ASSOCIATION OF AFRICAN UNIVERSITIES
ASSOCIATION DES UNIVERSITES AFRICAINES
اتحاد الجامعات الإفريقية

The Future of Higher Education in Africa

– A Summary of Conference Subthemes

15TH AAU GENERAL CONFERENCE 2021

ASSOCIATION OF AFRICAN UNIVERSITIES (AAU)

15th General Conference

of the

Association of African Universities

Held virtually on July 5-8, 2021

Theme:

The Future of Higher Education in Africa

– A Summary of Conference Subthemes

Edited by **Jonathan C. Mba**

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List of Acronyms and Abbreviations

AAU	Association of African Universities
ACBF	African Capacity Building Foundation
ACE Impact	Africa Higher Education Centres of Excellence for Development Impact
ACEDHARS	Africa Centre of Excellence for Drug Research, Herbal Medicine Development and Regulatory Science
ACE-FUELS	Centre of Excellence for Future Energies and Electrochemical Systems
ACEGID	African Centre of Excellence for Genomics of Infectious Diseases
ACENTDFB	Africa Centre of Excellence for Neglected Tropical Diseases and Forensic Biotechnology
ACEPHAP	Africa Centre of Excellence for Population Health and Policy
ACE-PUTOR	Africa Centre of Excellence for Public Health and Toxicological Research
ACQF	African Continental Qualifications Framework
AfCFTA	African Continental Free Trade Area
AfREN	African Research and Education Network
AfSD	Agenda for Sustainable Development
APSS	Africa Private Sector Summit
AQRM	African Quality Rating Mechanism
ARIPO	African Regional Intellectual Property Organization
ARUA	African Research Universities Alliance
ASG-QA	African Standards and Guidelines for Quality Assurance
ASREN	Arab States Research and Education Network
AUC	African Union Commission
CADFP	Carnegie African Diaspora Fellowship Program
CAPIC	Centre for Applied Informatics and Communication
CARI	Coalition for African Research and Innovation
CEALT	Centre of Excellence in Logistics and Transport
CEA-CCBAD	Center of Excellence in Climate Change, Biodiversity and Sustainable Agriculture
CEA-MITIC	Centre for Mathematics, Computer Science, and ICT
CEA-MS4SSA	Centre for the Teaching & Learning Math and Science for Sub-Saharan Africa

CEO	Chief Executive Officer
CERHI	Centre of Excellence in Reproductive Health Innovation
CESA	Continental Education Strategy for Africa
CFOREM	Centre of Excellence in Training, Research and Expertise in Drug Sciences
CODESRIA	Council for the Development of Social Science Research in Africa
COREVIP	Conference of Rectors, Vice Chancellors and Presidents of African Universities
COVID-19	2019 Coronavirus Disease
CTCA	Culturo-Techno Contextual Approach
CU	Cairo University
DAAD	German Academic Exchange Service
DATAD-R	Database of African Theses and Dissertations including Research
DFID	Department for International Development
EC	European Union Commission
ECOWAS	Economic Community of West African States
ENAAMS	ECOWAS Nnamdi Azikiwe Academic Mobility Scheme
ESSA	Education Sub-Saharan Africa
EU	European Union
EUA	European Universities Association
FFA	Framework for Action
GDP	Gross Domestic Product
GUNi	Global Network for Innovation
HAQAA	Harmonization of African Quality Assurance and Accreditation
HCBUs	Historically Black Colleges and Universities
HEIs	Higher Education Institutions
ICT	Information and Communications Technology
IPCC	Intergovernmental Panel on Climate Change
ITU	International Telecommunication Union
IUCEA	Inter-University Council for East Africa
IUGB	International University of Grand-Bassam
KNUST	Kwame Nkrumah University of Science and Technology
LMSs	Learning Management Systems

LUL	Leuphana University of Lüneburg
MDGs	Millennium Development Goals
MIS	Management Information System
MOOCS	Massive Open Online Courses
MSCA	Marie Skłodowska Curie Actions
NAMO	North America Regional Office
NRENs	National Research and Education Networks
ODeL	Open Distance E-Learning
OECD	Organization for Economic Co-operation and Development
OER	Open Educational Resources
PASET	Partnerships for Skills in Applied Science, Engineering and Technology
PAU	Pan African University
R&D	Research and Development
SDGs	Sustainable Development Goals
SGCI	Science Granting Council Initiative
Sida	Swedish International Development Cooperation Agency
SOFRECO	Societe Francaise de Realisation d'Etudes et de Conseil
STEE	Centre for Science, Technology and Engineering for Entrepreneurship
STEM	Science, Technology, Engineering, Mathematics
STISA	Science, Technology, and Innovation Strategy for Africa
TEL	Technology Enhanced Learning
TOKTEN	Transfer of Knowledge through Expatriate Nationals
TRECK	Regional Transport Research Centre
TV	Television
UA	UbuntuNet Alliance
UKZN	University of Kwazulu-Natal
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDP	United Nations Development Programme
USA	United States of America
USD	United States Dollar
UT	University of Tokyo

