack of institutionalized collaboration formats and unclear responsibilities often prevent fruitful partnerships (Breuckmann et al., 2024). Collaboration with companies and their perceived relevance are evaluated differently depending on the type of HEI. FH Münster achieves higher values in both areas, indicating that it has a stronger practical orientation and closer cooperation with companies (Nölting, 2024). Here, the academic orientation could again play a role.

To strengthen these connections, formats such as real-world laboratories offer promising approaches to foster cooperation between academia and practice. In teaching, for example, student project work is often developed in collaboration with and for external partners; in research, real-world labs serve as transdisciplinary arenas for experimentation and mutual learning. Such formats can help bridge institutional boundaries and promote long-term networks between HEIs and societal stakeholders (Nölting, 2024). Such institutional profiles are important context factors for interpreting the results and may limit the transferability of findings to other HEI types. Future research should explore how different governance cultures, disciplines, and third mission strategies influence stakeholder integration in sustainability processes.

### 4.4 Areas of Action and Measures for Sustainability

Almost half of the respondents identified *governance, operations, and transfer* as key areas for advancing sustainable change, with a comprehensive sustainability strategy and sustainable management of resources, energy, and facilities rated as especially relevant. These areas span multiple institutional levels and actors, highlighting the need for coordinated and inclusive efforts. Effective sustainability transformation depends on interactions between top-down leadership and bottom-up participation (Holst, 2023). This dynamic is emphasized in the Whole-Institution Approach (WIA), which combines strategic leadership with participatory processes (Kohl et al., 2022). The findings suggest a need for clearer institutional anchoring, structural support, and defined responsibilities. Linking academic learning to practical sustainability projects, institutionalizing co-creation formats, or formally recognizing engagement (e.g., through credits or awards) could foster broader participation and mobilize the potential of all status groups.

### 4.5 Methodological Discussion and Limitations of the Study

This study is based on 1,035 participants from the three largest HEIs in Münster, reflecting local institutional, geographic, and cultural conditions. Including multiple status groups provides nuanced insights, but the findings should be interpreted with caution when applied to other German HEIs. The questionnaire, based on the WIA, showed high internal consistency ($\alpha = 0.7–0.9$), but no factor analysis was conducted to confirm its dimensional structure.

Sample composition also poses limitations: respondents from the University of Münster dominate, reflecting institutional size, and small subgroups, particularly professors (n=57), limit robustness of group comparisons. Another limitation is that voluntary participation in the survey may have led to self-selection of respondents. It is conceivable that primarily individuals who already have a strong interest in sustainability topics participated. This could result in a biased perception and evaluation of sustainability (measures). Finally, while the study provides quantitative insights, qualitative data from open responses and SUNRISE LAB interviews were not included here, limiting understanding of underlying motivations. Overall, the results offer a contextualized snapshot of one urban HEI setting, highlighting the need for broader, cross-regional, and mixed-methods research.

## 5 Conclusion

The study shows that sustainability perceptions and priorities differ across HEIs and stakeholder groups. FH Münster is seen as strong in curricula and teaching, katho emphasizes community engagement and societal transformation, and the University of Münster focuses on sustainable resource, energy, and building management. Professors prioritize student empowerment and curricular integration, administrative and technical staff focus on resource and infrastructure management, and students show interest in diversity, inclusion, and equality. These findings underline the importance of aligning institutional efforts with the WIA to ensure that all perspectives are considered.

The study highlights that engagement in sustainability-related activities is generally higher outside HEIs than within, indicating that institutional structures and incentives for internal participation remain limited. To fully leverage the potential of internal stakeholders, HEIs need to create supportive frameworks that empower students, faculty, and staff to actively contribute to sustainability initiatives. Collaboration with external actors such as companies, civil society, and public institutions is essential for a holistic approach. Innovative formats like real-world laboratories offer promising

avenues to facilitate practical cooperation, transdisciplinary learning, and the integration of sustainability into both teaching and institutional practice.

The limited engagement of students, especially within HEIs, is a critical concern for the sustainability of future institutional change. Addressing structural and cultural barriers, recognizing contributions, providing flexible participation opportunities, and linking engagement to academic learning are necessary steps to empower students as active agents of sustainable transformation. Overall, be combining inter- and transdisciplinary, cross-institutional participatory structures across all status groups with institutional support, innovative approaches, and strong engagement with external stakeholders, HEIs can become effective drivers of sustainability with lasting impact on campus and society.

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# Distance Learning as the Higher Education Format of the Future? The Importance of the Study Entrance Phase

Caroline Trautwein, Roxana Bettinger, Julian Rebien, Anna Maria Pampel, Michael Hast

Worldwide, the popularity of distance learning is growing, making digitally delivered teaching and learning formats increasingly important, not only for today but also in the future. These formats' flexibility and accessibility particularly appeal to non-traditional students. However, academic success among distance learners tends to be lower and dropout rates are higher compared to on-campus students. The transition into distance learning represents a critical phase for successful learning. The article addresses the question of why the study entrance is central to a future higher education that breaks down educational barriers and promotes the academic success of distance learners. Based on a scoping review – conducted by searching five databases (ERIC, PubMed, Google Scholar, PsycINFO, Scopus) and ultimately including 60 sources – this article explores the opportunities and challenges for successful learning during the study entrance phase and provides recommendations for teaching.

*Keywords: distance education, study entry phase, study success, non-traditional students*

## 1 Background

The popularity of distance learning in Higher Education (HE) is growing worldwide, with 11 million distance learners in 2017, 35 million in 2025, and a projected future student population of 50 million by 2029. But not only are the absolute numbers increasing, the penetration rate has also increased significantly in recent years. While it was at 0.5 % in Germany in 2017, it had already risen to 1.2 % by 2025 and is expected to reach 1.5 % by 2029 (Statista Market Insights, 2025). Distance education (DE) programmes will clearly significantly contribute to the differentiated German HE landscape of the future (Wassmer et al., 2023).

DE programmes are designed with a focus on so-called *non-traditional students* (Kerst & Wolter, 2022; Philips, 2025) and play a key role in enabling individuals with completed vocational training and work experience to study without a traditional university entrance qualification. Their high flexibility makes them particularly attractive for people balancing professional and family responsibilities (Klinke & Pundt, 2022).

Consequently, DE courses remove obstacles and offer student groups who have so far been underrepresented in traditional face-to-face courses the opportunity to participate in HE (Zawacki-Richter & Stöter, 2020). In this way, DE programmes can contribute to breaking down barriers that prevent equity in accessing Education as invoked by the United Nations Educational, Scientific and Cultural Organization (UNESCO) guidance regarding the future of (Higher) Education (International Commission on the Futures of Education [ICotFoE], 2021; UNESCO, 2020).

But unfortunately, DE students are less successful in terms of retention and pass rates than face-to-face students, and are more likely to drop out (Dahm, 2022). Whereas approximately 17 to 47 % of face-to-face students do not successfully complete their studies (Vossensteyn et al., 2015), in DE programmes the drop-out rate is higher (Bağrıacık Yılmaz & Karataş, 2022) and can reach up to 99 % (Simpson, 2013). In addition, only 39 % of DE students successfully pass their courses after the first semester, whereas the success rate for face-to-face students in equivalent courses is 64 % (Fojtík, 2018).

Therefore, while DE programmes have made the access to HE more equitable, the chance of successfully earning a degree remains unequal and societal groups that have traditionally been marginalised within HE are still disadvantaged.

The observed discrepancy in learning success between distance and face-to-face students can be attributed to the inherent differences between these two study formats. While digital tools and media are employed in a supplementary manner in face-to-face courses, contemporary DE is exclusively conducted in the digital space, utilising a wide variety of software, tools and programs (Schlosser & Simonson, 2009). This means that the interactions among DE students as well as between students and teachers are not direct but mediated through technology. Additionally, participants' learning takes place in spatial and sometimes temporal distance (Schlosser & Simonson, 2009). Unlike face-to-face courses, students and teachers are not in the same physical space and do not learn at the same time. DE courses are therefore characterised by alocality and asynchrony.

As a result of these features, learning and teaching differ in face-to-face versus DE due to transactional distance – the psychological or communicative gap between teachers and learners (Moore, 1993). This gap depends on dialogue, structure, and learner autonomy. Less structured environments with more interaction, like live online lectures, have low transactional distance. Highly structured settings with limited interaction, such as providing texts or videos without discussion, create a greater distance, requiring learners to be more autonomous and self-managed.

In addition to self-management and autonomy, motivation is an even more critical factor in DE (Ferrer et al., 2022). The empirically validated ARCS model – Attention, Relevance, Confidence, Satisfaction – guides the design of digital teaching to boost motivation and reduce dropout rates (Keller & Suzuki, 2004). Teaching should engage learners, highlight subject importance, build self-confidence, and generate satisfaction and rewards (Pange & Pange, 2011).

Moreover, as the student body is more diverse in DE and varies in life circumstances, educational pathways as well as academic and digital skills, the specific needs and vulnerabilities of these students must be considered to ensure that they are not structurally disadvantaged in DE (Lange & Schaper, 2025).

In this regard, special emphasis should be placed on the study entry phase: DE students frequently decide to drop out shortly after beginning their studies (Oliveira et al., 2017; Utami et al., 2020). This can be explained by the fact that distance learners must immediately manage high levels of autonomy, motivation, and digital literacy – skills that are often developed more gradually in on-campus settings (Angu, 2022; Davies, 2015; Güner, 2021). Without the physical presence of peers and instructors, they face greater risks of isolation and disengagement, and physical distance makes it more difficult to (informally) learn from peers (Domingues et al., 2023). Moreover, the particular needs in the transition to distance HE of the "non-traditional" students might not be met adequately (Schaper et al., 2024). Also, the cost of drop-out might be lower, as DE students typically do not invest in a move or new housing. Additionally, a study researching DE imposed by the COVID-19 pandemic revealed that first-year students perceived more of DE's disadvantages as compared to more mature students, who saw DE as more valuable (Stevanović et al., 2021).

Thus, learning about the challenges in the transition into DE should be of high priority to mitigate the high dropout rates during this phase of study (Oliveira et al., 2017; Utami et al., 2020; Xavier et al., 2022). Also, because research on the transition of on-campus students shows, that if they master the challenges at the beginning of their studies, they are more likely to succeed further on (Trautwein & Bosse, 2017).

This raises the question of which opportunities and challenges first-year students encounter in the transition to DE. Furthermore, it calls for an examination of how the study entrance phase can be designed to foster academic success from the outset, thereby promoting equity not only regarding the access to HE but also the success in HE. This is relevant beyond DE, as digitalization is increasingly shaping the HE landscape. For leaders at German Higher Education Institutions (HEIs) the digitalization of teaching and learning is their primary concern, even over administrative digitalization (Gilch et al., 2019). Therefore, guidance on designing digital formats for the study entry

phase is important not only for HEIs offering DE programmes but also for those integrating digital elements into on-campus courses.

To systematically record and present existing knowledge on the subject of "transition into DE" a scoping review was conducted. This article examines the results of this review, focusing on the opportunities and challenges in the transition to distance HE and on how teaching and learning during the entry phase should be designed to fully exploit the opportunities DE offers and to mitigate its challenges. Moreover, the results are discussed in the light of the UNESCO guidance regarding the future of (Higher) Education (ICotFoE, 2021; UNESCO, 2020), and design recommendations for the study entrance phase of DE-programmes that increase the likelihood of study success for DE students are given. If DE programmes could not only provide currently underrepresented student groups with access to HE but also promote their study success, they could contribute more effectively to a more inclusive and equitable HE (UNESCO, 2015).

## 2 Method

The present article is based on a scoping review researching the transition into DE that was conducted as part of the research project TiDE (Transition into Distance Education). The methodological approach was recorded a priori and can be found in the previously published review protocol by Schweighart et al. (2024b). Scoping reviews are exploratory in nature and are often used to gain an overview of specific topics, open up new fields of research, or identify existing research gaps (Arksey & O'Malley, 2005; Peters et al., 2020). This method seemed suitable due to its objective of gaining a comprehensive understanding of research on the transition into DE. The scoping review was conducted according to the guidelines by Peters et al. (2020). First, inclusion and exclusion criteria were formulated using the PCC framework (population or participants/concept/context) to consider all relevant aspects of the research question (Von Elm et al., 2019). A detailed explanation of these criteria can be found in Schweighart et al. (2024a). Based on these criteria, key terms were defined, and a systematic literature search was conducted in five databases (ERIC, PubMed, Google Scholar, PsycINFO and Scopus) between November 2023 and February 2024. A total of 1,534 sources were identified, including scientific articles, books and book chapters, dissertations, and grey literature.

Three of the authors subjected the aforementioned sources to a multi-stage screening process, first based on titles and abstracts and then based on the full texts. Ultimately, 60 sources met the inclusion criteria, and relevant data were extracted to answer the research question. The extracted data were analysed using content-structuring content analysis according to Kuckartz and Rädicker (2022) with the software MAXQDA (VERBI

Software, 2024). Following the principle of consensual coding by Hopf and Schmidt (1993), a comprehensive category system was developed through an iterative process, encompassing the following twelve main categories: (1) the process of transition to DE; (2) reasons for enrolling in DE; (3) characteristics of DE students; (4) academic success and failure; (5) general evaluation of DE; (6) differences between DE and face-to-face studies; (7) advantages and positive aspects of DE; (8) challenges and negative aspects of DE; (9) critical life events; (10) coping strategies of DE students; (11) additional initiatives in DE; and (12) recommendations for DE. The complete scoping review depicting these categories is published elsewhere (Schweighart et al., 2024a). The objective of the present article is to explore how the study entrance phase of DE should be designed to foster successful studying, focusing on aspects relating to learning and teaching in DE that were captured by the categories 7, 8 and 12.

## 3 Results

### 3.1 Opportunities for Successful Learning in the Transition to DE

DE programmes offer various opportunities for successful learning for first-year students (category 7), which are shown in Figure 1.

**Figure 1:** Opportunities for Successful Learning in DE

- Flexible and location-independent learning
- Learning through diverse and innovative media, digital tools and learning resources
- Self-directed learning with a high degree of design possibilities for one's own learning process
- Digital interaction, which can facilitate learning and participation for distance learning students
- High didactic quality of the courses

One of the standout-features of DE is the possibility of *flexible and location-independent learning* in terms of asynchrony and alocality. Students can arrange their studies individually and are not tied to a fixed location, which is particularly beneficial to those with work or family commitments (Asikainen & Katajavuori, 2022; Mittelmeier et al., 2019).

Another advantage is learning through *diverse and innovative media, digital tools and platforms (*Tessarolo et al., 2022). The use of modern technologies grants access to a wide range of materials and resources that can support learning processes. For instance, students report that group discussions, regular quizzes, or collaborative activities in the digital space have a positive impact on their motivation and engage-

ment (Sylvester, 2022). An example of an innovative learning environment is the digitalisation of a forest for biology students in DE. The ability to explore the virtual forest and collect data allowed the distance learners to gain an authentic field experience comparable to exploring an actual forest (Robertson et al., 2021). Thus, different platforms and tools can play an important role in making learning material interesting and communicating complex issues in an understandable way.

*Self-directed learning with a high degree of creative possibilities for one's own learning process* is also a significant opportunity in the entry phase of DE. Students can repeatedly access content, such as recorded videos (Asikainen & Katajavuori, 2022). Therefore, they are not dependent on fixed schedules. This autonomy in determining one's own learning rhythm and style allows for optimal adjustment and continuous enhancement of personal learning strategies, which can foster the motivation and personal engagement of the individual (Howcroft & Mercer, 2022).

*Digital interactions that facilitate learning and participation for distance learning students* may be particularly relevant for rather reserved or shy beginners, as learning in an online environment can facilitate their participation and active engagement (Kinsel et al., 2004). Furthermore, the platforms and tools used offer the opportunity to interact quickly with their peers and teachers, fostering mutual support and a sense of community (Dodo-Balu, 2017; Hellstén, 2005), which significantly enhances the learning process in terms of social learning (Brindley et al., 2009).

Finally, first-year DE students report that *a high didactic quality of the courses* promotes their learning in the early stages of their studies. Educational content designed to promote interest (Aristeidou, 2021) as well as well-structured and organised materials (Howcroft & Mercer, 2022) significantly contribute to learning success. Furthermore, students have expressed a preference for material that is made available in advance, and for lessons that take place both synchronously and asynchronously (Howcroft & Mercer, 2022).

### 3.2 Challenges for Successful Learning in the Transition to DE

In addition to a wide range of opportunities and possibilities, first-year students also face challenges with regard to DE (category 8), as illustrated in Figure 2.

**Figure 2:** Challenges for Successful Learning in DE

- Need to learn autonomously and independently
- Distractions in the home environment
- Lack of guidance and feedback from teachers
- Lack of contact with peers and teachers
- Difficulties in navigating the media/tools used
- Technical malfunctions of used media/tools
- Low didactic quality of the courses

Students must have a high level of self-organisation, self-motivation, and discipline to cope with the *need to learn autonomously and independently* in DE (Angu, 2022). First-year students report difficulties in managing their time, balancing professional and private obligations alongside their studies (Xavier et al., 2022), as well as a lack of routine in everyday student life, and a tendency to procrastinate (Asikainen & Katajavuori, 2022). As a result, they postpone learning tasks until the last minute, and their interest in and enjoyment of online learning decrease (Beck, 2017) or they drop out of their studies (Xavier et al., 2022).

Another barrier to successful DE is the multitude of *distractions in the home environment*. Unlike in a traditional learning environment, where the learning process is supported by specific locations, clear structures and fixed times, many distance students learn in their own homes. Here, everyday tasks or other people can significantly disrupt concentration (Howcroft & Mercer, 2022). Some students have reported that on some days, the proximity of the bed to the desk has been found to have a counterproductive effect on their motivation to learn. Being able to turn off the camera and remain unseen by teachers and peers encourages some students to disengage from active participation (Sylvester, 2022).

Furthermore, there is often a perceived *lack of guidance and feedback from teachers* (Kinsel et al., 2004). Reduced direct contact with teaching staff may lead to feelings of isolation and difficulties in comprehending the learning content or clarifying questions in a timely manner. This is sometimes even described as the most challenging aspect of online learning (Dodo-Balu, 2017). Especially for first-year students, the lack of a confidant to guide them through the new world of DE can be challenging

due to the physical distance, thereby negatively affecting the learning process (Warshawski, 2022).

The feeling of isolation is reinforced by the *lack of contact with peers and teachers*. This hinders the establishment of support networks and learning groups, thus impeding social learning. DE beginners encounter challenges in connecting with peers for knowledge exchange and mutual support. In certain instances, the purely asynchronous teaching methods lead to no interaction whatsoever among students, which effectively excludes the potential benefits of social learning (Domingues et al., 2023).

*Difficulties in navigating and using the media/tools used* can act as an additional hurdle towards successful learning. Some DE students have limited experience with such technologies and report feelings of being overwhelmed by the complexity and variety of platforms and media offered (Davies, 2015; Güner, 2021). This can lead to insecurity and stress when using digital tools (Chongkolrattanaporn & Kongpolphrom, 2023). Moreover, technical disruptions that may arise during use, including software issues, network interruptions, or unexpected system logouts, can significantly disrupt learning and result in frustration (Asikainen & Katajavuori, 2022; Davies, 2015; Yamazaki and Yamazaki, 2021).

Finally, *low didactic quality of the courses* can be a barrier to successful learning in the early stages of DE. For instance, challenges arise when materials are presented in an uninspiring or unorganised manner (Howcroft & Mercer, 2022; Kahu et al., 2015), learning sessions are too long (Harshani, 2022), or demands and workloads are too high (Warshawski, 2022). It can also be more difficult to teach students important practical skills, such as conducting laboratory experiments, due to physical distance in the online setting (Howcroft & Mercer, 2022; Long et al., 2013).

### 3.3 Recommendations for Designing Teaching in the Transition to DE

The scoping review identified a wide range of wishes and recommendations for a successful transition into DE (category 12), including suggestions for course design and the involvement of those responsible, which may serve as a foundation for successful learning processes. Figure 3 provides an overview of recommendations.

**Figure 3:** Recommendations for Successful Learning in DE

- Teachers play a key role
- Comprehensive introductory programmes and orientation events
- High quality of instruction
- Well-designed digital tools and platforms
- Pleasant and positive interactions

Distance learners emphasise that *teachers play a key role* for successful learning. Research indicates that teachers should be present and available (Kinsel et al., 2004), approachable (Harshani, 2022), enthusiastic (Wu, 2013), inspiring and motivating (Chamdani et al., 2022). Moreover, the communication skills of teachers are considered essential (Beck, 2017). Particularly at the beginning of their studies, students rely on the support provided by lecturers to navigate their new role as distance learners (Kinsel et al., 2004). To facilitate a successful transition into DE in the long term, it is essential that students receive ongoing support, guidance and regular feedback from lecturers (Beck, 2017; Kinsel et al., 2004; Maphoto, 2022). Teachers should be aware of the potential challenges that new distance learners may face, including physical and mental stresses, and participate in relevant professional development addressing the transition into DE (Barber & Sher, 2022). Another crucial aspect for successful learning is the development of effective coping strategies regarding academic stress. Teachers can initiate reflections on adaptive and maladaptive strategies and motivate students to use helpful strategies, such as listening to music or spending time in nature (Cortes et al., 2022).

Furthermore, *comprehensive introductory programmes and orientation events* are considered beneficial for successful learning in DE. Studies show that participation in such events is associated with better grades (Adkins, 2014; Ali & Leeds, 2009). These events are considered particularly beneficial for DE students if they offer numerous opportunities for interaction (Ali & Leeds, 2009; Wu, 2013), are tailored to the needs of the students (Wu, 2013) and use various learning resources and technologies that students will also be exposed to in their studies (Horvath et al., 2019). Such programmes should also clarify students' expectations of their studies, prepare students for their role, and provide relevant information (Robertson et al., 2021; Wu, 2013). Key aspects of DE that new students should be informed about include technological requirements and the need for technical competencies, as well as the importance of time management and organisational skills. Realistic expectations as well as the importance of personal commitment, active participation, and contact with their peers and teachers are equally important (Bozarth et al., 2004; Horvath et al., 2019).

A *high quality of instruction* is crucial for successful learning in the transition into DE. Caring, empathetic and humane approaches are considered particularly relevant for teaching in the entry phase of DE (Barber & Sher, 2022). Courses are considered particularly conducive to learning when they are interactive (Dodo-Balu, 2017), encouraging (Kinsel et al., 2004), personalised (Mosia, 2020), interest-arousing (Kahu, 2014), and well-structured (Wu, 2013). Additionally, courses should enable problem-based and in-depth learning (Crowley-Cyr & Hevers, 2021; Kahu, 2014), which can be supported by modern, diverse and well-thought-out teaching content, methods, and resources (Chambers, 2010). Teaching sessions should not last too long (Harshani, 2022) and should be recorded and made available afterwards (Asikainen & Katajavuori, 2022). Courses in which student progress and learning processes are regularly assessed and fed back are also considered to be conducive to learning (Aristeidou, 2021; Tessarolo et al., 2022). To meet the challenge of effectively conveying practical experiences in DE, it is recommended that students carry out practical tasks independently if possible. When this is not feasible, alternative methods should be found to provide students with comparable experiences. For example, virtual experiments with strong student participation can also promote successful learning (Long et al., 2013).

DE occurs in a virtual space, meaning that *well-designed digital tools and platforms* are fundamental. Learning management systems are highly valued for their ability to structure and store content centrally, enabling students to access and navigate content in a flexible and adaptable manner (Howcroft & Mercer, 2022). Furthermore, these systems allow students to review learning material multiple times, thereby promoting flexible learning and adapting to individual learning paces (Beck, 2017; Howcroft & Mercer, 2022). To enable successful learning, the tools and platforms should be easy to navigate and designed to offer the best learning experience. Learning environments must therefore be reliable, innovative (Henry, 2018), user-friendly (Wu, 2013), and diverse (Singer & Jarvie-Eggart, 2021).

Finally, *pleasant and positive interactions* support the learning processes of new DE students in the sense of social learning. The exchange of ideas and strategies or collaborating in groups can enhance the learning process for DE students, thereby fostering successful and efficient learning (Angu, 2022). Therefore, it is recommended that distant education incorporates a wide range of interaction and dialogue opportunities (Watson, 2021). This is because many students report a strong need for contact and interaction (Kahu, 2014) and perceive significant potential for improvement in this area (Hammer et al., 2022). Teachers should encourage students to use the offered interaction spaces, for example by encouraging them to turn on their cameras and participate actively during synchronous teaching sessions (Harshani, 2022). Social relationships have been shown to be essential for successful learning and a positive transition to DE (Warshawski, 2022).

## 4 Discussion and Future Implications

This article aims to provide answers to the question of why the study entrance is central to the future of distance HE and how it should be designed to maximise its benefits and address its challenges so that educational barriers can be broken down and the academic success of distance learners can be promoted.

The results show that the opportunities and challenges for successful learning in the transition to DE often apply to the same characteristic of DE. On the one hand, the digital media and tools used can enhance the learning experience of distance students (Sylvester, 2022). At the same time, difficulties in using and navigating these platforms and tools can hinder successful learning (Davies, 2015). Flexible and location-independent learning offers both opportunities and challenges. While it can be more easily combined with professional and family obligations, the home environment also presents significant potential for distractions (Howcroft & Mercer, 2022). Furthermore, DE can be flexibly adapted to one's own learning style, but the loosely structured learning process also places considerable demands on the autonomy and self-organisation of distance learners (Angu, 2022). Media-mediated contact also offers both opportunities and challenges. Shy students might feel more comfortable initiating contact through digital media (Kinsel et al., 2004), but for many students, the lack of physical proximity makes social learning more difficult (Aristeidou, 2021).

To provide concrete ideas and guidance for the design of online learning environments, we will draw on the positive aspects of DE outlined in category (7) and discuss them in the light of UNESCO guidance regarding the future of (Higher) Education (ICotFoE, 2021; UNESCO, 2020). Both publications emphasize equity, inclusion, collaboration, sustainability, and student-centred learning. We will illustrate how these principles can be realized in the study entrance phase of DE programmes by drawing on the results of our scoping review and by inferring design recommendations.

ICotFoE (2021) encourages us to think education as a social endeavour and the building of learning communities where community and belonging are central. According to our findings, real-time sessions and discussion boards foster a sense of community (Dodo-Balu, 2017; Kahu et al., 2015) and virtual kick-off events and mentoring programs support social integration (Hammer et al., 2022; Martin et al., 2009). Thus, virtual orientation events and peer mentoring programs should be integral part of every DE programme and private social media groups or forums for informal student interaction should be encouraged. In addition, it should be explained to students that peer networks may serve friendship purposes but more importantly enhance their resources. As such they may help to master study-related challenges and to form future career

networks. This is important, as DE students – often being more mature – may prefer not to add friends to their already rich private social networks (Lange & Schaper, 2025).

Moreover, UNESCO (2020) calls for pedagogies of cooperation and solidarity, emphasizing meaningful dialogue and interaction. Despite being a challenge in DE, our study shows that breakout rooms, interactive quizzes, and professor-led discussions can facilitate some engagement and interaction in DE (Sylvester, 2022). Consequently, collaborative learning should be encouraged and collaborative tools (e. g., Padlet, Miro, breakout rooms) should be default in DE programmes to foster social and active learning.

ICotFoE (2021) advocates for equitable learning opportunities that are flexible and respect learners' diverse contexts and needs. Designing online environments with modular, asynchronous content supports this vision by allowing learners to self-direct their education. In our study this is reflected by DE students, who appreciate the ability to manage their time and learn at their own pace, especially when asynchronous materials are enriched with engaging tasks (Angu, 2022; Barber & Sher, 2022) and multimedia elements like videos and audio clips (Tessarolo et al., 2022). Thus, we recommend the development of asynchronous modules with embedded quizzes, reflection prompts, and multimodal content to cater to different learning styles and increase learner accessibility, interest and reflection.

According to ICotFoE (2021) teachers serve as facilitators of learning and well-being. Our study indicates that strong teacher presence and teacher-initiated communication help students adjust and feel supported, which is of heightened importance during the transition phase (Barber & Sher, 2022; Kinsel et al., 2004). Thus, DE lecturers should send welcome emails, schedule weekly check-ins, and offer virtual office hours to build strong connections right from the start. To achieve this aim, programme standardisation should not compromise teacher agency in DE.

ICotFoE (2021) promotes formative assessment as a tool for learning. Our results indicate that students appreciate continuous assessment as it improves academic skills and supports learning (Tessarolo et al., 2022). Thus, low-stakes quizzes, peer reviews, and automated feedback tools should be part of DE courses. AI-driven tutoring systems like Syntea or OneTutor offer easy accessible features for course related Q&A, self-testing and exam preparation. However, these tools cannot replace teachers; rather, teachers should curate and oversee their use and data security must be ensured.

According to UNESCO (2020) and ICotFoE (2021), learning should be authentic, experiential and relevant. Results from our study indicate that virtual field experiences

and life projects can provide experiential learning in DE (Robertson et al., 2021) and that the realism of a virtual reality fosters students' interest and understanding (Walker, 2022). We recommend to conduct case studies and project-based learning in DE that incorporate real-world challenges from local communities and use virtual simulations to allow for authentic, experiential and relevant learning.

UNESCO (2020) advocates for education to be more inclusive and empowering, especially for marginalized groups. Our study includes reports from mature students and those with mental health challenges, who feel empowered by DE (Bodo-Balu, 2017). Towards this aim, special care should be given to provide mental health resources, ensure accessibility features (e. g., captions, screen reader compatibility), compensation for disadvantages (e. g., flexible deadlines) and courses to fill knowledge and skill gaps (e. g., courses on self-regulated learning or basic math knowledge). Moreover, DE programmes should try to minimize the digital divide by providing students in need with basic digital skills or sponsoring digital devices.

According to ICotFoE (2021) digital learning should at best be integrated in physical communities. Our results also indicate that some learning opportunities are difficult to provide in DE, such as hands-on experience or laboratory courses, but that hybrid models with selective contact courses help mitigate DE's disadvantages (Brown et al., 2015; Kahu, 2014). Thus, we recommend DE programme designers to consider integrating selective on-campus courses preferably during the study entrance phase to allow for hands-on-experience and face-to-face community building of learners and teachers.

As demonstrated well designed DE programmes can align with UNESCO's humanistic and future-oriented vision of (higher) education. If special consideration is given to the study entrance phase, DE can truly contribute to a future HE that fosters equity and inclusion in the access to HE and beyond.

## 5 Conclusion

DE programmes provide access to HE, particularly for students who have been underrepresented in traditional face-to-face courses, thereby breaking down educational barriers and promoting equal opportunities (UNESCO, 2020). However, success rates in this form of education are lower, and dropout rates are higher, with the transition into DE being a particularly critical phase that calls for careful planning and design.

The study entrance phase is crucial as many learners drop out early in their distance studies, often due to challenges in adapting to the digital format, managing autonomy, and overcoming isolation. If this phase is well-designed in a way that provides students

with opportunities to enhance their digital literacy, self-regulation skills and social interactions, then drop-out can be impeded and the foundation for long-term academic success can be laid.

This is of particular importance for non-traditional student groups – those with vocational backgrounds, family responsibilities, or without standard university entrance qualifications. These learners often struggle to develop an academic identity (Bird et al., 2019), making it essential to offer opportunities for building confidence, motivation, and belonging right from the start.

Unlike face-to-face formats, distance learning requires high levels of self-organization, digital literacy, and motivation. The entrance phase must address these demands by offering structured support, orientation programmes, and interactive learning environments to impede frustration. If frustrated, students with non-linear educational pathways – who might be reminded of past negative educational experiences – may be triggered to give up on their educational aspirations (Busher & James, 2019).

An inclusive and innovative design during the entrance phase, however – such as student-centred teaching, accessible digital tools, social interaction and creative didactics – might help beginner students to see the advantages of DE (Stevanović et al., 2021) and reduce dropout rates and promote equity in HE.

As the digitalization of society proceeds, these recommendations are not only relevant for providers of DE programmes, but also for HEIs that aim to digitalize their teaching and learning (Gilch et al., 2019).

In sum, the study entrance phase in DE is more than a starting point – it is a strategic moment that determines whether students thrive or disengage. To lay the foundation for successful learning in the early stages, the opportunities offered by DE must be accessible and its challenges manageable. By following the UNESCO principles for the future of (higher) education and delivering DE courses effectively from a didactic (student-centred and engaging), social (supportive and interactive), and media (innovative, disturbance-free, flexible, well-organised) perspective, learning during the critical transition phase of DE can succeed. By investing in this phase, HEIs can shape a more inclusive, flexible, and future-ready higher education.

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# Multifactorial Discrimination and Student Mental Health: Implications for More Inclusive Higher Education

Lisa Steiner, Cordelia Menz, Sylvia Mandl

Higher education institutions should offer their students a safe, inclusive space that protects their mental health. Addressing this requires a holistic approach fostering a culture of belonging and psychological safety within academic communities. This research explores the association of multifactorial discrimination with student mental health and the potential of social integration to mitigate this effect in order to identify possible levers for higher education institutions. Logistic regression analysis indicates that discrimination is a significant predictor of mental health problems with social integration moderating this relationship. Additionally, an ANOVA reveals that students who experience discrimination rate psychological counselling services less positively than those without such experiences. This highlights the need to strengthen social integration of students at higher education institutions and psychological counselling especially for those facing discrimination.

*Keywords: student mental health, discrimination, social integration, inclusivity, psychological counselling*

## 1 Introduction

Higher education institutions play a pivotal role in shaping the future of societies and individuals. They not only drive innovation and foster societal transformation but also actively contribute to steering social development. Within the framework of the United Nations' 2030 Agenda for Sustainable Development, higher education and academic research are acknowledged as key enablers of Sustainable Development Goal 4 (SDG 4), which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all (United Nations [UN], 2015). To achieve this, higher education institutions must translate this goal into concrete action, helping to ensure that no one is left behind. Their engagement also reflects a broader commitment to the vision set out in the United Nations' Declaration – a vision grounded in universal respect for human rights and dignity, the rule of law, justice, equality, and non-discrimination, as well as the recognition of racial, ethnic, and cultural diversity (United Nations, 2015).

Fostering an inclusive learning environment is crucial not only for students' professional development but also for their mental health. For young adults, the transition to higher education often represents a period of heightened vulnerability, as they may encounter academic, personal, and societal pressures simultaneously. Particularly in the context of current global crises, the mental health of students in higher education has become an increasingly pressing issue. The COVID-19 pandemic, economic instability marked by inflation, and geopolitical tensions are just a few of the potential stressors affecting students around the world (Bravo et al., 2023; Li et al., 2021).

At the same time, discrimination is a critical issue in higher education, as it not only affects academic performance, but also (further) undermines students' mental health. The impact of discrimination becomes particularly pronounced when individuals face multiple forms of identity-based marginalisation. This phenomenon, known as multifactorial discrimination, occurs when overlapping identity factors interact to compound the negative effects of discrimination (Crenshaw, 1998).

While discrimination is a pervasive challenge, its impact is not felt equally by all students. Social integration has been identified as a critical protective factor that can buffer the psychological impacts of discrimination. Furthermore, some higher education institutions have started to offer their own psychological counselling services, aiming to support students. However, the extent to which social integration can mitigate the cumulative effects of multifactorial discrimination remains underexplored. What is more, little evidence exists regarding the extent to which higher education institutions' psychological counselling services are perceived as helpful by students who have experienced (multifactorial) discrimination. Gaining a better understanding of these matters is crucial for designing effective interventions that enhance inclusivity and mental health in higher education settings. Therefore, the aim of this study is to shed light on the relationship between multifactorial discrimination and student mental health with a focus on the role of social integration and psychological counselling services.