UTOS	UKZN Teach Online Strategy
ValoPro	Valorization of Waste Products with High Value Added
WACCBIP	West African Centre for Cell Biology of Infectious Pathogens
WACREN	West and Central Africa Research and Education Network
WHO	World Health Organization
2iE	Centre for Training and Research in Water, Energy and Environmental Technologies
4IR	4th Industrial Revolution

The Future of Higher Education in Africa

**FOREWORD BY THE SECRETARY GENERAL,
ASSOCIATION OF AFRICAN UNNIVERSITIES**

Africa's total population is estimated to reach nearly 2.5 billion by 2050, constituting about 25.5% of the world's population. The higher education sector in Africa must therefore quickly overcome the avalanche of challenges it faces, to strategically position itself towards effectively responding to the huge demands expected of the sector by this exponential growth.

The key presentations, discussions, scientific papers and contributions during the Association of African Universities' 15th General Conference were clear on what the future will be for Africa's Higher Education. These are succinctly captured in the six (6) subthemes of this publication, which were also the subthemes of the conference. The Association of African Universities (AAU), Africa's apex higher education body with a membership of over 400 universities across the continent convenes its general conference every four years to among others, discuss topical issues concerning higher education in Africa. The 15th General Conference of the AAU, hosted virtually from 5 – 8 July 2021, on the overall theme "The Future of Higher Education in Africa" was attended by a total of 4,344 higher education stakeholders from Africa and beyond.

Generally, a more robust and functional higher education with an improved quality is expected to serve the continent and contribute to solving Africa's developmental challenges. It is predicted, that institutions of higher learning in Africa will take advantage of the digital transformation and technological advancements to improve access, catalyze innovation and position itself as the engine for Africa's transformation and growth. African HEIs are expected to be working more closely with the African Academic diaspora, through cooperation and collaboration, aided by various mechanisms including technologically facilitated means.

Funding challenges continue to persist up to this day as the various funding sources, including the government, tuition fees, research grants and other development partner contributions are all constrained. In the future, African HEIs are much more likely to boost their fundraising effort through the adoption of other currently underutilised means of fundraising including endowment funds and intangible assets such as intellectual property rights. Institutions of higher learning across the continent are also expected to upscale their entrepreneurial activities, leverage alumni associations to raise funds and engage in various innovative activities to improve their funding profiles. Research projects and offering of consultancy services are all key income streams that African Universities will continue to obtain funding from.

The HEI landscape also expects to have a more strengthened Academic-Industry partnerships, an education system which produces the right skill set that corresponds with the dynamic changes of industry and society, a responsive curricula and world-class infrastructural development to facilitate teaching, learning, research and community engagement. Strong Technical and Vocational Education Training (TVET) systems for bolstering social and economic progress is also expected to be in place in the near future.

Building a resilient African education system which delivers on all these promises requires joint efforts by all stakeholders – governments, HEIs themselves, industry, development partners, Civil Society Organisations, and all those involved to work synergistically and support the sector overcome the various hurdles and attain this bright future that we seek.

Details of the future of Africa's higher education are captured in this book, which outlines the key presentations, as well as papers presented and discussions at the AAU's 15th General Conference. We hope that this publication helps to enlighten all stakeholders on the conference proceedings and the key next steps identified by the participants and stakeholders – from Africa and beyond.

The AAU appreciates the tremendous efforts of the keynote presenters, paper presenters, session chairs and panelists, partners that provided financial support, media partners, as well as all participants of the 15th General Conference and all stakeholders who contributed in various ways in hosting this highly successful conference.

Prof. Olusola Oyewole
Secretary General, Association of African Universities

Executive Summary

The AAU held its 15th General Conference virtually (due to the COVID-19 pandemic) on 5 – 8 July 2021 under the theme *"The Future of Higher Education in Africa"*. The aim of 2021 AAU General Conference was to draw the attention of all, with particular reference to higher education institutions in Africa, to what the future portends for higher education in Africa within and post COVID-19 era especially in these trying times of COVID-19, inadequate funding of higher education and the emergence of and the exceptional move to mainstream online/virtual/e-learning in response to the global pandemic.

The General Conference was officially opened by the Hon. Minister of Education of Ghana, Dr. Yaw Osei Adutwum, on behalf of the President of the Republic of Ghana, H.E. Nana Addo Dankwa Akufo-Addo. It attracted various higher education stakeholders from around the world, and goodwill messages and presentations were made from key development partners and organizations including the World Bank; European Union Commission; International Development Research Centre; Swedish International Development Cooperation Agency UNESCO; European Universities Association; CAMES; Agence universitaire de la Francophonie; Education Sub-Saharan Africa; and OBREAL Global.