## 2 Higher Education at a Crossroads: Empirical Background

In recent years, the mental health of university students has garnered increasing academic and public attention, particularly in light of the complex societal and structural challenges they face. A growing body of research highlights how these challenges intersect with various forms of discrimination, compounding psychological distress and impacting student well-being globally. Meta-analytic findings show that current global challenges have compounded existing mental health issues – such as depression, anxiety, and other mental health disorders – within the student population across multiple countries (Bravo et al., 2023; Li et al., 2021). Alarmingly, suicide rates have

also increased among students, highlighting the critical need to address this growing public health issue (Campbell et al., 2022). Previous research has shown that almost two-thirds of people worldwide experience their first episode of mental disorders before the age of 25 (Solmi et al., 2022). The EUROSTUDENT 8 survey further illustrates the magnitude of the issue, revealing that one in ten students across the European Higher Education Area reports mental health challenges severe enough to affect their studies (Hauschildt, 2024).

Discrimination can be defined as unfavourable treatment towards a group or an individual based on perceived or actual identity factors, such as race/ethnicity, gender, sexual orientation, age, weight, impairment, or socioeconomic status (Devakumar et al., 2022). There is evidence for adverse effects of discrimination showing that individuals subjected to such treatment are at higher risk for anxiety, depression, substance use, and other mental health challenges (Carter et al., 2019; Emmer et al., 2024). Among students specifically, exposure to discrimination has been linked to increased stress, depressive symptoms, and even suicidal thoughts (Jochman et al., 2019; Pichardo et al., 2021). Given these risks, higher education institutions have a vested interest in reducing student dropout intentions – an aim that is closely tied to addressing the psychological burden discrimination places on students.

Discrimination is reported across various identity factors – such as gender, race, and sexual orientation – each uniquely affecting mental health. Gender-based discrimination is well studied and shows clear negative effects. Women who are exposed to sexism report increased psychological stress and a reduction in their general well-being (Swim et al., 2001). Similarly serious as the psychological effects of discrimination based on gender identity are those based on sexual orientation. Studies show that people from sexual minority groups suffer significantly more frequently from depression and anxiety disorders than cis-heterosexual people (Fredriksen-Goldsen et al., 2013). Racism is also linked to a higher risk of mental health issues. Students who experience racial discrimination on campus often report feelings of isolation, self-doubt and reduced academic engagement which can lead to long-term impacts on mental health and well-being (Emmer et al., 2024; Jochman et al., 2019). Similar findings were reported for ageism – discrimination based on the identity factor age. Besides its negative impact on mental health, ageism can also lead to social isolation. It can be noted that these negative effects were found not only for hostile discrimination but also benevolent behaviour (Gans et al., 2023). Finally, also social background plays a significant role in this context. Students from low-income households or whose parents have a low educational background are more likely to report stigmatisation due to social disadvantage. These experiences can lead to social isolation, reduced academic self-efficacy and negative psychological consequences (Hoyt et al., 2023).

Several psychological mechanisms help to explain the relationship between discrimination and its negative consequences. One key mechanism is stereotype threat, which arises when individuals internalise fears of confirming negative stereotypes about their social group. This fear can increase stress and affect performance in evaluative situations, such as exams or presentations (Steele & Aronson, 1995). For example, women in male-dominated STEM fields may experience heightened stress and reduced self-efficacy due to stereotype threat, which in turn undermines their academic performance (Nguyen & Ryan, 2008; Walton & Spencer, 2009). Another mechanism, known as self-fulfilling prophecy, highlights how external expectations based on biases can shape individual behaviour. In educational settings, marginalised students who encounter lower expectations from instructors or peers may receive fewer opportunities for engagement and feedback, further reinforcing initial biases (Gershenson et al., 2016; Rosenthal & Jacobson, 1968). These mechanisms often operate in tandem, creating a cycle of disadvantage that perpetuates the effects of discrimination over time.

By reducing feelings of isolation and promoting a sense of belonging, social peer support can mitigate the negative effects of discrimination on mental health. A systematic review and meta-analysis found that peer support programmes significantly reduced symptoms of depression and generalised anxiety disorder in university students (Worsley et al., 2022). Moreover, building strong social networks has been highlighted as a key factor in promoting students' well-being (Campbell et al., 2022).

Acknowledging students' challenges and supporting them, higher education institutions have been setting up psychological counselling services during the last decades. Psychological counselling services are well established in many European countries and target different issues, from learning and social skills to examination stress and depression (e.g., Rückert, 2015). Whether psychological counselling services serve the need is often evaluated by the institutions themselves; systematic empirical analyses are scarce. However, there is evidence that psychological counselling services are effective in reducing students' psychosocial stress (Pizzo et al., 2025; Sperth et al., 2013). While some students might use psychological counselling services for rather generic topics like procrastination or self-organisation, others might use it for even more pressing issues that target their mental health.

Taken together, these findings underscore the multifaceted nature of student vulnerability, particularly among those facing discrimination based on various characteristics. As understanding these stressors is crucial for developing effective interventions and consequently rendering higher education institutions more inclusive for everyone, it is important to investigate if social support (whether manifested as social integration or institutionalised through psychological counselling services) helps to alleviate the mental health burden associated with multifactorial discrimination.

This study therefore investigates the relationship between multifactorial discrimination and student mental health while considering the potential mitigating role of social integration. Adding on this and offering a high practical relevance for enhancing inclusivity in higher education, it examines the perceived helpfulness of psychological counselling services offered by higher education institutions, exploring whether students who experience discrimination find professional support to be a helpful resource. Thus, drawing on a large, cross-national student dataset, this research aims to provide evidence-based insights into how universities can foster inclusive and supportive learning environments through both peer-driven and institutional support mechanisms.

## 3 Methodology

### 3.1 Data Source

This study utilises data from the EUROSTUDENT 8 project, a cross-country survey conducted primarily in the spring and summer of 2022 (with some exceptions in 2023). The project collected quantitative data on various topics related to student life, including mental health, discrimination experiences, well-being, social integration in higher education, and academic circumstances. The variables of interest for this study are described in section 3.4; for a comprehensive overview of all topics, see Hauschildt (2024). The Scientific Use File of EUROSTUDENT 8, Version 1.0.0 (Cuppen et al., 2024) consists of 18 countries with 194.758 cases. Based on the variables of interest, in this study, 12 countries with 153.274 cases in total are included: Austria, Croatia, the Czech Republic, Denmark, Finland, Georgia, Hungary, Iceland, Ireland, Malta, the Netherlands, and Poland.

### 3.2 Target Population

The target population of EUROSTUDENT 8 includes all students enrolled in higher education programmes during the observation period, as defined by the International Standard Classification of Education (ISCED 2011) levels 5, 6, and 7 (UNESCO Institute for Statistics, 2012). This includes short-cycle programmes (programmes with a minimum duration of two years that are usually practice-oriented and may provide a pathway to other higher education programmes), Bachelor's and Master's degrees, traditional diploma programmes, and equivalent qualifications recognised as higher education in each national context. Students on temporal leave, students studying temporarily abroad, students who are not living in the country of survey while studying a distance learning programme, and doctoral students are not part of the target population.

### 3.3 Sampling and Data Collection

The survey used a standardised online questionnaire to collect data from participants. The questionnaire was distributed nationally within each participating country, following a census or a structured sampling plan. While variations in sampling and recruitment procedures may exist between countries, the dataset represents a comprehensive cross-national perspective on students' experiences. The sample is composed of students from diverse academic disciplines, geographic regions, and demographic backgrounds. While the total sample size varies by country, the aggregation of responses provides robust statistical power for analyses of the student body.

### 3.4 Operationalisation

#### 3.4.1 Mental Health Problem(s)

Participants indicated whether they have a mental health condition, such as anxiety disorders, depression, eating disorders, personality disorders, ADHD, psychosis, addiction disorders, or other unspecified conditions. These conditions were coded as a binary variable regarding whether students have a mental health condition (1 = yes; 0 = no).

#### 3.4.2 Discrimination Experiences

Experiences of discrimination were measured regarding eleven criteria. The selection of the criteria was based on the European Social Survey (European Social Survey, 2018) and the Intersectional day-to-day Discrimination Index (Scheim & Bauer, 2019) and slightly adapted to the context of higher education. Students indicated whether they have felt discriminated in the context of their studies due to the following criteria: skin colour, ancestry/nationality, religion, gender, sexuality, age, weight, impairment, income, parents' education and mental health. For each criterion, they indicated whether they felt discriminated by fellow students, teaching staff, and/ or other university staff (1 = yes; 0 = no). For this study, students were classified as "with discrimination experience(s)" if they indicated having experienced discrimination based on at least one criterion by at least one group of people and as "without discrimination experience" if they did not indicate a discrimination experience at all. In addition, a variable was calculated indicating whether students reported discrimination experiences based on multiple identity factors. This variable includes students who did not indicate any discrimination experience regarding the eleven criteria (reference category), students who indicated a discrimination experience due to one criterion only, irrespective of the group they felt discriminated by (single discrim.), and students who indicated discrimination experiences due to at least two criteria, irrespective of the group they felt discriminated by (multiple discrim.). It has to be noted that the operationalisation

of discrimination experiences in this study covers self-reports and does not allow to draw any conclusions regarding whether these experiences have also been reported to any official contact points.

### 3.4.3 Social Integration

In this study, social integration is operationalised using the item "*How often do you feel isolated from fellow students in your study programme?*", originally measured on a scale from 1 (*all of the time*) to 5 (*never*). For the analysis, the item was recoded so that higher values indicate greater perceived isolation (1 = *never feeling isolated*; 5 = *feeling isolated all of the time*). This item captures the subjective perception of social connectedness within the academic context, which is central for social integration within higher education. While social integration can encompass various structural and behavioural indicators (e.g., frequency of interaction, participation in group activities), perceived isolation is particularly salient, as it reflects the individual's internalised sense of belonging and inclusion. By focusing on perceived isolation, the measure captures not only the presence or absence of social ties, but also the quality and adequacy of those ties from the student's perspective. This is especially relevant in higher education settings, where superficial contact may not equate to meaningful integration.

### 3.4.4 Student Knowledge of and Satisfaction With Psychological Counselling Services

To assess students' awareness and evaluation of psychological counselling services, two variables were examined. The first variable measured awareness of counselling services, asking students whether they were familiar with psychological counselling options specifically designed for students, such as support for exam-related anxiety. Response options included "Yes, I have already used it", "Yes, but I have not used it (yet)", and "No, I have never heard of it". It should be noted that for the "No" response, there are two possible reasons: Either students are unaware of existing services, or their institution does not offer such services at all. The second variable focused on the perceived helpfulness of these services, where students who had accessed psychological counselling were asked to rate its helpfulness on a five-point Likert scale ranging from *very helpful* (1) to *not helpful at all* (5). These measures provide insights into both the accessibility and the perceived impact of counselling services within higher education institutions.

### 3.4.5 Control Variables

For the analysis, the following control variables were included: gender, age, financial difficulties[1], field of study, and country. *Gender* was coded as *female*, *male*, and *other/not able to assign*. *Age* was categorised into the four groups: *up to 21 years*, *22 to <25 years*, *25 to <30 years*, and *30 years and over*. The variable *financial difficulties* indicates the extent to which students experience financially challenging situations. *Field of study* includes the following categories: *Education; Arts and Humanities; Social Sciences*, *Journalism & Information; Business*, *Administration & Law; Natural Sciences*, *Mathematics & Statistics; ICTs; Engineering*, *Manufacturing & Construction; Agriculture*, *Forestry*, *Fisheries & Veterinary; Health and Welfare; Services*. In addition, the variable *country* was included to control for country-specific differences. Only countries that contained valid responses on the discrimination-related items were included in the analysis.

## 3.5 Data Analysis

All analyses were conducted in IBM SPSS Statistics (Version 28.0.0.0). First, descriptive statistics were computed to explore the main sociodemographic characteristics of the sample, as well as frequencies or mean scores of the variables of interest.

To examine the relationship between discrimination experiences and mental health problems, a logistic regression was conducted. Bootstrapping (5000 resamples) was used where applicable to obtain robust standard errors and confidence intervals. The dependent variable (Y) was mental health problem(s) (0 = no; 1 = yes). The main predictor (X) was discrimination experiences, coded as no discrimination = reference group, one discrimination experience = single discrim., multiple discrimination experiences = multiple discrim. (see above). Additionally, social integration was included as a potential moderator. Several control variables were added sequentially to the model, including gender, age, financial difficulties, field of study, and country.

### 3.5.1 Stepwise Model Building

The analysis followed a stepwise approach:

- **Baseline Model:**
  First, the effect of discrimination and social integration on mental health problems was assessed in a simple logistic regression.

[1] There is some evidence of a link between financial difficulties and mental health problems (e.g., Muja et al., 2024).

- **Control Variables:**
  Next, demographic covariates (gender, age, financial difficulties, field of study, country) were added to the model to account for potential confounding effects.

- **Moderation Analysis:**
  Finally, interaction terms were created by multiplying discrimination experiences and social integration to test whether social integration moderates the relationship between discrimination experiences and mental health problems.

### Model Specification

A logistic regression analysis was performed using the LOGISTIC REGRESSION function in SPSS. The ENTER method was used to include predictors step by step. Categorical predictors were dummy-coded using Indicator (1) contrast coding. The significance of each predictor was assessed using Wald's test, and the overall model fit was evaluated using Nagelkerke $R^2$. Multicollinearity was checked using variance inflation factors (VIFs). The cut-off value for classification was set at 0.5, meaning predicted probabilities above 0.5 were classified as "yes" (1), and those below 0.5 as "no" (0).

### Moderation Effect

To test for moderation, product terms (interactions) between discrimination experiences and social integration were computed and included in the final regression model. Specifically, two interaction terms were created: one for the interaction between single discrimination experience and social integration, and one for the interaction between multiple discrimination experiences and social integration. A significant interaction effect would indicate that the effect of discrimination on mental health problems depends on the level of social integration. Simple slopes analyses were conducted to further explore the nature of the interaction.

### Satisfaction With Counselling Services

To analyse differences in the evaluation of psychological counselling services among students with varying experiences of discrimination, a one-way ANOVA was conducted. The dependent variable was the satisfaction with counselling services, measured on a five-point scale ranging from *very helpful* (1) to *not helpful at all* (5). The independent variable was the extent of discrimination experiences (no, single, or multiple experiences). Post-hoc tests with Bonferroni correction were applied to examine pairwise differences between groups. This analysis aimed to determine whether discrimination experiences are associated with students' perceptions of the helpfulness of psychological counselling services.

# 4 Results

## 4.1 Descriptive Statistics

Reported discrimination experiences as well as mental health status are presented in Table 1. Overall, 25 % of the students report experiencing discrimination in the context of their studies. Among the different types of discrimination, gender-based discrimination is the most frequently reported (10 %), followed by discrimination based on ancestry or nationality (6 %), age (6 %), income (5 %), and mental health status (5 %). Other forms of discrimination are reported less frequently, including weight (4 %), religion (3 %), sexuality (3 %), parents' education (3 %), impairment (2 %), and skin colour (2 %). Regarding the extent of discrimination experiences, 14 % of students report experiencing discrimination based on one factor, while 11 % report facing discrimination based on two or more factors.

Overall, 13 % of students report having a mental health problem, indicating a substantial proportion of students facing mental health-related challenges.

The mean score of social isolation is 2.80 (SD = 1.28), indicating that, on average, students experienced moderate levels of isolation in their academic environment.

**Table 1:** Shares of Students Indicating Discrimination and Mental Health Problems

| | Share of Students |
|---|---|
| Any Perceived Discrimination | 25 % |
| Discrimination: Gender | 10 % |
| Discrimination: Age | 6 % |
| Discrimination: Ancestry/Nationality | 6 % |
| Discrimination: Income | 5 % |
| Discrimination: Mental Health | 5 % |
| Discrimination: Weight | 4 % |
| Discrimination: Religion | 3 % |
| Discrimination: Sexuality | 3 % |
| Discrimination: Parents' Education | 3 % |
| Discrimination: Impairment | 2 % |
| Discrimination: Skin Colour | 2 % |
| Mental Health Problem(S) | 13 % |

*Source:* EUROSTUDENT 8 Scientific Use File, Version 1.0.0 (Cuppen et al., 2024).

### 4.2 Perceived Discrimination and Mental Health

A logistic regression model was used to examine the association of discrimination experiences and mental health problems among students, including social integration as potential moderator. The final model includes demographic covariates (age, gender, financial difficulties, field of study, country) as well as two interaction terms: one for the interaction between single discrimination and social isolation, and one for the interaction between multiple discrimination and social isolation. This model shows an improved fit, with a Nagelkerke $R^2$ of 0.157, indicating that 15.7 % of the variance in mental health problems is explained by the predictors (see Table 2).