The following six sub-themes were addressed over four days in nine plenary sessions and seven parallel sessions with 40 scientific paper presentations.

Sub-Theme 1: *The Future of African Higher Education Post-COVID-19 (by Jonathan Mba):*

It was predicted during the General Conference that Africa will experience in the future a comprehensive higher education ecosystem characterized by diversification, differentiation, harmonization, relevance, flexibility, and resilience. Also, African higher education will in 2050 be renowned for excellence in teaching and learning, research and scholarship, innovation and entrepreneurship, and public service and engagement. The European Union Commission promised to continue to support the African higher education in future in the areas of Erasmus+ and Horizon Europe programmes, as well as the Marie Skłodowska Curie Actions and the Intra Africa Mobility Scheme.

There were five scientific papers presented during the conference under the subtheme but they did not discuss the changing higher education landscape in Africa occasioned primarily by COVID-19 or how higher education in Africa will look like in future. Higher education is changing and changing rapidly due to COVID-19 and other factors including social, economic and environmental issues. Higher education in the future will continue to use technology to students' advantage since it has created endless boundaries of where learning can occur. Many schools will emphasize less classroom space and more investments in

technology to accommodate asynchronous and synchronous learning modalities that are both remote and in-classroom. As a result of the pandemic, many university campuses in Africa are accelerating digital transformation where the move to a hybrid pedagogical model is being accompanied by a broader digitization of the entire institutions. The lasting impact of the pandemic, coupled with the advances of learning technology and the expectations of today's students makes a strong case for hybrid learning (a mix of face-to-face and online instruction). African universities have shown that they are capable of adopting new technologies and adapting to the changing higher education landscape. They should continue to invest in technologies that improve student experiences and the institutions' business operations.

Sub-Theme 2: *Contributions of African Higher Education Institutions to Addressing the Challenges linked to the COVID-19 pandemic (by Felicia Nkrumah Kuagbedzi):*

The AAU's 15th General Conference provided the platform for participants to reflect on the various ways through which African Higher Education Institutions (HEIs) are contributing to addressing the challenges linked to the COVID-19 pandemic. COVID-19's massive disruption and impact on the academic trajectory, particularly in Africa, has been significant. The pandemic accelerated the long-term challenges facing our society, and more specifically, the higher education sector and exposed its deficiencies and inequalities. Given the community engagement function and the role of HEIs, Africa and the world looked up to HEIs to contribute and reach out and help rescue society from the pandemic.

This chapter on Subtheme two (2), highlights the challenges brought about by COVID-19 and examines the higher education's efforts/contribution to solving these challenges at two levels – first at the higher education sector itself, and secondly at the general society within which HEIs exist. It further attempts to proffer some recommendations and policy direction to strengthen the higher education sector in Africa and build resilience towards future pandemics, disasters, and crises. The AAUs' COVID-19 response and support to its members, as well as the nine scientific papers which were presented at the conference are also featured in this book chapter.

Sub-Theme 3: *Contributions of African Higher Education Institutions (HEIs) in Achieving Sustainable Development Goals (by Felicia Nkrumah Kuagbedzi):*

 A key aim of the AAU is to strengthen the higher education sector's contribution to the development of the continent. In line with this, the sharing of knowledge, best practices, key research, emerging issues among other key aspects related to global agenda's such as the Sustainable Development Goals (SDGs), are sine quo non to facilitating the HEIs sector's active participation and effective contribution in this regard. This is because the achievement of the SDGs and other such blueprints, will be a major step towards the world's and in this case the African continent's overall development. The 15th General

Conference of the AAU therefore presented a unique platform for the discussion of African HEIs' contributions towards achieving the SDGs.

The book chapter on this topic presents background information on the SDGs and Higher Education in Africa, the role HEIs play and the various ways through which they have been contributing to the achievement of the 17 SDGs. As captured in this book chapter, participants at the General Conference also identified some key conditions necessary for African HEIs to effectively contribute to the attainment of the SDGs. The five scientific papers which were presented at the conference, as well as the key highlights and discussions following the presentations, are clearly outlined.

The chapter ends by highlighting some of the challenges faced by African HEIs as they work towards the achievement of the SDGs. Proposals regarding key next steps, some recommendations and policy advise are also given. It concludes by calling on all stakeholders to join hands with African HEIs to improve, among other things, access and quality, funds generation, collaborations, and partnerships to facilitate the Higher Education sector's effective contribution to the attainment of the 17 SDGs.

Sub-Theme 4: *Funding of African Higher Education Institutions in the face of unpredictable Economy (by Olusola Oyewole):*

A key challenge facing African Higher Education Institutions is funding. The future of African higher education institutions depends on how they handle the challenges of funding. Primary sources of funding for Africa's HEIs have included - Tuition fees; Scholarships from governments and private sector; Grants from trusts; Project-specific funds from development partner agencies; Research and development revenue generation by the faculty; Joint ventures with corporate Institutions and Government subventions.

However, over the years, these sources have been constrained. African Universities need to expand their income streams by expanding their financing sources to include - Education Trust Funds; Alumni gifts; Sale of case studies, publications, and University reviews; rolling out/upscaling the offering of Short courses, certificate programs, diploma, and executive programs and focused degrees; Payments from the industries for their recruitments for them; Gifts and Endowment; Fee-based inter-university, intercountry, and intercontinental R&D and consultancy collaborations; Entrepreneurship development initiatives like the campus-based incubators, accelerators, tech parks, business centers, and share of the fees; Online delivery of theirs course to students among others.

Two key presentations were made at the conference on this theme. One focused on the main theme "Funding of African Higher Education Institutions in the Face of Unpredictable Economy" while the other addressed "Financing Higher Education in Francophone Africa: Challenges and Opportunities". Additionally, the session on subtheme four (4) featured two scientific paper presentations which highlighted innovative financing options from Nigeria, and funding patterns in Lesotho.

Stakeholders who participated in the 15th General Conference called on the AAU, as the apex continental higher education body, to implement a number of interventions to shore up their efforts as they strive to generate funding in the face of an unpredictable economy.

Sub-Theme 5: *Mainstreaming e-learning and the digital divide (by Nodumo Dhlamini):*

Normalizing the use of digital technologies in teaching, learning, research and collaborative activities of African Higher Education Institutions (HEIs) is challenged by the existing digital divide, limited experiences of African universities in implementing e-learning projects, limited relevant and quality electronic content and other specific challenges faced by individual institutions, faculty and students.

Mainstreaming e-learning within African HEIs is particularly challenged by the digital divide that is evident in most African countries. The digital divide makes access to internet infrastructure, digital devices, and the requisite skills difficult for the disadvantaged learners and faculty. The digital divide in Africa affects those in the lower income brackets, those resident in remote areas not covered by communications infrastructure and those communities who are illiterate. African governments and university leaders have key and complimentary roles to play in facilitating the effective mainstreaming of e-learning by African HEIs.

African governments need to commit resources for the development of robust national internet infrastructure by supporting flexible national communication policies for the benefit of national research and education networks (NRENs). It is the role of national governments to bridge the digital divide by prioritizing the internet coverage of rural areas for the benefit of communities that are potentially vulnerable. University leaders are responsible for creating the vision for e-learning and championing its effective implementation at the institutional level.

They are also key in connecting with government leaders and ensuring that the needs of the academic communities are clearly understood. For African HEIs to mainstream e-learning, they also need the committed support of students, parents, academic faculty, administrative staff, private sector companies concerned with digital equipment and infrastructure, and other stakeholders.

The Association of African Universities (AAU) has been supporting the development of e-learning in African universities since 2005. The support for e-learning growth by the AAU has been through the promotion of national research and education networks (NRENs). The NRENs are key institutions that provide internet bandwidth services, cloud services and other value-added e-services to research and education institutions at reduced costs.

Sub-Theme 6: *Contributions of the Diaspora to African Higher Education (by Ransford Bekoe):*

A panel of seven (7) eminent African academics in the Diaspora spoke dispassionately about the building blocks required of Africa's higher education to attract and engage its academic Diaspora. The discussions focused on fault lines identified in African academic and research institutions as exposed through their response to the outbreak of COVID-19, and the opportunities that a revitalised and responsive African higher educational sector can offer the continent, especially with the roll out of the African Continental Free Trade Area (AfCFTA).

The skills shortages, captured succinctly in a 2016 survey by the African Capacity Building Foundation (ACBF), makes a strong case for Africa, as a matter of urgency, to tap into expertise of its academic Diaspora to, in the interim, fill critical gaps required to anchor the continent into global competitiveness and, in the long run, build capacities of the continent's academic institutions for their sustainability and contribution to socio-economic development.

A successful collaboration between Africa and her academic Diaspora, however, depends on the acceptance of the latter by both the political and academic leadership of the continent. The Diaspora, on their part, will need to be identified in their different skills set, which calls for the creation of a central database by the AAU as a necessary first step to fully tap into their expertise.

Introduction and Background

The Association of African Universities (AAU) holds its statutory General Conference of African university leaders every four years to deliberate on topical issues of interest to the African higher education community, review the activities of the Association and approve the programme of operations for the next four years, as well as elect new members of the Governing Board. Accordingly, the AAU held its 15th General Conference virtually (due to the COVID-19 pandemic) on 5 – 8 July 2021 under the theme *"The Future of Higher Education in Africa"*.