**Table 2:** Logistic Regression Models on Mental Health Problems (Logit Effects)

| | Model 0 | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|---|
| **Discrimination (Ref: No Discrim.)** | | | | | | |
| Single Discrim. | 0.477*** | 0.409*** | 0.370*** | 0.369*** | 0.385*** | 0.572*** |
| Multiple Discrim. | 1.060*** | 0.968*** | 0.872*** | 0.874*** | 0.910*** | 1.068*** |
| **Social Isolation** | 0.403*** | 0.399*** | 0.382*** | 0.373*** | 0.351*** | 0.369*** |
| **Sex (Ref: Female)** | | | | | | |
| Male | | −0.477*** | −0.474*** | −0.458*** | −0.452*** | −0.452*** |
| Other/Not Able to Assign | | 1.424*** | 1.421*** | 1.157*** | 1.259*** | 1.257*** |
| **Age (Ref: Up to 21 years)** | | | | | | |
| 22 to <25 Years | | 0.058** | 0.050* | 0.060** | 0.028 | 0.028 |
| 25 to <30 Years | | 0.133*** | 0.094*** | 0.100*** | 0.048 | 0.048 |
| 30 Years and Over | | −0.175*** | −0.211*** | −0.186*** | −0.316*** | −0.315*** |
| **Financial Diff. (Ref: With Diff.)** | | | | | | |
| Medium Diff. | | | −0.350*** | −0.350*** | −0.346*** | −0.346*** |
| Without Diff. | | | −0.505*** | −0.502*** | −0.516*** | −0.515*** |
| **Study Fields (Ref: Education)** | | | | | | |
| Arts And Humanities | | | | 0.783*** | 0.685*** | 0.684*** |
| Social Sc., Journalism & Inf. | | | | 0.473*** | 0.442*** | 0.441*** |
| Business, Administration & Law | | | | −0.177*** | −0.210*** | −0.209*** |
| Natural Sc., Math. & Statistics | | | | 0.480*** | 0.415*** | 0.414*** |
| Inf. & Communication Tech. | | | | 0.334*** | 0.269*** | 0.269*** |
| Engineering, Manufacturing | | | | 0.007 | −0.065*** | −0.065 |
| Agric., Forestry, Fisheries & Vet. | | | | 0.373*** | 0.190*** | 0.190** |
| Health & Welfare | | | | 0.105** | 0.002*** | 0.002 |
| Services | | | | −0.06 | −0.246*** | −0.245*** |

*Continued on Next Page*

**Table 2,** Continued

| | Model 0 | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|---|
| **Country (Ref: Austria)** | | | | | | |
| Croatia | | | | | –0.352*** | –0.349*** |
| Czech Republic | | | | | 0.319*** | 0.319*** |
| Denmark | | | | | 0.540*** | 0.542*** |
| Finland | | | | | 0.934*** | 0.931*** |
| Georgia | | | | | –0.585*** | –0.579*** |
| Hungary | | | | | –0.410*** | –0.409*** |
| Iceland | | | | | 0.679*** | 0.678*** |
| Ireland | | | | | 0.351*** | 0.352*** |
| Malta | | | | | –0.295 | –0.293 |
| Netherlands | | | | | 0.156*** | 0.157*** |
| Poland | | | | | 0.337*** | 0.339*** |
| **Interaction Effects** | | | | | | |
| Single Discrim. x Isolation | | | | | | –0.057** |
| Multiple Discrim. x Isolation | | | | | | –0.046* |
| **Intercept** | –3.326*** | –3.186*** | –2.797*** | –3.009*** | –3.018*** | –3.074*** |
| Number of Estimated Parameters | 4 | 9 | 11 | 20 | 31 | 33 |
| Nagelkerke $R^2$ | 0.095 | –0.11 | 0.118 | 0.137 | 0.157 | 0.157 |

*Notes:* *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$. Source: EUROSTUDENT 8 Scientific Use File, Version 1.0.0 (Cuppen et al., 2024).

The analysis shows a significant association between discrimination experiences and mental health problems of students ($p \leq .001$) which remains robust with all control variables held constant. Model 4 shows that students who have experienced one type of discrimination have a 1.5 times higher likelihood (Exp(B) = 1.469) of reporting mental health issues compared to those who have not experienced discrimination. The effect is even stronger for students facing multiple discrimination experiences, who are 2.5 times (Exp(B) = 2.485) more likely to report mental health problems.

The interaction terms between discrimination and isolation are statistically significant (single discrimination x isolation: Exp(B) = 0.945, $p = .003$; multiple discrimination x isolation: Exp(B) = 0.955, $p = .016$), indicating that the effect of discrimination on mental health is moderated by social integration. The less students feel isolated from their peers, the less discrimination is associated with mental health problems. Put the other way around, students who experience discrimination (both single and multiple) may be more negatively affected if they also experience isolation.

To test the robustness of these findings and diminish potential circularity issues, we repeated the analysis excluding discrimination experiences based on mental health as

a criterion. The results revealed a very similar model fit (Nagelkerke $R^2$ = 0.150), with only slightly reduced effect sizes for single (Exp(B) = 1.469, 95 % CI: 1.346–1.603) and multiple discrimination (Exp(B) = 2.485, 95 % CI: 2.069–2.985). Social isolation remained a significant moderator. Thus, the main conclusions regarding the impact of multifactorial discrimination and social integration on student mental health are robust across different model specifications, either including or excluding students' discrimination experiences due to their mental health.

### 4.3 Knowledge of and Satisfaction With Psychological Counselling Services

Regarding the awareness of the counselling services, the results indicated that 54.5 % of students were aware of the services but had not yet used them, 8.8 % had already used the services, and 36.7 % had never heard of them.

The ANOVA results revealed significant differences in the assessment of counselling services among students with different discrimination experiences ($F(2, 7026) = 22.632$, $p \leq .001$). Post-hoc Bonferroni comparisons further showed that students who reported no discrimination experience (M = 2.29, SD = 1.174) rated the counselling services significantly more helpful than those who experienced single discrimination (M = 2.44, SD = 1.274; $p \leq .001$) and multiple discrimination (M = 2.53, SD = 1.303; $p \leq .001$). Additionally, students with single discrimination experiences rated the services slightly better than those with multiple discrimination experiences, but this difference was not statistically significant ($p = .233$). These findings indicate that students who have experienced discrimination tend to perceive counselling services as less helpful compared to their peers without such experiences (see Table 3). However, it has to be kept in mind that the question regarding the counselling services was not specifically targeting the discrimination experiences.

**Table 3:** Post-Hoc Comparisons (Bonferroni) of Helpfulness of Psychological Counselling Services

| Group Comparison | Mean Difference | Std. Error | Sig. | 95 % Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| No Discrim. vs. Single Discrim. | –.150* | 0.041 | <.001 | –0.25 | –0.05 |
| No Discrim. vs. Multiple Discrim. | –.237* | 0.038 | <.001 | –0.33 | –0.15 |
| Single Discrim. vs. Multiple Discrim. | –0.087 | 0.049 | .233 | –0.21 | 0.03 |

Group coding: No Discrim. = No discrimination experience;
Single Discrim. = Single discrimination experience; Multiple Discrim. = Multiple discrimination experiences.
Source: Eurostudent 8 Scientific Use File, Version 1.0.0 (Cuppen et al., 2024).

## 5 Discussion

Higher education institutions have a mandate to be open to everyone and foster knowledge acquisition as well as personal development. To do so, they do not only need to produce top-notch research and offer high-quality teaching, but they also need to invest in a supportive and inclusive environment. One aspect to support students with the multiple challenges they face nowadays – for example, those with mental health issues – is offering psychological counselling services on campus. Therefore, this study investigated students' mental health and discrimination experiences within the context of higher education – with a focus on a possible moderator of their relationship as well as the perceived helpfulness of psychological counselling services offered to students.

The findings of the present study provide evidence on the significant impact of discrimination experiences on students' mental health. Consistent with previous research (Daftary et al., 2020; Volpert-Esmond et al., 2023), the findings highlight that multiple experiences of discrimination have a particularly pronounced negative effect: Students with multiple discrimination experiences are about two and a half times more likely to also report a mental health problem compared to students without such experiences. Additionally, the analysis revealed statistically significant interaction effects between discrimination experiences and social integration. Social integration can thus be seen as buffer, with those who are socially isolated lacking the resources or coping mechanisms to mitigate the negative effects of discrimination. The effects also hold true when leaving aside discrimination experiences due to mental health status – making the findings even more robust.

The United Nations' Agenda 2030 (United Nations, 2015) recognises the fundamental role of higher education in Sustainable Development Goal 4 (SDG 4) – Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. This highlights that higher education institutions must actively contribute to creating environments that promote equal opportunities, mental well-being, and academic success for diverse student populations. The significant impact of discrimination on students' mental health found in this study emphasises the need for higher education institutions to take proactive measures in fostering inclusive and supportive learning environments. On the one hand, given that mental health challenges can impair academic engagement and grades (e. g., Bruffaerts et al., 2018), higher education institutions must recognise discrimination as a critical barrier to student success and well-being. On the other hand, given that discrimination experiences themselves can be associated with higher dropout intentions (e. g., Menz et al., 2024), focusing on students with those experiences is essential for higher education institutions. The results regarding students' awareness and satisfaction with psychological counselling services

suggest a clear information gap regarding these services that should be addressed by higher education institutions. We found that a significant proportion of students has never heard of psychological counselling services of their higher education institution. While this might not be too problematic for students without a need for counselling, it could also be the case that students in need of psychological support could not find the relevant information. First, establishing psychological counselling services at each higher education institution is important: One possible explanation for the large proportion of students not knowing about services at their higher education institution could be their non-existence. Second, providing target group specific, appealing and comprehensive advertisements for the psychological counselling services they offer is a significant task of higher education institutions that should not be neglected in the future.

The perceived helpfulness of psychological counselling services varies significantly, especially among those who report having experienced discrimination. This points to the possibility that existing support services may not be sufficiently tailored to meet the specific needs of discriminated students. This assumption is reinforced by the fact that a study providing an overview of topics covered in various countries' psychological counselling services does not mention discrimination as one of the main areas targeted (Rückert, 2015). There is a pressing need for discrimination-sensitive counselling that takes these particular concerns into account. Moreover, integrating discrimination-sensitive counselling into a broader, holistic strategy is essential for a more inclusive higher education. This strategy should not only focus on individual counselling, but also promote structural changes within universities. This could include incorporating diversity-awareness training for faculty, fostering open discussions on discrimination and mental health within the curriculum, and ensuring that assessment methods are equitable to all students. By focusing on these aspects, higher education institutions of the future could achieve two things: First, marginalised students who face particular challenges will be supported better, possibly reducing negative outcomes, for example, dropouts of higher education. Second, higher education institutions would take on role model and multiplicator functions for the whole society by showing the importance of investing in students' mental health and an inclusive environment, and thus, shaping the future for all of us.

Furthermore, expanding peer mentoring programmes and student support networks could help mitigate the negative effects of social isolation and create a sense of belonging within the academic community. Strengthening social interaction among students helps to mitigate the negative mental health effects of discrimination, as social support can improve psychological resilience (Dong et al., 2024). Fostering inclusive peer relationships and creating supportive social environments within educational settings can serve as a protective factor against the adverse outcomes of

discrimination. Social interactions provide emotional validation, shared coping strategies, and a sense of belonging, all of which are essential for buffering the psychological distress associated with discrimination. To promote social integration is not only relevant on an individual level – it can also be effectively supported by higher education institutions. They should therefore prioritise initiatives that enhance social cohesion, such as mentorship programmes, peer support networks, and inclusive extracurricular activities, to ensure that students facing discrimination can access the interpersonal resources necessary for maintaining mental well-being. Peer support systems could be effectively integrated into governance structures to make changes sustainable for future generations of students who will then profit from more inclusive, supportive educational experiences.

Beyond individual interventions, higher education institutions of the future must also integrate structural changes that reinforce inclusion at the institutional level. This includes establishing anti-discrimination policies, enhancing access to mental health services, and embedding equity-driven principles in governance and decision-making processes. The findings of the present study point to a clear need for higher education institutions to prioritise mental health as part of their strategic planning. By adopting these measures, higher education institutions can contribute to a future-oriented academic landscape that prioritises student well-being and fosters a more resilient and inclusive learning environment.

## 6 Limitations and Future Research

While the findings of this study offer valuable insights, it is essential to acknowledge the limitations of the research design. It should be noted that this study is based on cross-sectional data. Therefore, causal conclusions about the effects cannot be drawn. The relatively small interaction effects between discrimination experiences and isolation indicate that while social integration may provide some relief, it does not fully counteract the negative consequences of discrimination. Moreover, the concepts of discrimination experiences and students' feelings of isolation could be confounded to some extent, leading to distorted findings. Furthermore, while the use of quantitative data provides a means for statistical analysis and a broad perspective, it cannot fully represent the depth and complexity of students' individual experiences and perspectives. Future research could further contribute to understanding the relations between discrimination and mental health as well as the moderating role of social integration or other potential moderators by applying longitudinal designs and in-depth qualitative analyses.

Using EUROSTUDENT 8 Microdata (Cuppen et al., 2024) offers the valuable opportunity to get insights into students' situations around the European Higher Education

Area. While in this study, between-country effects were not of particular interest, country effects were only considered as control variables. To investigate further whether differences between countries which, for example, spend more or less budget on the social dimension of students, occur regarding the psychological counselling services, could be fruitful for a deeper understanding of the mechanisms.

## 7 Conclusion

Mental health issues are raising among students (Burwell, 2018), implying the student body to get more diverse in the future of higher education. The present study supports this assumption in showing that also discrimination experiences are common among students (25 % of students report having experienced discrimination within the context of higher education). To be able to meet students' needs in their worlds, higher education institutions need to know about the link between discrimination experiences and mental health issues, consider the pivotal role of reducing isolation of students, foster effective psychological counselling services, provide students with a rewarding study experience and support them in transferring that experience into the world. By doing this, higher education institutions continue taking on their important role of shaping society and the future.

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# Rethinking Higher Education Policies for Inclusivity through a Decolonial Lens: A Historical and Future-Oriented Analysis of South African Education

Stephina Modiegi Ntsoane

South Africa's higher education system remains shaped by colonial and apartheid legacies that embedded systemic inequalities in access, curriculum, and governance. Despite decades of reform, these historical injustices continue to marginalise African knowledge systems and lived experiences. This conceptual paper uses a decolonial lens to critically examine how Euro-North-American epistemologies have dominated education policy formulation, often at the expense of local perspectives rooted in African values. The analysis foregrounds *Ubuntu* as an alternative framework for rethinking inclusivity, emphasising interconnectedness, collective dignity, and social justice. By tracing the evolution of education policy from missionary schooling in the 1800s through apartheid's Bantu Education to contemporary reforms, the paper highlights how inclusivity has often been narrowly framed. It argues for an expanded understanding of inclusivity that moves beyond access to encompass epistemic and cultural representation. The paper concludes by proposing a transformative policy approach grounded in decolonial thought and *Ubuntu* ethics, envisioning higher education as a space that actively dismantles structural inequalities and empowers all communities through co-creation and shared knowledge.

*Keywords: decolonial lens, ubuntu, inclusivity policies, higher education, systemic inequalities, euro-north-american centric, epistemic justice*

## 1 Introduction and Background

South Africa's education system has evolved through overlapping colonial, apartheid, and post-colonial regimes, each leaving behind structural inequalities that persist in the present. The foundation was laid in the early 1800s through missionary education, serving religious and imperial functions. Missionaries introduced formal schooling with the dual aim of Christianisation and Westernisation, prioritising English and Dutch as mediums of instruction while marginalising indigenous languages and epistemologies. This education system reinforced cultural hegemony, portraying European ways of knowing as superior and rendering African knowledge systems less important (Gladwin, 2017).

During the 1900s, British and Afrikaner administrations deepened these exclusions by formalising racial hierarchies in education. Under British colonial rule, the curriculum was designed to conform Black learners into subordinate roles within the colonial economy, often through vocational training and Christian instruction (Irvine, 2016). With the rise of Afrikaner nationalism, educational policy became a vehicle for asserting Afrikaner identity and language. Afrikaans and English were institutionalised as the dominant languages of instruction, while African learners were consigned to underfunded schools and systematically excluded from academic advancement (Kamwangamalu, 2001).

This culminated in the *Bantu Education Act* of 1953, which codified apartheid's racial segregation in education. The act deliberately provided inferior education to Black South Africans, designed to prepare them for menial labour rather than intellectual development or civic participation. The policy not only deprived generations of equal opportunity but also entrenched a view of Black learners as unworthy of rigorous academic instruction (Wills, 2012).

Following the fall of apartheid in 1994, the democratic government pledged to redress past injustices by restructuring the education system along principles of equity, transformation, and inclusion. While several policy frameworks – such as the *White Paper on Education and Training* (1995) and the *White Paper for Post-School Education and Training* (2013) – have aimed to expand access and promote transformation, many universities remain tied to colonial curricula, this is what Cloete (2016) refers to as the continued dominance of Euro-North-American-centric knowledge systems, and exclusionary institutional cultures.

The term "Euro-North American-centric" refers to perspectives, ideologies, or frameworks that are predominantly shaped by European and North American historical, cultural, intellectual, and political traditions (Fox, 2007). This term critiques the tendency of Western scholarship, policies, and global narratives to prioritise and universalise experiences, values, and knowledge systems rooted in Western contexts – often marginalising or excluding indigenous and African perspectives. In education, a Euro-North American-centric approach manifests in curricula, pedagogies, and institutional structures that reflect Western epistemologies while marginalising other knowledge systems such as African or Indigenous knowledge (Fox, 2007).

These enduring inequalities reveal that the transition from segregated schooling to inclusive education has been incomplete, prompting urgent calls for deeper structural change such as national equity audits or transformation progress reports (Council on Higher Education (CHE), 2022).

This historical context is crucial for understanding the current challenges facing South African higher education. It foregrounds the need for a decolonial policy approach that acknowledges this legacy and actively works to dismantle the systems that perpetuate marginalisation in the post-apartheid era.

## 2 The Decolonial Lens

The decolonial lens provides a transformative framework for analysing higher education policy in South Africa by exposing the embedded coloniality in knowledge systems and institutional design. Rather than viewing policy reform as a neutral process, it reveals how epistemic hierarchies – which are rooted in missionary education and apartheid logic, continue to shape whose knowledge is considered valid. Drawing on thinkers such as Ndlovu-Gatsheni (2018), this perspective critiques the systemic structures – disciplinary boundaries, funding mechanisms, and quality controls – that marginalise African intellectual traditions. Decoloniality thus shifts the conversation from inclusion as access to inclusion as epistemic justice, interrogating who defines knowledge and how power is institutionalised (Ndlovu-Gatsheni, 2018).