The COVID-19 pandemic is revolutionising digital and online education globally but many Africans are being left behind as they are not equipped to adapt or transition to the new methods of learning. The advent of COVID-19 in Africa raises certain salient questions and issues such as: what is the impact of COVID-19 on the educational system in Africa now and in the future? What contributions are the higher education institutions in Africa making to address the challenges of COVID-19? How would African higher education mainstream e-learning on the continent?

It is in this context that the Association organised its 2021 General Conference under the theme: "The Future of Higher Education in Africa". The aim of 2021 AAU General Conference was to draw the attention of all, with particular reference to higher education institutions in Africa, to what the future portends for higher education in Africa within and post COVID-19 era especially in these trying times of COVID-19, inadequate funding of higher education and the emergence of and the exceptional move to mainstream online/virtual/e-learning in response to the global pandemic.

The Conference commenced with a warm welcome to participants from across the length and breadth of Africa, Europe, Americas, Asia and beyond, by the AAU President, Professor Orlando Quilambo and the Secretary General, Professor Etienne Ehouan Ehile. Professor Quilambo thanked participants for attending the virtual General Conference and noted that the goal of the conference was to explore how African higher education could remain relevant in the future in the face of challenging difficulties.

He observed that the advent of the pandemic in Africa therefore raises concerns on its impact on the educational system in Africa in terms of resilience to different forms of instability, adaptability to unpredictable changes, flexibility of educational policies, institutional leadership, quality teaching and learning, infrastructural adequacy, financial sustainability, research capabilities and effective networking. As the objective of the AAU founding members was to improve the quality and relevance of higher education and strengthen its contribution to Africa's developmental aspirations, Professor Quilambo

remarked that AAU member institutions have the daunting task to always ensure that they deliver training that is relevant, innovative and learner-centred, as well as produce high quality graduates that are ready for the labour market, and who engage in ground-breaking research that addresses societal challenges. He appreciated the the Government and People of the Republic of Ghana for hosting AAU and demonstrating unflinching support and commitment to the AAU and generally to higher education in Africa in many ways. Professor Quilambo invited participants to use the platform of the Conference to share experiences, discuss and learn from one another, as well as know of relevant best practices in keeping the doors of our campuses open during crisis period like the current COVID-19 pandemic.

On his part, Professor Ehile commented on the significant milestones the Association has chalked since the last conference of 2017, which he said was borne out of the goodwill, cooperation and hard work of the various stakeholder groups, including AAU membership, and partners who work closely with the AAU Secretariat on a regular basis. Notable among these achievements were the establishment of the AAU Television (AAU TV) in 2018 to showcase African scholarly works and to generally improve on the visibility of our institutions; opening of regional offices in North Africa, East Africa and in North America, in line with our decentralization strategy of getting closer to our member universities on the continent, and with Africans in the diaspora.

Professor Ehile stated that AAU has continued to build the capacity of African universities to deliver a globally competitive education, through various capacity building workshops and involvement in projects and programmes such as the African Centres of Excellence for Development Impact, the Science Granting Councils Initiative, the Harmonisation of African Higher Education, Quality Assurance and Accreditation (HAQAA) Initiative and the Demography of African Faculty (DAF) project, among several others.

He concluded his welcome remarks by promising that AAU was committed to playing its strategic role, in achieving the grand vision of a strengthened and globally competitive higher Education for Africa. He noted that AAU would continue to ensure that the African Higher education sector contributed substantially to the attainment of the goals of policies such as the African Union's (AU) Agenda 2063, the Continental Education Strategy for Africa (CESA 16-25), the Science Technology and Innovation Strategy for Africa (STISA 2024), and the Global 2030 Sustainable Development Goals Agenda, among others, for the benefit of the good people of Africa and the world at large.

The goodwill messages and presentations from key partners (including World Bank; European Union Commission; International Development Research Centre; Swedish International Development Cooperation Agency UNESCO; European Universities Association; CAMES; Agence universitaire de la Francophonie (AUF); Education Sub-Saharan Africa; and OBREAL Global) were encouraging, inspiring and informative.

The 2021 General Conference was officially opened by the Hon. Minister of Education of Ghana, Dr. Yaw Osei Adutwum, on behalf of the President of the Republic of Ghana, H.E. Nana Addo Dankwa Akufo-Addo.

The 2021 General Conference discussed, identified and strategised on the role of higher education institutions in ensuring an effective, relevant and efficient answers to the future of higher education on the continent.

The following sub-themes of 2021 General Conference, which are in some sense cross-cutting and overlapping, reflect the strategic objectives of CESA 16-25 and the general direction of the current AAU 2020-2025 Strategic Plan.

➢   **Sub-Theme** 1: The Future of African Higher Education Post-COVID-19

➢   **Sub-Theme 2:** Contributions of African Higher Education Institutions to Addressing the Challenges linked to the COVID-19 pandemic

➢   **Sub-Theme 3:** Contributions of African Higher Education Institutions (HEIs) in Achieving Sustainable Development Goals

➢   **Sub-Theme 4:** Funding of African Higher Education Institutions in the face of unpredictable Economy

➢   **Sub-Theme 5:** Mainstreaming e-learning and the digital divide

➢   **Sub-Theme 6:** Contributions of the Diaspora to African Higher Education

These sub-themes were addressed over four days in nine plenary sessions and seven parallel sessions with 40 scientific paper presentations.

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SUB-THEME 1:

The Future of African Higher Education Post-COVID-19

By
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Background Information

In December 2019, a viral outbreak of pneumonia of unknown origin occurred in Wuhan, China. On 9 January 2020, the World Health Organization (WHO) officially announced the discovery of a novel coronavirus. This new virus is the pathogen responsible for this infectious respiratory disease called the 2019 Coronavirus Disease (COVID-19). COVID-19 spread quickly around the world and was declared a global pandemic by the WHO on 11 March 2020. Since that time till date, our life circumstances have changed dramatically in all aspects, much to our surprise and discomfort. Among many others, one of the most profoundly and visibly affected areas was that of higher education on a broader and more global scale.

The COVID-19 pandemic, which within weeks led to the unprecedented health and socio- economic crisis which we live in and which will mark our times for long, has severely impacted the entire higher education sector around the world. As of 1 April 2020, already more than 3.4 billion people, representing 43% of the world population, were in lockdown in more than 80 countries and territories around the world. The lockdown and social distancing measures immediately had an enormous impact on higher education.

In order to better understand the disruption caused by COVID-19 on higher education and to investigate the first measures undertaken by higher education institutions around the continent to respond to the crisis, the Association of African Universities (AAU) decided to launch a continental survey on the impact of COVID-19 on higher education in Africa. Sequel to that, the AAU has taken concrete steps to help our member institutions adjust and adapt to the challenges posed by the pandemic so that their core functions are not adversely affected. One of these steps was a webinar organized for the CEOs of national and regional regulatory agencies of higher education in Africa on Thursday, 21 May 2020 on the theme: *Response of African Higher Education Regulatory Bodies to COVID-19 Pandemic: Opportunities and Challenges.* The goal of the webinar was to share information on how the regulatory agencies were supporting the HEIs in coping with their teaching and learning during the virus crisis. The virtual meeting further offered an opportunity to discuss best practices on how HEIs were offering uninterrupted educational services to their students by distance learning in order not to disrupt their academic calendars as a result of the COVID-19 pandemic and its related lockdowns. A similar webinar was also organized for all vice chancellors, presidents and rectors of African universities on the theme: *Vice Chancellors Dialogue: Keeping African Universities' Learning Doors Open*. The event provided an opportunity to share and discuss practical lessons on how institutions are handling the disruptions caused by the COVID-19 pandemic.

The online workshops stimulated interest and partly contributed in shaping the title and subthemes of the 15ᵗʰ General Conference of AAU which was held virtually on 5 – 8 July 2021 under the overall theme: ***The Future of Higher Education in Africa***.

The WHO (2021) reports that as at November 2021, 47 African countries had been affected by the COVID-19 pandemic with 6.2 million cumulative cases and 152,000 deaths. Although Africa has least recorded cases than other world regions, yet actual cases may be significantly higher due to lack of testing facilities and low reporting.

Indeed, African higher education is seriously affected by the pandemic in areas such as reduced academic mobility; reduced enrolments especially at private institutions as students are unable to pay fees, and difficulty to attract international students; unplanned remote teaching leading to poor learning outcomes and poor quality of education.

Synopsis of the General Conference Presentations on the Future of Higher Education in Africa

There were keynote and plenary sessional presentations that touched on the Future of Higher Education in Africa in the midst of the COVID-19 pandemic. In talking about the EU's Contribution to Higher Education in Africa in the era of COVID 19, Ms. Deirdre Lennan informed the Conference about funding opportunities African higher education institutions could benefit from in the coming years. These opportunities include Erasmus+ and Horizon Europe programmes, as well as the Marie Skłodowska Curie Actions and the Intra Africa Mobility Scheme. The objectives of the Erasmus+ 2021 - 2027 programme are to ensure inclusive and equitable quality education', & leave 'no one behind' (SDGs); develop knowledge and skills and global citizenship as key drivers for sustainable development; support the external projection of internal policies and the EU's external action, people-to-people cooperation and a stronger voice for Europe in the world; offer a response to the challenges of quality, modernisation and employability through increased relevance and responsiveness of education for a green and sustainable socio-economic recovery, growth and prosperity. The overarching priorities under the Erasmus+ 2021 - 2027 programme include Quality in Education and Training; Inclusion and Gender Equality; Green and Digital Transitions; Teachers and Trainers; Higher Education; and Geopolitical Dimension.