This lens interprets South Africa's historical trajectory not as a linear progression toward equity, but as a series of disruptions, impositions, and resistances that have produced enduring inequalities in access, language, representation, and cultural belonging. It critically reframes the post-1994 policy landscape, noting that while democratic reforms aimed to redress access, they often left underlying structures – such as curricula, language hierarchies, and institutional governance – untouched. Decolonial critique thus shifts the policy conversation from quantitative expansion (i. e., enrolment targets and infrastructure) to qualitative transformation – whose knowledge is taught, valued, and institutionalised (Kelebogile, 2020).

To strengthen this theoretical positioning, the critique should be contextualised within broader frameworks of neoliberalism and educational performativity (Ball, 2003), which illuminate how policies reduce transformation to managerial indicators while preserving the colonial logics embedded in governance systems. Crucially, the decolonial lens foregrounds epistemic justice as the foundation of inclusivity. This involves not only diversifying perspectives but fundamentally questioning the colonial roots of educational content and pedagogical authority. It resists the superficial inclusion of marginalised voices within dominant frameworks and instead advocates for dismantling the very frameworks that perpetuate exclusion (Omodan, 2024).

In this context, *Ubuntu* emerges as an important ethical-philosophical complement to the decolonial critique. *Ubuntu* centres values of relationality, mutual recognition, and collective well-being. These principles are largely absent from colonial-era educational

policy. When applied to higher education, *Ubuntu* urges policy frameworks to prioritise social cohesion, restorative justice, and participatory governance. It moves policy beyond technocratic reform toward humanising transformation (Hungwe et al., 2023).

A decolonial analysis, therefore, calls for a reorientation of South African higher education policy – from merely accommodating diversity to actively dismantling inherited structures of epistemic privilege. It invites institutions to adopt policy tools that recognise local knowledges, support multilingualism, and engage students and communities in co-constructing inclusive academic spaces. As a lens, it is both diagnostic, revealing the depth of structural inequality, and prescriptive, offering pathways for educational justice grounded in African values and intellectual traditions (Maluleke & Nadar, 2022).

## 3 Legacies and Continuities of Exclusion

While South Africa has formally transitioned from apartheid to democracy, many of the structural and cultural legacies of colonial and apartheid education continue to shape the landscape of higher education. These continuities are not simply fragments of the past, but are actively reproduced through institutional policies, pedagogical practices, and linguistic hierarchies that sustain exclusion and marginalisation.

The continued dominance of Western academic paradigms is not merely an oversight, but a symptom of institutional self-preservation. These paradigms confer symbolic capital aligned with global university rankings and international funding bodies, reinforcing a logic of compliance rather than critical emancipation. As such, inclusion efforts become performative – retaining colonial logics under new rhetoric. A critical interrogation must ask: whose interests are preserved when African knowledge systems remain optional rather than foundational?

This concern has been echoed in the CHE's (2022) analysis of university transformation, which documents resistance within institutions to embed indigenous knowledge systems at the core of academic structures.

One of the most enduring legacies is the dominance of English and Afrikaans in higher education, which reinforces the marginalisation of indigenous African languages. Despite constitutional recognition of multilingualism, African languages are often confined to symbolic use or relegated to peripheral spaces within universities. This language hierarchy not only limits epistemic access for students from non-dominant linguistic backgrounds, however, it also erodes their cultural identity and sense of belonging within academic institutions (Alexander, 2005). Language, therefore, operates not merely as a medium of instruction, but as a gatekeeper to participation, voice, and legitimacy in the knowledge economy.

Institutional culture is another domain where exclusion persists. Many universities continue to reflect Euro-North American norms and values in their curricula, codes of conduct, and spatial organisation. These environments often privilege Western modes of knowledge production and academic expression, rendering African epistemologies invisible or secondary.

As Cloete (2016) notes, the continued dominance of Western academic paradigms is not merely an oversight but a symptom of institutional self-preservation. These paradigms confer symbolic capital through alignment with global rankings and funding criteria, sustaining compliance over critical transformation. Inclusion efforts thus risk becoming rhetorical, replicating colonial logics rather than dismantling them.

This dynamic emphasises how African knowledge systems are frequently positioned as supplemental rather than fundamental components of academic life, which serves to uphold established hierarchies of legitimacy. For students and staff from historically marginalised communities, this creates a form of "epistemic alienation" – a disconnect between their lived experiences and the dominant academic culture (Ndlovu-Gatsheni, 2018). The persistence of colonial symbols, hierarchical governance models, and standardised metrics of academic success further exemplifies how exclusion is embedded in institutional structures.

The effects of these legacies are visible in student activism. The vocal 2015 movements, such as *Rhodes Must Fall* – which campaigned for the removal of statues and colonial figures like the Cecil Rhodes statues at the University of Cape Town (UCT) and *Fees Must Fall* – which started at the University of the Witwatersrand (Wits) protesting against rising and unaffordable tuition fees, demanding greater access to higher education – these movements drew national attention to the ways in which universities remain sites of symbolic, material, and epistemic violence. De Schryver (2021) defines epistemic violence is occurring when people's ideas, histories, and lived experiences are silenced and ignored, making it seem as if they either do not exist or do not matter. These protests called for more than the fall of the Rhodes statues and financial relief; they demanded deep curricular transformation, the recognition of African knowledge systems, and institutional cultures that affirm rather than marginalise Black identity (Trippe, 2019; Hlatshwayo, 2023). Such demands reflect an acute awareness that inclusion cannot be achieved through representation alone; it must be accompanied by the restructuring of space, knowledge, and power.

Taken together, these examples highlight that exclusion in South African higher education is not a historical artefact but a systemic condition that reproduces inequality through seemingly neutral policies and inherited practices. Addressing this condition requires confronting the institutionalised assumptions that define what counts as

legitimate knowledge, who belongs, and on what terms. A decolonial and inclusive policy approach must therefore contend with these legacies as active forces in the present – not as problems of the past to be commemorated, but as injustices to be dismantled.

These systemic exclusions are perhaps most visibly contested in South Africa's historically White institutions, such as UCT. While UCT has taken steps toward transformation, such as establishing a Disability Service and supporting first-generation students, it remains symbolic of the tensions between institutional reform and deep structural change. The Rhodes Must Fall protests at UCT did not simply call for the removal of the statue; they exposed the symbolic and material ways in which colonial legacies continue to shape everyday student experiences. These included the lack of curriculum diversity, alienating campus spaces, language policy barriers, and the marginal presence of Black academics and administrators (Cornell, 2021; Karisa et al., 2024).

Such moments of rupture reveal the limits of inclusionary policy frameworks that do not fundamentally disrupt inherited hierarchies. They also highlight the importance of policy reform that is responsive not only to material disparities, but to cultural, epistemological, and spatial exclusions embedded within university structures. In light of these continuities, the following section critically examines how post-1994 higher education policies have attempted to address issues of inclusion and transformation, and assesses the extent to which they succeed or fall short in dismantling these deep-rooted systems of exclusion.

## 4 Evaluating Current Policies: Between Reform and Resistance

In response to the persistence of exclusion in higher education, the South African government has implemented several policies aimed at redressing historical inequalities. The *White Paper for Post-School Education and Training* (2013) and the *University Capacity Development Programme* (UCDP, rolled out in 2018) are among the flagship initiatives designed to promote transformation through increased access, staff development, and curriculum reform. These policies present a blueprint for higher education that acknowledges historical injustices and aspire to redress them, not only by widening access but also by reimagining how institutions validate knowledge, support students, and engage with communities.

However, despite their progressive intent, these policies often fall short in practice. While access has improved quantitatively, through enrolment growth and financial aid expansion, transformation at the epistemic and institutional level, such as student/staff demographics or curriculum review outcomes remain uneven (CHE, 2022). Cur-

ricula remain immersed in Euro-North American traditions, often sidelining indigenous knowledge in both content and approach. While language policies often highlight inclusivity, their implementation frequently privileges bureaucratic compliance over meaningful cultural and intellectual change needed for genuine reform. As a result, many universities remain shaped by hierarchical structures that reproduce inequality under the appearance of neutrality.

The superficiality of many policy reforms lies in their instrumental rationality: they approach transformation as a measurable output rather than a structural undoing. Inclusion is framed as an administrative deliverable rather than an ontological shift in how universities understand knowledge, community, and justice. This technocratic framing reduces decoloniality to tokenism, avoiding the unsettling ethical and political questions that decolonial theory demands. This critique aligns with Ball's (2003) theory of policy performativity, which argues that neoliberal regimes translate complex educational aims into quantifiable indicators, thereby masking inequality under a veil of reform.

Although South Africa's constitution promotes multilingualism, most universities continue to prioritise English and Afrikaans as mediums of instruction. This perpetuates the marginalisation of African languages and, by extension, the marginalisation of students whose identities and worldviews are intimately tied to those languages. Without robust support for African languages in teaching, research, and administration, policies aimed at inclusivity risk reinforcing the very exclusions they seek to undo (Alexander, 2005).

Nevertheless, some institutions have introduced targeted interventions that gesture toward inclusive reform. At UCT, for instance, the establishment of the Disability Service has created mechanisms for academic accommodations, accessible technologies, and individual support. These efforts are aligned with the *White Paper on the Rights of Persons with Disabilities* (2015) and reflect a broader attempt to address intersectional exclusions within the academy (Karisa et al., 2024). However, even such initiatives, while commendable, often operate in silos and are not fully integrated into the university's broader transformation agenda. To align disability inclusion with a decolonial agenda, it is essential to move beyond the biomedical model and embrace inclusive philosophies such as *Ubuntu*, which view all forms of embodiment as equally dignified and socially interdependent. As Karisa et al. (2024) argue, embedding disability justice within decolonial higher education requires addressing spatial, epistemological, and institutional design biases that historically excluded disabled Black bodies from both academic recognition and full civic participation.

Furthermore, student-led movements such as Rhodes Must Fall and Fees Must Fall have revealed the limits of top-down policy interventions. These movements were driven not only by demands for financial access, but by critiques of institutional cultures that remain alienating and unresponsive to Black lived experiences. Their calls for curriculum decolonisation, greater staff diversification, and recognition of African epistemologies underscore the gap between policy commitments and lived realities on campus (Hlatshwayo, 2023; Trippe, 2019).

Taken together, these developments suggest that while South African higher education policy has evolved in form, it has not yet achieved transformation in substance. The persistence of exclusionary norms, coupled with the superficial application of decolonial rhetoric, points to the need for a fundamentally different approach – one that moves beyond access metrics and procedural compliance and instead centres epistemic justice, relational ethics, and participatory governance. The next section outlines such an approach, proposing a decolonial policy framework rooted in African philosophies such as *Ubuntu* and committed to dismantling the enduring legacies of epistemic and structural inequality.

## 5 Towards a Decolonial Policy Framework for Inclusive Higher Education

Transforming South African higher education requires more than incremental reform; it demands a paradigmatic shift grounded in decolonial thought and African humanist philosophies such as *Ubuntu*. This framework challenges not only the symptoms of exclusion, but the foundational assumptions that have historically structured knowledge, power, and belonging within the university. It calls for policy models that are not merely technocratic, but emancipatory, co-constructed, and contextually rooted (Zembylas, 2018).

An emancipatory policy model cannot emerge from within the institutional grammar of coloniality. It must rewire epistemic infrastructures – from redefining peer review standards to dismantling the colonial underpinnings of academic disciplines. Therefore, *Ubuntu* is not simply a moral anchor, but a counter-hegemonic methodology; inviting dialogical, non-hierarchical, and intergenerational modes of policy co-creation that challenge the power of audit cultures and neoliberal systems of measurement. To achieve coherence with historical analysis, this framework must be explicitly grounded in the documented failures of the 1995 and 2013 White Papers to translate access into structural change (Badat, 2010). These failures underscore why future pathways must move beyond rhetoric and toward institutional redesign.

To operationalise this, universities must embed decolonial commitments into policy instruments such as institutional development plans, senate curriculum reviews, and

governance protocols. This involves introducing mandatory modules on African philosophy and decolonial thought, reforming hiring and promotion criteria to recognise community-engaged scholarship, and establishing accountability structures that evaluate transformation through both qualitative and cultural indicators. In doing so, the governance and practice of higher education can shift from symbolic alignment to structural realignment with decolonial imperatives.

To translate these principles into actionable governance reforms, universities must establish policy units that embed community voices into institutional decision-making. This could include forming community advisory boards, integrating participatory budgeting processes, and co-developing local curricula with civic actors and indigenous knowledge holders. These governance practices are not merely consultative, they also operationalise decoloniality by dismantling academic elitism and affirming the legitimacy of grassroots knowledge production (Ntsele, 2024). Policy frameworks that institutionalise horizontal partnerships between universities and communities offer a scalable path toward ethical, responsive, and socially anchored transformation.

A decolonial policy framework centres epistemic justice as its foundation, recognising the systemic erasure of African knowledge systems and the continued privileging of Euro-North-American epistemologies. It rejects the tokenistic inclusion of diversity within existing paradigms and instead advocates for the redistribution of epistemic authority. This involves rethinking curricula, pedagogy, institutional governance, and accountability mechanisms through African worldviews and histories (Adam, 2020).

Complementing this is the *Ubuntu* ethic, which offers a distinctly African lens for reimagining educational relations. *Ubuntu*, commonly expressed as *"I am because we are,"* prioritises community, interdependence, and human dignity (Muyonga, 2024). Applied to policy, *Ubuntu* compels institutions to cultivate inclusive cultures of care, respect, and mutual upliftment. It moves higher education from a competitive, individualistic model to one that fosters relational accountability, participatory decision-making, and ethical responsiveness. Table 1 outlines five core principles of a decolonial policy framework for Higher education, linking each principle to practical policy implications.

**Table 1:** Decolonial Policy Framework for Inclusive Higher Education

| Principle | Description | Policy Implication |
|---|---|---|
| **Epistemic Pluralism** | Affirming the Legitimacy of African Knowledge Systems and Plural Epistemologies | Integrate Local Philosophies, Histories, and Languages Into Core Curricula and Research Priorities |
| ***Ubuntu* Ethic** | Embedding Relational, Community-Centred Values Into Institutional Cultures | Mandate Value-Based Leadership, Communal Consultation, and Restorative Practices in Policy Processes |
| **Cultural-Linguistic Justice** | Promoting Indigenous Languages and Culturally Relevant Pedagogy | Develop Multilingual Instruction Strategies and Support African Language Scholarship and Translation |
| **Participatory Redress** | Involving Marginalised Stakeholders in Shaping Institutional Policies | Institutionalise Co-Governance Structures, Including Student, Staff, and Community Representation |
| **Structural Transformation** | Dismantling Inherited Hierarchies in Governance, Staffing, and Pedagogy | Redesign Hiring, Funding, and Assessment Criteria to Reflect Equity and Contextual Relevance |

Together, these principles move beyond the rhetoric of transformation to offer a grounded and actionable vision for change. This approach insists that transformation must be lived, felt, and experienced – not only measured in numbers or captured in compliance reports.

By centring African knowledge, relational ethics, and community engagement, a decolonial policy framework has the potential to reimagine higher education as a space of liberation rather than exclusion. It offers South African universities a chance not just redress the injustices of the past, but to co-create futures where all identities, histories, and ways of knowing are valued equally.

## 6 Reimagining Higher Education Futures: Operationalising Decolonial Inclusivity

Realising a truly inclusive and decolonial higher education system in South Africa requires more than philosophical commitment; it demands sustained, systemic implementation. The proposed framework of epistemic pluralism, *Ubuntu*, structural transformation, cultural-linguistic justice, and participatory redress must be operationalised across the policy, pedagogical, and institutional domains.

*Ubuntu* offers a critical entry point for reimagining academic culture. Its emphasis on relationality, mutual care, and collective dignity reframes higher education not as a competitive, individualistic enterprise, but as a space for ethical co-existence. In practical terms, this means cultivating inclusive classroom pedagogies, empathetic leadership practices, and community-responsive curricula. University governance structures must adopt decision-making models that are dialogical and accountable to

historically marginalised voices, both within and beyond the institution (Hungwe et al., 2023).

Meaningful transformation also requires shifting how success and accountability are defined. Traditional metrics such as graduation rates, research outputs, and global rankings often obscure the lived experiences of students and staff navigating historically exclusionary spaces. A decolonial lens insists that institutional success must be measured by the extent to which policies advance equity, cultural affirmation, and intellectual justice. This includes regular audits of curriculum content, language use, and staff demographics, along with qualitative assessments of belonging, participation, and epistemic representation (Ainscow & Messiou, 2018).

Collaborative partnerships with communities are essential for grounding educational policy in social reality. Institutions must co-create knowledge with students, indigenous knowledge holders, and civil society actors, moving away from extractive models toward reciprocal and emancipatory engagement. These partnerships also support the implementation of inclusive curricula that reflect local contexts while nurturing global consciousness (Omodan, 2024).

Operationalising decolonial inclusivity further requires investment in capacity development, particularly for academics, administrators, and curriculum designers. Workshops on African philosophies, curriculum co-design labs, and multilingual academic resources can equip institutions to bridge the gap between transformation rhetoric and practice (Ntsele, 2024).

Finally, fostering a more inclusive future demands a commitment to mentorship and succession planning that empowers a new generation of scholars – especially women, people with disabilities, and scholars from rural and working-class backgrounds – to participate in shaping higher education. Inclusivity must be embedded not as a compliance measure, but as an ethical imperative and institutional ethos (Ntsele, 2024).

Reimagining higher education in this way invites South African institutions to not only confront their colonial pasts, but to co-create responsive, just, and humanising futures. The final section outlines concluding reflections and recommendations for embedding this framework in long-term policy planning and institutional transformation.