The Marie Skłodowska Curie Actions (MSCA) under Horizon Europe will in future provide funding support for MSCA Doctoral Networks targeting networks training doctoral candidates; MSCA Postdoctoral Fellowships targeting postdoctoral researchers; MSCA Staff Exchanges targeting staff undertaking any type of research; MSCA COFUND targeting co-funding training programmes; and MSCA and Citizens targeting public outreach events.

The EU's future support to higher education will cover Erasmus Mundus Joint Master Degrees and scholarships; Jean Monnet actions (teaching and research, regional integration, policy debate Exchanges of university students (BA, PhD) and staff academic and administrative); Capacity Building in Higher Education (cooperation transformation and structural reform); and Erasmus+ Virtual Exchanges. Further details are available on EURAXESS AFRICA 2021.

Professor Goski Alabi, the President of Laweh Open University College of Ghana, made a presentation on the topic: The Future of African Higher Education Post COVID 19. She drew from the fact that the "The pandemic taught us that experiencing a real campus life is crucial for students, academic staff and administrators. But moving forward, digitalization will become an ever more important aspect of higher education". (Altbach and Hans de Wit 2021). She argued that for us to be prepared for the new normal, there should be national policies to encourage all universities and colleges to establish outfits for Open Distance E-Learning (ODeL); resources and investment in ODeL should be pursued; techno pedagogical capacity training for academics should be encouraged; students should be prepared for self-centered and online learning; eLibrary resources for ODeL is important; the perceptual challenges need to be addressed to promote and support ODeL; and special attention should be paid to teaching and learning of STEM courses in the new normal. She added that TVET should be prioritized and made attractive and that relevance, industry academic linkages can be facilitated partly through work-based learning.

On his part, Professor Paul Zeleza, the Vice Chancellor of United States International University-Africa (USIU-Africa) Kenya at the time, presented on *The Future of Higher Education in Africa*. He began by outlining the challenges facing African higher education which include Limited institutional supply; Inadequate financial resources; Deficient human capital; Low research output; Suboptimal physical and Electronic infrastructures; Leadership and governance; Academic cultures; Quality of graduates; Internationalization and indigenization; Global rankings and standing; and the 5Cs of contemporary academy (namely Corporatization of management, Consumerization of students, Casualization of faculty, Credentialing of learning, Commodification of knowledge). He then went on to propose an agenda for reform and transformation focusing on Promoting Financial Sustainability (by Raising public funding, Tuition pricing and student aid, Prudent financial management, Diversifying revenue streams, Creating institutional mergers, Inter institutional collaborations, Strengthening external, and partnerships including PPPs); Building Faculty Capacities (by Expanding graduate education and post graduate opportunities, Inter institutional collaborations, Importing academic labor and mobilizing the diaspora, Providing robust faculty support, and Raising attractiveness of academic careers).

Others included upgrading Infrastructures (Physical infrastructures in the areas of Classrooms, labs, libraries, hostels, sports facilities fit for 21st century; Virtual or Electronic infrastructures in the areas of Prioritizing digital transformation, Rethinking capital expenditures, Developing online design competences, Promoting face to face, online, and blended teaching and learning, Embracing student participation, Curricula imparting digital skills, Supporting the whole student, Addressing digital divides, Providing data protection, security, and privacy, Catering for international students, and Embracing the 4th Industrial Revolution).

He also recommended Strengthening Research Cultures (by Increasing and diversifying research funding and representation, Supporting research intensive institutions, faculty, and networks, Promoting interdisciplinary research on national, regional, and global visions, Promoting open access, brokerage, and advisory services, and Promoting scientific literacy and global standards for research and innovation); Enhancing Quality of Graduates (by Strengthening high impact pedagogical practices in the following areas: First year seminars and experiences, Common intellectual experiences - learning communities, Writing intensive courses, Collaborative assignments and projects, Undergraduate research, Diversity/global learning, ePortfolios, Service and community based learning, internships, Capstone courses and projects, and Lifelong learning skills and mindsets); Developing Effective Leadership (in the areas of Appointment processes, Leadership development, Enhancing skills in crisis management, agility, entrepreneurial, respect, etc.); Enhancing Institutional Cultures (by Upholding academic freedom, Practicing shared governance, Promoting equity, diversity and inclusion, Civility and collegiality, Effective communication, Embracing social responsibility).