## 7 Governance for Decolonial Transformation

While curriculum transformation and epistemic justice are central to decoloniality, governance structures continue to be a crucial yet less understood area for systemic change. Decolonising governance entails disrupting hierarchies that centralise author-

ity in elite managerial bodies while marginalising students, staff, and local communities. This involves democratising decision-making forums, revising institutional statutes to decentralise power, and establishing open accountability procedures based on relational leadership models rather than extractive ones. A decolonial approach to governance must institutionalise ethical responsiveness by prioritising relational accountability, participatory deliberation, and multilingual communication norms within academic councils, senates, and university boards (Maqashalala, 2025).

Drawing from Mbembe's (2019) critique of the colonial university, meaningful decolonisation must engage governance as a space where institutional memory, authority, and symbolic power are distributed. Paquet (2008) notes, governance reform requires an ontological shift – from viewing leadership as control to embracing it as stewardship. South African universities can actualise this by embedding *Ubuntu* into leadership criteria and performance evaluations, emphasising humility, service, and social reciprocity. Moreover, policy design must include community-nominated stakeholders in governance structures, such as university councils, ensuring shared authorship of institutional missions and responsiveness to local contexts.

Decolonial governance is not merely about inclusion, but about transforming the rules by which institutions operate. In practical terms, this may involve establishing rotational leadership models, anchoring decisions in cultural advisory forums, and legislating a shift away from managerialist metrics toward justice-based outcome evaluations. By enshrining these commitments in institutional policies, South African universities can transition from symbolic representation to substantive decolonial change.

## 8 Governance as a Site of Knowledge Justice

Beyond structural inclusion, governance reform must engage with the ontological question of what counts as legitimate knowledge in institutional policy-making. Academic boards and policy committees often operate through inherited Western procedural norms that exclude African, and indigenous epistemologies from shaping institutional futures. As scholars such as Keet and Tibitts (2024) and Hlatshwayo (2023) argue, epistemological access is not merely about adding diverse knowledges, but about restructuring the very frameworks by which knowledge is validated and authorised.

Embedding decoloniality into governance thus requires revising not only who participates in decision-making, but also the epistemic rules under which decisions are made. This means disrupting procedural neutrality and interrogating how Eurocentric traditions have been embedded in committee practices, strategic planning norms, and evaluation criteria. To do so, institutions must foster dialogical processes that are situated, context-

sensitive, and historically aware, drawing on African ethical-political philosophies such as *Ubuntu* to frame governance as collective responsibility rather than a bureaucratic function.

One practical pathway is to include indigenous knowledge practitioners and student leaders as voting members in curriculum and planning committees, thereby ensuring co-authorship of transformation agendas. Furthermore, institutional audits could be designed to assess not only demographic representation, but also epistemic influence – assessing the ways in which governance frameworks either promote or impede the growth of several knowledge systems. Governance then becomes a site not merely of administration but of justice-oriented knowledge creation, enabling South African universities to disrupt their colonial inheritances and reimagine their institutional futures through participatory and epistemically plural frameworks (Willand, 2021).

## 9 Conclusion and Recommendations

South Africa's higher education landscape remains burdened by enduring legacies of colonialism, apartheid, and structural exclusion. While significant policy efforts have been made to expand access and promote transformation, they have often failed to address the deeper epistemic and cultural foundations of inequality. This paper has argued for a decolonial policy framework that reorientates inclusivity around epistemic justice, relational ethics, and community-driven engagement. Anchored in African philosophies such as *Ubuntu*, this framework moves beyond symbolic reform toward substantive transformation.

This paper critically examines the evolution of South African higher education policy through a decolonial lens, arguing that true inclusivity must go beyond demographic representation to include epistemic justice, cultural recognition, and participatory governance. Historical legacies of colonial education continue to influence institutional logics, often reinforcing exclusion even under reformist banners. By integrating *Ubuntu* and decolonial thought, the paper proposes a transformative vision of inclusivity that centres African knowledge systems and ethical frameworks.

Importantly, the paper expands the focus beyond curriculum and pedagogy to highlight governance as a crucial, yet often overlooked, aspect of decolonial transformation. It demonstrates how reforming institutional leadership, decision-making processes, and knowledge validation norms is essential for breaking the colonial legacy embedded in university governance. Drawing on theorists like Mbembe, and Hlatswayo, they outline practical interventions like rotational leadership, cultural advisory forums, and epistemically inclusive committees. These governance strategies aim to change the very basis of how power and legitimacy circulate in higher education.

To embed this framework into institutional and national policy contexts, the following key recommendations are proposed:

(1) Curriculum Reform for Epistemic Justice

Review and revise curricula to incorporate African knowledge systems, histories, and languages as central rather than supplementary components of teaching and research.

(2) Multilingual and Culturally Responsive Pedagogy

Develop language policies that support instruction in African languages and promote linguistic inclusion as a right, not a barrier.

(3) Participatory Governance Models

Institutionalise co-governance structures that include students, academic staff, and community stakeholders in policy formulation and curriculum development.

(4) Values-Based Institutional Culture

Foster leadership and professional development grounded in *Ubuntu* principles of empathy, dignity, and collective accountability.

(5) Inclusive Monitoring and Accountability Mechanisms

Redefine success metrics to evaluate inclusivity based on cultural affirmation, student experience, and representational equity – not merely outputs.

(6) Sustainable Partnerships and Community Engagement

Create long-term partnerships with local communities and indigenous knowledge holders to democratise knowledge production and contextualise policy decisions.

By implementing these recommendations, South African universities can move toward a higher education system that not only redresses historical injustices, but actively cultivates inclusive, humanising, and socially responsive academic environments. True transformation will not emerge from adapting outdated structures, but from rebuilding them through sustained partnerships, epistemic humility, and a deep investment in African-led intellectual traditions.

Future research should explore how these governance innovations can be adapted across different institutional contexts, ensuring that decolonial transformation is both structurally grounded and contextually relevant. Only through such comprehensive rethinking of policy, curriculum, and governance can South African higher education move from symbolic gestures to meaningful inclusion.

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# Building Resilience Strategies Towards the Futures of Higher Education Sector in Mauritius

Romeela Mohee, Mpine Makoe, Buhlebenkosi Tshili, Ourvashee Roopchun

The shifting global landscape has spurred the higher education sector in Mauritius to reassess its trajectory to meet the evolving needs of society. To guide this transformation, the Mauritian government embarked on a futures of education roadmap, towards reshaping the futures of higher education in Mauritius. Since this was a national initiative, the strategic foresight was used to formulate strategic goals that will guide the futures of higher education in Mauritius. The foresight approach began with environmental scanning through a SWOT analysis to better understand the Higher Education landscape. In a second step, insights were drawn through a series of consultative workshops with education stakeholders who were asked to visualise the Mauritian Higher Education Landscape in 2040. The data derived from these workshops was analysed through content analysis. Through this analysis, four main themes emerged as most relevant: technology enhanced, economically responsive, personalised learning and nationally and globally relevant. These key findings provided a platform for conceptualising and developing resilience strategies towards the futures of higher education in Mauritius.

*Keywords: technology enhanced higher education, economically responsive higher education, personalised learning, nationally and globally relevant higher education, resilient strategies*

## 1 Background and Context

In recent years, Higher Education globally has experienced significant integration of pervasive technology, especially in the field of teaching and research (Yusuf & Tambuwal, 2018). The future of higher education is rapidly evolving, driven by the integration of advanced technologies and a growing emphasis on lifelong learning. Emerging technologies such as artificial intelligence, virtual reality, and block chain are reshaping the educational landscape, enabling more interactive, immersive, and efficient learning experiences (Makridakis, 2017). Additionally, the rise of online and hybrid learning models is making higher education more accessible to a global audience, breaking down geographical and financial barriers that once limited educational opportunities (Habimana, 2024).

Recent developments in quantum computing also promise to expand the scope of these transformations, potentially reshaping the future of education in unprecedented ways. Hence, it was important for the Mauritian Ministry of Education, Tertiary Education, Science and Technology (MoETEST), along with the Higher Education Commission (HEC), to reassess its trajectory to meet the evolving needs of higher education landscape. The Mauritian government tasked the HEC to develop mechanisms to implement the regulatory framework of higher education institutions in the country. As the sector undergoes reform, HEC's responsibilities will increasingly involve fostering innovation, promoting international competitiveness, and ensuring that higher education institutions are aligned with national development goals. Consequently, the HEC's efforts will be instrumental in driving the modernisation and strategic growth of the country's higher education system. Through this process, goals and strategies on the futures of education were formulated with the aim of providing recommendations to the ministry as a roadmap for the Higher Education Sector of Mauritius towards 2040.

Mauritius is a small Island state in the Indian Ocean with an estimated 1.3 million people in 2021 with a literacy rate of 91 %, the highest in Africa (Knight & Motala-Timol, 2022). It has about 40 private tertiary institutions and ten publicly funded higher education institutions, with four having university status and power to confer degrees and 44 private institutions with an enrolment of 50 566 students (HEC, 2022). Over the last ten years, the participation rates have been increasing hovering around 40 and 50 % positioning this small island state as number one in higher education participation rates (Varma, 2024). This significant increase of graduates can be attributed to strategic educational initiatives such as the *"One Graduate Per Family"* as announced in the 2010 policy ensuring that every Mauritian household could have at least one graduate (Motala-Timol & Kinser, 2017). Such policies have not only increased access to higher education, but also underscored the government's commitment to transforming Mauritius into a knowledge hub by expanding tertiary education opportunities and raising the overall enrolment rates (Motala-Timol & Kinser, 2017; Varma, 2024).

Just like other countries, Mauritius was impacted by the Covid-19 pandemic leaving her exposed and susceptible to challenges and had to reengineer its higher education sector to meet the demands of the skilled and talented human capital needed for the 21st century. To address this, the education ministry catalysed a major shift in the higher education sector, empowering the HEC, a regulatory body to oversee and strengthen the higher education institutions in the country to ensure that the Mauritian higher education sector would be able to adapt to rapidly changing environments (HEC, 2022). Drawing from lessons learned in managing the aftermath of the COVID-19 pandemic, the Mauritian government was prompted to rethink and reimagine the future of education by 2040. To support this initiative the HEC developed the Strategic Plan 2022–2025 aiming to enhance student mobility, promote flexible learning pathways,

and strengthen the integration between Technical and Vocational Education and Training (TVET) and Higher Education.

The aim of this paper is to present and discuss processes and outcomes of this project that explored the possible futures of the higher education sector in Mauritius in 2040 with the ultimate aim of developing strategies that will help in building a resilient higher education system. The initiative was commissioned by the Ministry of Education, Tertiary Education, Science and Technology (MOETEST) and realised by HEC from May 3 to May 16, 2023. The strategic foresight approach through environmental scanning was used to bring higher education stakeholders together to build images of the future. Such images enable policy makers and higher education experts to formulate strategies that will assist in preparing an education system for anticipated changes. The main goal of the process was to identify emerging trends and opportunities that could significantly impact on the future of the Mauritian higher education system and the type of strategies that will remain resilient even in the times of disruptive change.

## 2 Methodology

Changing environments require resilient higher education strategies and systems in order to continue to flourish even during difficult situations (Nyakotyo & Goronga, 2024). Hence, strategic foresight was used to formulate strategies that would guide the futures of higher education in Mauritius and also be a tool that will assist stakeholders to actively form options for the desired higher education (Wyrwicka & Erdeli, 2018). This approach ensured that changes that higher education is going through were taken into account when developing strategies and policies (Wyrwicka & Erdeli, 2018). Furthermore, it provided a lens to detect and investigate challenges arising from multiple signals and drivers of change influencing the future (Grove et al., 2023).

The foresight approach started with environmental scanning, which is an organised means of collecting relevant information from both internal and external environment to create an understanding of the higher education (Gordon & Glenn, 2009; Naisbit, 1984). This is ideal in linking external events and trends with planned changes that may impact organisations (Bhardwaj & Kumar, 2014; Pashiardis, 1996) and essential in identifying and evaluating uncertainties (Grove et al., 2023). It helps people to be aware and pay attention of what lies ahead in order to *"anticipate the nature and importance of future development using information from the past and the present"* (Al Abri et al. 2023, p. 2089).

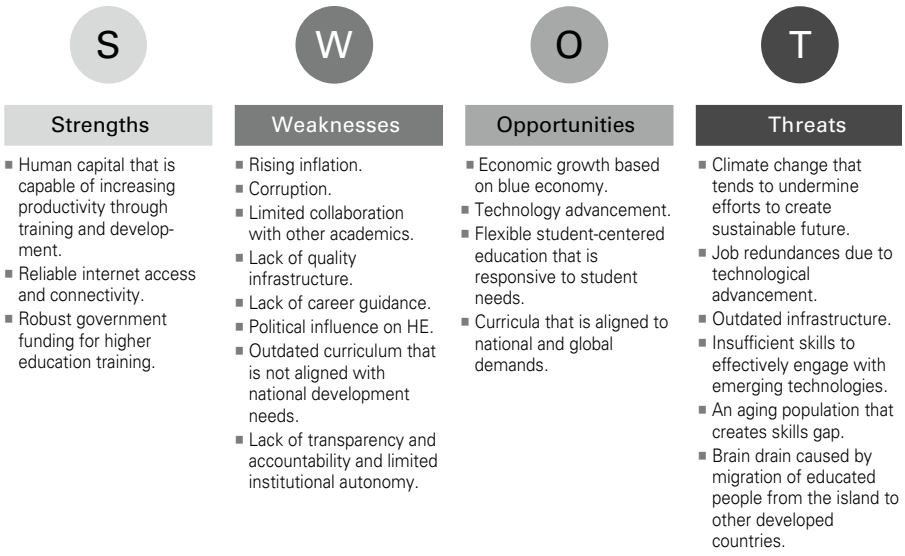
A rigorous approach to data collection was adopted to ensure that the study was grounded in both empirical evidence and broad stakeholder engagement, providing a

well-rounded foundation for the strategic development of higher education in Mauritius. This approach enabled a comprehensive and inclusive consultation process with key stakeholders in the higher education sector in Mauritius, including policy makers, higher education experts, heads of tertiary institutions and managers. Consultation workshops with different stakeholders were used to facilitate the collection of diverse perspectives to inform strategic planning for the future of higher education with the aim of developing resilient strategies. The process unfolded through several phases in accordance with the research aim.

## 2.1 Phase 1: Gathering First Insights

The starting point of environmental scanning is to gather information about the external and internal environment that impacts on higher education. This was done by gathering preliminary insights into its current state and the future possibilities of the Mauritian higher education sector. This initial phase consisted of three, two-day preparatory workshops where academic leaders, managers and policy makers shared insights on the status of higher education. The Higher Education Commission, as a custodian of this project ensured that key stakeholders were invited to attend workshops held across the country. The purpose of the workshops was to explore possibilities and opportunities in order to cope with unforeseen events with the aim of managing risks brought by changes (Nyakotyo & Goronga, 2024). The involved stakeholders highlighted critical challenges, opportunities, strengths, threats and weaknesses in the Mauritian Higher Education landscape (figure 1).

**Figure 1:** SWOT Analysis on Higher Education Landscape



## 2.2 Phase 2: Capturing Diverse Perspectives

Once the information of the SWOT analysis was gathered, it was felt that there was a need to have a separate process to gather more insights from a broader group of stakeholders, including representatives from government ministries, faculty and students including those from high school and their teachers. The purpose of this phase was to gain insight on the identified drivers of change that may push the future in different directions. This was done through three-hour workshops that were held with faculty and students across the country. These consultations were aimed to capture diverse perspectives on critical aspects of higher education that may need to be reinforced towards the roadmap for higher education reform in Mauritius. The consultation workshops that took place in the first two weeks of May 2023 attracted 179 staff members (faculty and administrators), teachers and officials from different ministries and 228 students from different institutions. Table 1 below shows the distribution of the institutions and stakeholders.

**Table 1:** Institutions and Stakeholders Involved in the Workshops

| Institution | Number of Staff | Number of Students |
|---|---|---|
| Institution A – Public University | 28 | 9 |
| Institution B – Public University | 12 | 19 |
| Institution C – Public University | 19 | 22 |
| Institution D – Public University | 16 | 20 |
| Institution E – Public Institute of Higher Education | 12 | 23 |
| Institution F – Public Institute in Higher Education | 18 | 23 |
| Institution G – Group of Private Higher Education Institutions | 19 | 21 |
| Institution H – Public Polytechnic | 15 | 30 |
| Institution I – Group of Private Higher Education Institutions | 13 | 29 |
| Representatives From Different Government Ministries | 18 | — |
| Secondary Schools From Across the country | 9 | 32 |

During the consultations, stakeholders were asked to conjure up images of Mauritius in 2040 in terms of economic and social activities and what type of the education system is likely to support the Mauritian nation. What was critical in their discussion was to visualise the educational landscape in 2040. Cards were provided to the stakeholders to enable them to jot their ideas of images of the future. The intention was to create images of the future that they wish for in order to create polices and strategies that will enable them to function when the new and different futures emerge. During this process stakeholders were asked to respond to two questions before engaging in a discussion:

(1) *What will Mauritius look like in 2040 in terms of the social, economic and the environment factors?*

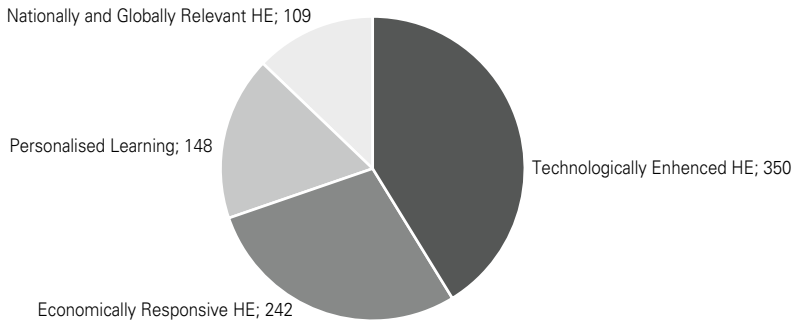
(2) *What will higher education look like in 2040?*

After this exercise, cards were collected, and stakeholders were asked to work in groups and discuss what they had written. After extensive discussion in small groups, they reconvened and had an open discussion on what will higher education look like in 2040. Finally, the data collected from cards were analysed using content analysis to identify the number of occurrences of words as well as their popularity as identified by stakeholders as images of the futures. The data was further analysed using Atlas.ti software, which assisted in extracting themes from identified words and provided basic insights into how stakeholders visualised their environment in 2040.

## 3 Themes and Discussion

Four main themes emanated from what was written on the cards, the group discussion and the open engagement. The data analysis highlighted the evolving priorities within the sector, emphasising the need for adaptability, and global engagement in shaping higher education landscape. Stakeholders envisioned the Mauritius higher education system of the future foremost as technology enhanced; economically responsive; strong in personalised learning; and nationally and globally relevant. Figure 2 below highlights the distribution of themes.

**Figure 2:** Main Themes




### 3.1 Technology Enhanced Higher Education

Technology enhanced HE emerged as a dominant theme in discussions, and this was mentioned by the stakeholders 350 times. Notably, artificial intelligence (AI) such as ChatGPT, was identified as disruptive learning tool, challenging traditional educational models by offering interactive and personalised learning experiences. Technology-

enhanced learning has become pivotal in fostering student engagements and enhancing academic performance (Costley, 2014; Duterte, 2024). Various stakeholders viewed it as an integral part of learning with varying benefits as providing, meaningful learning experiences. Agreeably, modern technologies have significantly enhanced the accessibility and practicality of education (Mdhlalose & Mlambo, 2023).

One of the most prominent applications of technology that was mentioned was the use of advanced analytics, which provides detailed insights into student learning behaviours and performance (Bienkowski et al., 2014; Mukred et al., 2024). This data-driven approach enables institutions to design and implement tailored interventions, thereby aligning support with individual student needs. Consequently, this fosters a more personalised learning environment where each learner's experience is adapted to their unique requirements. Perhaps the prominence of this theme could be attributed to the lingering impact of the COVID-19 pandemic, which reshaped teaching and learning practice, as well as the pervasive role of technology in everyday life. Currently Mauritius is embracing technology enhanced learning through various government initiatives and strategic partnerships guided by the Digital Mauritius 2030 Strategic Plan which emphasises digital literacy and the fusion of various technologies in all sectors, including the educational sector (Ministry of Technology, 2016). However, there are still challenges relating to equitable access and the sustained integration of new technologies in the learning experience, which can be mitigated by planning for the future to ensure that we build a resilient Mauritius.

### 3.2. Economically Responsive Higher Education

Second on the list was an economically driven higher education sector with 242 mentions. There was a general concern that higher education was not addressing the economic development needs of the country. Economically Responsive Higher Education was linked to the job market and was futuristic in nature. In order to ensure that there are highly skilled citizens in 2040, there was a need for collaboration with industry to ensure alignment. Accordingly, research has shown that higher education plays a major role in the economic development of countries in general contributing to creating highly skilled citizens (Caniëls & Van den Bosch, 2011). When planning for 2040, higher education system in Mauritius should align curricula with industry demands to support national economic growth.

Mauritius as an Island in the Indian Ocean surrounded by vast ocean territory provides opportunities for different types of economies. It is therefore essential for the country to leverage on the ocean or the blue economy[1], which African Union Agenda 2063

[1]The blue economy is the *"sustainable use of ocean resources for economic growth, improved livelihoods, and job creation while preserving the health of ocean ecosystems"* (The World Bank, 2021, p. 8).

describes as a major contributor to continent's development. The development of a blue economy is in accordance with the UNESCO SDG 14[2], the Africa Union Agenda 2063 and 2050 Africa's Integrated Maritime Strategy (2050 AIM Strategy) (Nagy & Nene, 2021). *"The African Union identified the blue economy as the engine of the structural transformation"* (Nagy & Nene, 2021, p.3) and prioritised it as one of the major contributors to economic growth by providing employment, boosting sustainable food production and marine resources, leveraging partnership and trade with other nations. It is in this context that higher education institutions are expected to play a pivotal role in developing capacity, generating knowledge and strengthen partnership amongst economic communities, industry and intergovernmental organisations.

Some stakeholders underscored the need to prepare students for a diverse economy, highlighting the dangers of focusing only on one type, which leads to students becoming less capable of steering the intricacies of a diverse society. Mauritius understands the importance of human capital and investing in education as critical for its economic growth as it promotes productivity in the workforce (Odit et al., 2010). The country has also positioned itself as a knowledge hub recognising the *"growth of Knowledge Processes Outsourcing (KPO) as a major economic activity and the subsequent demands this will place on skill development"* (Mariaye & Samue, 2019, p. 4).

### 3.3 Strengthen Personalised Learning

Personalised learning was cited 148 times. Personalised and lifelong learning were regarded as inventible, given the rapidly evolving world of work. The primary aim of personalised learning is to facilitate seamless transitions from academic education to skill-based training (Gunawardena et al., 2024). Key aspects emphasised in the discussions included self-directed learning, flexibility, multi-learning, structured programmes, formative assessments and micro-credentials. During discussions, students were more vocal about student centred learning environment. This approach accommodates students unique learning styles, actively engaging students in the learning process. This is because students are the heart of the educational process, with their cognitive and emotional experiences shaping both the direction and method of learning (Brown-Wright, 2011). These elements collectively aim to enhance student engagement and better prepare graduates for the evolving job market. Work integrated learning may also assist higher education by preparing students for a diverse economy enabling them to gain the necessary skills needed for the job market (Zegwaard & Rowe, 2019), while also affording a personalised learning experience (Ferns et al., 2024).

[2]The UNESCO SDG 14 seeks to *"conserve and sustainably use the oceans, seas and marine resources for sustainable development"* (United Nations, 2017, p. 18).

### 3.4. Nationally and Globally Relevant Higher Education

Stakeholders emphasised the importance of a higher education system that is both nationally and internationally relevant. This topic was mentioned 109 times because stakeholders were concerned that higher education was not responsive to the needs of the country. It is crucial that higher education needs to be adaptable to an evolving environment by ensuring curriculum relevance that aligns with national priorities (Human-Hendricks & Meier, 2024). Stakeholders also pointed that there was need to harness sustainable development practices based on the rich resources already available in Mauritius, such as the ocean and its resources. The call to integrate the blue economy within the curriculum is expected to develop a skilled workforce. The blue economy is considered an influential driver of local and regional development through job creation and economic growth (OECD, 2024). In addition to the blue economy, there is also a need to develop other economies, such as the green and knowledge economy.

Various stakeholders were concerned about the impact of the brain drain where students from Mauritius leave the country for better opportunities elsewhere. This was considered a major weakness in a country where there is threat of an aging population. To address the problem of brain drain, the Ministry of Tertiary Education, Science and Research viewed internationalisation as a key strategic goal with the aim of increasing mobility of students by attracting more students from other parts of the world. In the 2025 report on Internationalisation of Higher Education in Mauritius, the ministry aims to position Mauritius as a "*preferred destination for quality education and research in the region*" (Ministry of Tertiary Education Science and Research 2025, p.12).

### 3.5 Other Themes

Although research is fundamental in Higher Education institutions, it was surprising that it was mentioned by only a few participants. When discussed, it was primarily in relation to research project funding, with only two participants referencing postgraduate studies. The lack of interest in research was attributed to insufficient funding for postgraduate studies and research. Concerns were also raised about the need to promote local language, culture and arts. Higher education institutions were seen as responsible for offering programmes that instil strong value systems, preparing students to apply ethical principles in both the workplace and society. Some of the themes that were highlighted but did not have significant numbers was mental health with concerns that it may become more prevalent in the future. Participants emphasised that higher education must also prioritise mental well-being as this is directly linked to academic performance (Chu et al., 2023). Addressing this issue requires policymakers to acknowledge its impact and integrate mental health support into educational

frameworks. In envisaging the futures of the Higher Education system in Mauritius, stakeholders imagined a higher education that is technologically driven; economically responsive; flexible and student-centred high education system. They also considered critical thinking and problem solving, skills that allow students to apply their knowledge in real-life situations, as critical skills.

## 4 The Roadmap to Resilient Strategies

The foresight tools of environmental scanning and images of the Mauritian higher education as shared by stakeholders from all walks of life provided a holistic thinking that policy makers used to develop resilient strategies needed for a future they aspire. The discussions and engagements were instrumental in shaping a collective vision and identifying actionable strategies that will provide a roadmap to the advancement of higher education. Resilient strategies are essential in assisting the higher education system of a country to meet the demands of an evolving educational, social and economic environment (Nyakotyo & Goronga, 2024). The purpose of national resilient strategies is to construct a strong educational system that will provide an enabling and supportive environment to promote an agile culture. This flexibility not only enhances access but also ensures that the education system can accommodate the evolving nature of skills required in the 21st century workforce. The implementation of resilient strategies will provide a roadmap that is an essential step toward creating a system that is responsive to the diverse needs of citizens that are linked to the visions of the futures of the Mauritian Higher Education.

Despite this massive investment on education, as forementioned, the brain drain is a major challenge. To counter this challenge, the Mauritian government needs to invest more in research and postgraduate programmes so that students have research knowledge and skills. Focusing on innovative research will also help reduce the brain drain and improve economic growth. The migration of young people remains a concern, even those that are left behind are either unemployed or underemployed. This is further exacerbated by a curriculum that is focused on outdated content and not aligned to the national needs, such as tourism, fishing, aquaculture and marine life. Varma (2024) contends that the shortage of skilled workers across various sectors places additional burden on higher education to support the nation's economic agenda. Therefore, the government needs to invest in strategies that will keep young people in the country. This could be done by increasing research and postgraduate studies funding.

Another challenge raised by stakeholders is that Mauritius has too many universities that are competing for a small number of students. All these higher education institutions offer similar programmes, thereby creating an unhealthy competition amongst

themselves and faculty members who are thinly spread across universities. Despite these challenges, stakeholders acknowledged that higher education has provided opportunities towards building resilient strategies, to support academic transformation, institutional endurance, while also enhancing students learning experiences. The resilient strategies were conceptualised in response to the challenges within the Mauritian landscape in relation to how stakeholders envision the future of Higher Education.

### 4.1 Skills Development and Capabilities

One of the resilient strategies that could catapult the higher education sector is skills development and capacities for the economic growth of Mauritius. The dire need for skills that may be required in future expects higher education to look at ways of continuing to provide on-demand qualifications that are more specialised. Short learning programmes, work-integrated learning or voluntary work will equip people with skills to work in specific fields. To achieve this, there is need to adopt micro-credentials as the answer to many of these pressures and trends. The success of this requires quality regulatory frameworks that are flexible to accommodate micro-credentialing of qualifications. To address this need, the Higher Education Commission is developing policies for micro-credentialing to facilitate flexible pathways and personalised learning with the option of articulating to formal qualification (Varma, 2024). Micro-credentialing will be used in certifying these learning experiences, allowing for recognition of credits obtained through formal education as well as acknowledging informal training and work-integrated learning. Recognised for their flexible structure, micro-credentials are particularly valued for reskilling and skills development within a shorter time frame (Orman et al., 2023). Personalised learning and micro-credentials are gaining traction globally, including in Mauritius driven by life learning and workforce flexibility which are shaped by various policy initiatives in partnership with UNESCO towards the development of a national micro-credential framework (Martin et al., 2025).

### 4.2 Economically Responsive Higher Education

As the world of work is changing rapidly, the mismatch between the skills that higher education graduates possess and what employees need is expanding. The need for future skills is also challenging higher education institutions to equip people with skills that they may be needed in the future. This requires investment in research researching different types of economies to ensure sustainability. Higher education institutions need to ensure that curriculum is aligned with economic and social needs of the nation. It is therefore, recommended the country develops a nationwide development plan that will be used as a template to guide the government in developing strategies aligned to the national priorities towards the desired future. Although the blue

economy will put Mauritius in good stead, there is also a big need to use diverse ways of growing the economy for the sustainability of Mauritius as a small island. It is therefore, incumbent on higher education institutions to develop curricula that are aligned to the national and global needs, such as climate change, digital skills, and knowledge production in a variety of economies, in order to create much-needed skills for the future.

### 4.3 Technology Driven Higher Education

The advancement of technology around artificial intelligence, automation and big data has made it possible for communities to form connections which assist collaboration across groups of students, lecturers, researchers and learning communities. These technologies opened up access to students with special needs through built-in accessibility features that make learning accessible. By so doing, they provided learning techniques that suit individual learning traits or styles, thereby enabling the education system that is highly individualised. These technologies require stable Information and communications technology (ICT) infrastructure and connectivity. Hence, the clarion call to the government is to build ICT infrastructure, and to play a role in ensuring that curriculum design and implementation enhance the various learning strategies that will produce a sustainable educational system. To achieve this goal, the Ministry should ensure that strategies and policy frameworks that guide technology driven practices are developed to enhance quality.

## 5 Conclusion

The initiatives led by the HEC reflected a deep understanding of the importance of futures thinking in shaping responsive, adaptive, and resilient higher education systems. In an era marked by rapid technological advancements, shifting labour markets, and increasing global interconnectedness, the ability to anticipate and prepare for future challenges is critical. The Higher Education comprehensive approach to reform is not only addressing current demands but also laying the foundation for a higher education system that can evolve in tandem with these changes. By focusing on strategic areas such as flexible learning pathways, technology integration, economic driven higher education and financially sustainable sector, Mauritius is positioning itself at the forefront of educational innovation in the region.

While engaging with the stakeholders proved to be effective for this study, future research should consider segregating stakeholders into distinct groups to gain insights into their unique perspectives and facilitate comparative analysis. The success of envisioning the future of higher education lies in the ability to critically access current practices, identifying both strengths and areas of improvement. Additionally, future

studies may incorporate quantitative environmental scanning techniques, such as surveys to reach a broader range of stakeholders who may not be able to participate in consultative workshops. This approach would enhance the comprehensiveness of the findings.

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# Professional Offboarding Processes for Sustainable and Future-Oriented Universities

Mathilde Niehaus, Kathrin Staufenbiel

Professional offboarding processes offer great potential facing the shortage of skilled professionals through demographic changes, lack of resources and fast changes in the current work era. A precise and appreciative approach regarding administration, knowledge management and the professional accompaniment throughout the separation process leads to better and more sustainable solutions to fill or bridge personnel gaps. While companies have increasingly recognized this potential, professional offboarding processes are not yet treated as a strategic solution by the human resource management of colleges and universities. Possible reasons for this are described. We present how colleges may increase sustainability in their human resource management through professional offboarding processes. As examples we focus on offboarding due to fixed-term contracts and on offboarding due to retirement, a topic of urging relevance, especially in Germany and other similarly aging (European) countries.

*Keywords: offboarding, shortage of skilled professionals, governance*

How can universities meet the challenges of today and tomorrow, e. g. due to a lack of qualified staff through demographic changes, societal crises, technological change and digital transformation, with a forward-looking and sustainable human resource management? Which strategies and framework conditions are needed for this? In this article, we like to present a strategic approach whose potential has been recognised by companies (Kesselhut & Gaßmann, 2022; Kraft, 2024; Spaeth, 2024), but which has not yet been sufficiently taken up by universities and colleges (Baldwin, 2018; Berli & Reuter, 2023): Professional offboarding processes.

Offboarding – as a counterpart to onboarding – refers to the designed separation process when an employee leaves an organisation. This process pays off for organisations in both social and economic terms and can be seen as a human resources strategy to increase sustainability (Spaeth, 2024). At a large German university, an average of about 15 % left the organisation in the years 2022–2024, of which about 8 % into retirement, whereby departures due to the expiry of fixed-term employment contracts and cases of dissolution or termination of employment contracts as part of early retirement have also been taken into account. With around 15 % separations per year, offboarding is not a niche topic, and at the same time represents a far-reaching change at the individual, societal and organisational level: How is this change being

handled? Are organisations, workgroups and individuals able to cope with this challenge? Both, the literature to date and the exchange of experience with other universities and higher education institutions in Germany (workshops in January and June 2025, University of Cologne), show that the offboarding of employees has not yet received sufficient attention, neither on an organisational nor on an individual level to make higher education institutions fit for the future and increase the sustainability of its human resource management (Baldwin, 2018; Berli & Reuter, 2023). Especially, the concept of retirement, which was standardised after World War II, needs a more individualised update now as people live up to 20–25 years beyond traditional retirement ages of 65 or 70, which is especially the case in Germany and other similarly aging (European) countries (Baldwin, 2018). In Germany, more than 40 % of university professors will be replaced by 2033 due to demographic change (CHE Centre of Higher Education, 2025).

Professional offboarding processes initially offer both, the organisation and the individual, a smooth transition through clarity, (legal) security and orientation. However, professional offboarding processes also offer the chance to develop new forms of cooperation, to make a good last impression as an employer and thus to strategically expand the network of the individual and the organisation. In the spirit of *Retention is the new Recruiting* offboarding can become onboarding, e. g. by recommending the university as an employer, or by returning from another organisation after some time (Spaeth, 2024). In addition, professional offboarding processes are resource-efficient, as staff changes are accompanied by a targeted process in terms of administration and knowledge management. Therefore, a new employee may receive a well-structured document with relevant information and condensed knowledge of the predecessor to have a good and efficient start in an on-going project. This ensures continuity of work and increases the university's efficiency. Finally, offboarding processes serve to recognise the work performed at the university, increase the attractiveness of the organisation as an employer in the sense of employer branding and thus simultaneously increase the motivation, loyalty and commitment of those who remain. For example, a (moderated) final team meeting can be a valuable and appreciative element in offboarding processes from which all involved can learn. In this team meeting, all team members could share their experience together and what they have learned, it could be a space for feedback and gratitude. Valuing the work done has been shown to have positive effects on employees and the organisation, for example through increased commitment, which can also have an impact after direct collaboration (Gauglitz, 2019). In the following we focus on offboarding due to fixed-term contracts and on offboarding due to retirement. The fluctuation of academic staff is part of the human resource strategy of universities (Schürmann et al., 2016). For example, the turnover rate for doctoral students is very high and is even around 35 % for temporary doctoral students (Konsortium BuWiK, 2025). In this context, it is important to bear in mind that fixed-

term contracts are very common in academia and that at least temporary offboarding can be useful for individual career opportunities and/or alternative paths outside academia may be necessary. In these cases, professional offboarding processes can significantly expand the university's network and increase the probability of a return at a later career stage. In the case of transitions into retirement, we would even go so far as to classify professional offboarding processes as a duty of care, and at the same time see very great potential in the development of new forms of cooperation (e.g. voluntary involvement, senior professorships). With the retirement of the largest cohorts born between 1957 and 1969, the so-called Baby Boom cohort, the labour market in Germany will lose around 12.9 million people in the next few years (Statistisches Bundesamt, 2022). Younger workers will not be able to replace older ones in terms of numbers. The transition to retirement thus takes on a new significance for employers. It is necessary to rethink the "all-or-nothing/on-or-off" approach to offboarding and retirement (Baldwin et al., 2018): Will it be possible to develop a win-win situation for a different form of cooperation? Especially retiring professors often remain active in the academic community after their work at the university – e.g. through publications or third-party funding projects – and the question remains as to how this can be designed as a win-win situation. All in all, professional offboarding processes offer a strategic solution for closing or efficiently bridging personnel gaps in times of scarce resources, rapid changes and lack of qualified staff through demographic changes. Professional offboarding processes create an appreciative bond between university and employee, are resource-efficient due to a structured process including knowledge management, therefore increase the social and economic sustainability of the human resources management.

Despite all these advantages, the question remains as to why professional offboarding processes have not yet made a significant strategy in universities and colleges. This may be due to the fact that the many and varied challenges tend to obscure the view and that the *urgent* takes precedence over the *important*. Filling a vacancy is given priority, while the exit interview with a long-serving employee is neglected. Some departures are also burdened by difficulties with the person in the run-up. Professional offboarding processes require a future-oriented mindset. In line with Dweck (2006), we suggest that a *growth mindset* rather than a *fixed mindset* of human resources managers and leaders is helpful for the introduction and implementation of professional offboarding processes. While people with a fixed mindset are fixated on the status quo and dwell on setbacks, a growth mindset is about seeing challenges as opportunities, seeking constructive feedback and believing in the evolution of the status quo. With a "growth mindset", dismissals and separation processes can be seen as new opportunities and not as a mistake or the final end of a joint journey. In addition to this question of attitudes towards retirement, we also assume that there is conscious or unconscious age discrimination, which stands in the way of the effective development

of new forms of cooperation and leaves much potential unused in times of a shortage of skilled workers (Oberdiek, 2004). From this point of view, professional offboarding processes due to retirement can also be part of a diversity strategy to develop a new picture of older employees. What can be the first steps for universities to rethink the separation of person and organisation and to proactively use the potential of offboarding processes to increase social and economic sustainability? To begin with, we propose two interventions which, in our view, are both cost-effective and particularly urgent: From an organisational perspective, these are training offers for leaders who can develop professional offboarding processes for their teams and deal with a helpful mindset. These training offers should include all types of offboarding scenarios, e. g. offboarding due to fixed-term contracts and offboarding due to retirement. Leaders are the direct contact to the employees and shape the experience of employees with an organisation. Therefore, leaders are the ones who can develop an appreciative culture and increase sustainability with professional offboarding processes. Of course, leaders need support from the administration and human resource management to reach this aim. From an individual perspective, we also suggest workshops, e. g. career counselling for the ones with fixed-term contracts and for those who are retiring in order to frame this emotionally significant process and open up new perspectives. Finally, in developing offboarding as a strategy, it is necessary to develop a university-wide standard for offboarding and to adapt it to the values, culture and goals of the university in the sense of employer branding. It is a matter of developing checklists, time schedules, measures and making these a value- and goal-oriented standard at a university, regardless of the popularity of a person or the reason for offboarding. At the University of Bielefeld in Germany, for example, the university secretaries have formed a working group to jointly develop standard and useful tools for offboarding processes (Universität Bielefeld, n. d.). The Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in Germany bundles concrete offers on the subject of offboarding such as the support of start-up initiatives for employees on its homepage and communicates its own position with the quote from Aristotle: *"We cannot direct the wind. But we can adjust the sails"* (FAU, n. d.). According to a human resource manager at the University of Münster (Germany), a wide range of documents and checklists for the administration and knowledge management in offboarding processes are already available, and the first workshops on the subject are currently being planned (S. Brück, personal communication, June 11, 2025). As an international example the University of California (UCLA) can be named, whereas Professor Emerita Rosina Becerra serves as UCLA's Faculty Retirement Liaison supporting retirement agreements for faculty members (UCLA, n. d.). At ETH Zurich a brochure with the most important IT information for employees leaving the university is available and leads to more transparency and facilitates the process (ETH Zurich, 2025). At Maastricht University experiences of pre- and post-retirement academic staff have been collected and golden rules for a comprehensive retirement policy have been defined, e. g. *"Listening to what retirees*

*need."* (Swinnen et al., 2021). Further, universities and higher education institutions can learn from companies and adapt measures to their own conditions and objectives. First companies already have a number of concrete measures that make offboarding a human resource strategy to increase sustainability in times of a shortage of skilled workers, for example by offering talks on further professional development, written offers to return to the workplace after leaving or a structured way of dealing with freelancers (Spaeth, 2024).

In sum, we would like to invite human resources managers and staff at universities and higher education institutions to engage with offboarding and to proactively shape this process to increase sustainability. The potential of professional offboarding processes is currently still underestimated in ethical, social and economic terms, but could be pursued as a future strategy with a "growth mindset". Also, more research is needed on offboarding processes at universities, on offboarding policies, concrete procedures and its linkage to sustainability.

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Dr. Kathrin Staufenbiel holds a doctorate in psychology and works as a research associate at the Chair of Work and Vocational Rehabilitation. She also works as a systemic consultant, coach and supervisor for organisations, teams at work and in competitive sports.

# Book Recommendations

Kelly, A. M.; Padden, L. & Fleming, B. (Eds.) (2023). Making Inclusive Higher Education a Reality. Creating a University for All. Routledge, ISBN 9781032182599, 258 pages.

To open with the editors' concluding statement, "*have courage and expect imperfection*" (p.217), it can be said that the book *Making Inclusive Higher Education a Reality: Creating a University for All*, edited by Anna M. Kelly, Lisa Padden and Bairbre Fleming, is not about presenting one perfect solution for the creation of a university that is inclusive, but rather about the way towards this goal. More precisely, the need for continuous development, revision and adoption of structures and processes at Higher Education Institutions (HEIs) to make university environments viable for everyone and on all levels. This work is a rich collection of publications combining case studies, practical examples and analyses by a variety of international academics and experts, aiming to answer the question of how to successfully implement a whole-institution approach to inclusion by engaging the entire university community.
The 'University for All', defined as an "*institution to which all students feel they belong*" (p. 2), requires, according to the authors, a holistic understanding and should be firmly anchored in the fundamental understanding of the university community, and not just treated as an 'add-on' or even a niche topic. In this regard, and as terms such as equality, access, inclusion or diversity are often used synonymously, the term 'access' is used throughout the book, meaning the inclusion and participation of groups that are typically under-represented in Higher Education regarding age, gender, socio-economic status, disability, race and ethnicity or sexual orientation.

With 'The University for All' approach from the University College Dublin (UCD), Kelly, Padden and Fleming present a whole institution approach together with a toolkit based on four pillars: 1. Programme & Curriculum Design, Teaching & Learning, 2. Student Support and Services, 3. Physical Campus & the Built Environment and 4. Information Technology Systems & Infrastructure. These are well illustrated using practical examples from the disciplines of Arts and Humanities, Social Sciences and Engineering. What stands out about the 'University for All' approach is the way in which students are involved in its implementation. Described as key players in their role as "*access leaders*" (p. 6), they are actively included in the process of creating an inclusive university environment: Next to functioning as ambassadors and representing the student voice at e.g. university committees, they are part of the development team of an introductory module as well as participating in the 'University for All Roadshow', where the student role in an inclusive Higher Education is core topic of the talk.

This initial Irish example, along with different international viewpoints from Morocco, the United Kingdom, Belgium, the United States and Canada shed light on approaches such as Universal Design for Learning (UDL) and the accessibility of Information and Communication Technologies and how these can be embedded successfully into teaching and learning. Overall, this book is essential reading for anyone who wants to develop a deeper understanding of a whole-institution approach in which inclusion is valued and lived by all actors.

*Irina Haury*

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Czerniewicz, L. & Cronin, C. (Eds.) (2023). Higher Education for Good. Teaching and Learning Futures. Open Book Publishers. ISBN 9781805111290, 658 pages.

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In a climate marked by rapid digital transformation, equity and uncertainty, *Higher Education for Good. Teaching and Learning Futures* edited by Laura Czerniewicz and Catherine Cronin, is an essential and thought-provoking contribution to contemporary discussions about the role of higher education. The book title suggests a reflective exploration of higher education's future, a future that foregrounds accountability, care, and the public good while challenging collectivist approaches. Readers are invited to imagine how approaches to teaching and learning can be reimagined in ways that are future-oriented, socially receptive, and principled, with inspiration coming not least from poetry sequences and other artistic elements included.

The five sections of the book provide a critical lens for understanding how teaching and learning shape institutional practices and priorities, operational conditions, and power dynamics. A recurring theme is the conceptualisation of education as a social and public good, thus challenging the positioning of learners as consumers of their education. The book accentuates collective participation between learners and educators, responsibility and social justice. This makes teaching and learning more meaningful and transformative. In this instance, teaching and learning are not viewed passively but as ethical practices that influence who is included. This framing is important as often access alone is not enough, to guarantee an inclusive environment and success in higher education, particularly for learners coming from contexts with persistent economic and social disparities.

The book demonstrates a commitment to inclusion and accessibility, with various scholars highlighting how learner groups may be marginalised by curricula, institutional practices and digital platforms due to limited resources. What also stands out about each of the chapters in the book is the acknowledgement of the uneven realities of higher education across the globe. Essentially, this means that despite universal best

practices, the way higher education is organised can impede learners' success. From a broader perspective, this suggests a call for more socially responsive and Universal Design for Learning pedagogical approaches.

Overall, *Higher Education for Good. Teaching and Learning Futures* as highlighted in the prefix (p.31), extends *"new ways of reflecting about higher education, their missions and values and how to put it into practice concrete initiatives in specifics to deal with challenges of the current world"*. This is exemplified all throughout the book; however, the last chapter by Macgilchrist and Costello (p. 446) stands out for its use of futures research in presenting a potential learning curriculum aimed at assisting academics and learners to imagine futures in higher education that are more fair and just, rather than simply accepting the present system with all its inequities. The authors argue that re-imaging assists people to react better in the present through critical reflection, which is echoed by Makoe in Chapter 12 (p.313), highlighting that the visioning process assists in creating a 'common good', an *"… image of a desirable future that is equitable and just"*. This critical reflection is considered a panacea for collaborative direction that not only guides teaching and learning but also help shape policy, promote inclusion and fairness, encourage innovation with intention and most importantly prepare higher education for uncertainties.

*Buhlebenkosi B. Tshili*

# Last but Not Least

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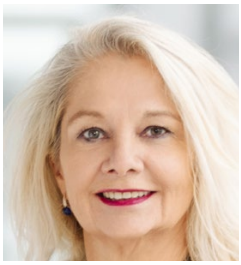
Prof. Dr. Puleng LenkaBula



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Prof. Dr. Ada Pellert

Prof. Dr. Puleng LenkaBula is a Professor of Ethics and Systematics and the Vice Chancellor and Principal of the University of South Africa. Since her Appointment as the Vice Chancellor, UNISA's Matrices of success in Research and Innovation, Governance, Financial and Resource Sustainability, Africanisation and Internationalisation have improved. She is a visionary and strategic leader.

Prof. Dr. Ada Pellert has been Rector of the University of Klagenfurt, Austria, since December 2024. Before this, she headed the FernUniversität in Hagen, Germany, for almost nine years. In addition to her work as a university leader at various universities in German-speaking countries, the economist also worked as a professor of organisational development.

**What is your understanding of a future-oriented leadership?**

**Ada Pellert:** Leaders have to translate the challenges of the world into challenges the organisation can cope with. They need to help the institution live with uncertainty without fear. The basis of a joint vision is an inspiring organisational culture that enables people to recognise the purpose of their contributions to the institution.

**Puleng LenkaBula:** It is about recognising that geopolitical, socio-economic, and environmental challenges are inseparable from the life of a university and the societies it serves. It is also centering the formation of students as global citizens who will contribute to society through knowledge and research. Universities must therefore lead through collaboration, mobilising research, engaged scholarship, and innovation to support ethical, evidence-based and progressive public policies. This requires co-creation with government, industry, civil society, and communities, grounded in mutual respect and shared purpose. Future-oriented leadership also creates space for intergenerational dialogue and diverse voices, affirming that inclusion strengthens knowledge production. In doing so, the university acts as a trusted public institution, advancing the common good and sustainable development for all.

**Three remarkable things about distance universities.**

**Puleng LenkaBula:** Distance universities deliberately close access and success gaps through the optimisation of multimodality, research-led scholarship of teaching and engagement, ensuring that no individual with the requisite intellectual capabilities and committed to the pursuit of university education is left behind in the knowledge economy. CODeL or ODeL Universities promote accessibility and inclusion by extending higher education to working professionals, mobile occupations, rural communities, and individuals excluded by geography, disability, or socio-economic barriers. Through flexible learning pathways, students can study at their own pace while institutions serve large, diverse cohorts beyond traditional campus constraints. In the era of artificial intelligence, open educational resources, and digital platforms, these universities cultivate digital literacy, self-regulation, and adaptability, thus producing graduates who are resilient, employable, and responsive to evolving societal and labour-market needs.

**Ada Pellert:** a) Their contribution to equality, by offering higher education opportunities to new groups of people. b) They force us to constantly reflect on which educational content fits best in which educational format, thereby contributing to educational quality. c) They help adult learners reinvent themselves through education at various stages of their lives.

**What is the biggest challenge for leading distance universities in these times?**

**Ada Pellert:** There is a risk that they may lose their comparative advantage, which means they must pay particular attention to didactic innovation within their study models.

**Puleng LenkaBula:** The digital divide has the potential to undermine both the scale and quality of care a university can provide. While our mandate is to serve large and diverse student populations through meaningful learning, strong academic standards, and responsive support systems, funding constraints, socio-economic inequalities, rapid digital transformation, uneven access to technology, and limited resourcing risk deepening disparities. Addressing these realities requires leadership grounded in strategic foresight and values-driven purpose. By strengthening academic integrity, investing in staff wellbeing, enhancing student support, and mobilising adequate financial and technological resources, we can mitigate attrition and uphold equity, quality, and institutional resilience in a rapidly evolving environment.

**How do you prepare your university for the future?**
**Provide us with one action you take.**

**Puleng LenkaBula:** I have instituted ten Catalytic Niche Areas (CNAs) to spawn research-intensive strategies for our university. These research and knowledge niche areas are relevant for South Africa, Africa and progressive development for economic

and development transformations. These CNAs are strategically aligned with the Sustainable Development Goals, national and continental development frameworks, and global science and innovation agendas. Anchored in an adaptive, student-centred institutional vision, they ensure access to relevant, high-quality academic programmes while strengthening research, innovation, and engaged scholarship.

**Ada Pellert:** I prepare my university for the future by strengthening collaboration competence, as the future will belong to intelligent forms of cooperation.

# Guidelines for Authors

**Concept:**
The journal Contributions to Higher Education Research *(Beiträge zur Hochschulforschung)* offers researchers and stakeholders in the higher education sector the opportunity to publish articles that address important developments in this area from different methodological and disciplinary perspectives. The journal strives to achieve a balance between quantitative and empirical analyses, comparative studies, conceptual-theoretical or overview articles, and insights into practice.

Submitted articles should be clearly and comprehensibly formulated, clearly structured, and aimed at a readership from various disciplines with scientific and practical expectations.

**Review Process:**
As is customary for scientific journals, all submitted manuscripts undergo external review by anonymous experts (double-blind peer review). Depending on the focus of the article, the following criteria are weighted differently: relevance of the topic, consideration of the higher education policy context, practical relevance, theoretical and methodological foundation, quality of data and empirical analyses, consideration of relevant literature, clear argumentation, and comprehensibility for an interdisciplinary audience. Authors are informed of the result in writing and, if necessary, receive suggestions for revision.

**Scope and Form of Submitted Manuscripts:**
Manuscripts for *Research Articles* in German and English should preferably be submitted by email and should not exceed 20 pages or 50,000 characters including spaces (1.5 line spacing, Arial 11). Submissions for the formats *Research Notes* and *Insights Into Practice* should be limited to 10 pages or 30,000 characters including spaces. Manuscripts for the *Standpoint* format are limited to 5 pages or 16,000 characters including spaces.

In addition, an abstract (maximum 1,000 characters including spaces) must be included. For German-language submissions, both a German and an English abstract are required; for English-language submissions, only an English abstract is necessary. Furthermore, please provide your address and details of your professional position. The print version will be created externally by a graphic designer.

When submitting a manuscript, please be sure to observe the detailed binding instructions for authors at https://www.bzh.bayern.de/en/guidelines-for-authors.

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