According to him, if all the foregoing measures are addressed, then by 2050, we shall be experiencing an expanded African higher education system with enrollment ratio of at least 50%, anchored on the values of access, affordability, equity, diversity and inclusion. He further suggested that by 2050, we shall have a financially sustainable, efficient, technologically advanced, locally rooted and globally competitive system that attracts high quality students, faculty, leaders, research grants, donations, and a diverse range of partnerships. He further opined that Africa will experience a comprehensive higher education ecosystem characterized by diversification, differentiation, harmonization, relevance, flexibility, and resilience. Ours will be a system that is committed to academic freedom, shared governance, and social responsibility. Also, African higher education will in 2050 be renowned for excellence in teaching and learning, research and scholarship, innovation and entrepreneurship, and public service and engagement. He predicts that by 2050, African higher education will be an engine for transformation with its capacities in research, science, technology and innovation that provide solutions for development challenges and agendas. Professor Zeleza believes that by 2050, African higher education will be promoting the Pan African and nationalist agendas of decolonization, nation building, development, democracy, equality, human rights, justice, rule of law, and regional integration, as well as producing highly skilled, innovative, employable and civic minded graduates.

The following table presents the paper presentations delivered on the Future of Higher Education during the Parallel Sessions of the General Conference.

Table 1: Summary of Papers Presented on the Future of Higher Education in Africa

S/ No.	Name of Paper	Name of Author and Institutional Affiliation	Summary of Paper Presented
1.	When education goes viral: Triaging challenges and harnessing opportunities from the COVID-19 pandemic	Felix Kwabena DONKOR, Faculty of Social Sciences, University of Education-Winneba	The COVID-19 pandemic is regarded as the worst challenge facing humanity since the Spanish Flu, a century ago with implications for all sections of modern society including education. This study employs qualitative methods involving studies of literature and interviews with resource persons. It investigates how the coronavirus pandemic is impacting education especially the SDG goal of ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. As the world commences the final decade of action in delivering the SDGs, it considers critical lessons and opportunities for developing more robust teaching and learning infrastructure in the post-Covid era to leave no one behind. This will go a long way for education to successfully play its pivotal role in holistic and inclusive development. This study contributes to the debate towards accelerating implementation of the SDGs in a fully integrated approach.

| 2. | Students' Re-Imaginations Of The Future Of Higher Education In Cameroon | Dr. Etta Mercy Aki University of Buea-Cameroon | This is an exploratory study where qualitative data was collected through 07 synchronous online Focused Group Discussions (OFDG) along with demographic data through an online survey. 68 current students representing 08 higher education institutions in Cameroon where selected using the purposive sampling technique.

The online system made it possible to access geographically dispersed participants who engaged in a constructive process of imagining the future of the higher education that they want. Each Focused Group was led by a moderator and two facilitators in a 90 minute live and text chat session (synchronous) that consisted of 10 members per group in exception to one of the groups with 08 members. Data, collected in the form of text and voice recording was analysed using transcript analysis to elicit the aspirations of students as they describe what higher education should be at entry, participation and beyond graduation.

Findings revealed that students perceive the current state of education in the following ways; higher education is invisible in secondary education leading to poor program choices and performances particularly during the first year of study with far reaching negative effects on overall participation; higher education services promote inequalities and limit students' opportunities to compete with the evolving society; life after higher education promotes dependency and is not sustainable due to poor skill development. Based on these findings, participants provided a picture of a desirable higher education for the future that is central to their aspirations and guided far back from secondary schools to enable access and effective participation in higher education.

Using the power of imaginations, this study provides insights of students in Cameroon about the higher education that they want. |

3.	Semi-Synchronous Learning In Post-Covid-19 Era: The Next Level In The Wake Of New Normal	Dr. Yusuf, Olayinka Jelili, Department of Agricultural Economics and Extension Services, Kwara State University, Malete, Nigeria	In this paper, we share our experience and findings using social media virtual platforms (WhatsApp and Telegram) to teach use of a Computer Assisted Qualitative Data Analysis Software (CAQDAS) – ATLAS.ti – amongst academic professionals. We examined learners' satisfaction and expectations before and after the training, their willingness to pay (WTP) for virtual learning and evaluated the strength and weaknesses of the virtual learning platforms.
			Participants were requested to voluntarily join the training, for free, via a WhatsApp invite link. This first group became filled up in less than six hours which led to creation of a second WhatsApp group next day. The second group also became filled to capacity in about 5 hours of its creation. This led to creation of a third group, however, on Telegram which has no membership limitation. In all about 800 participants from different countries around the world attended the virtual training. Lectures and hands-on practical session were delivered via live session voice notes and PDF materials to supplement learning. Participants who could not join the training synchronously had the opportunity to do so asynchronously, hence, the WhatsApp and Telegram platforms provided a semi-synchronous learning opportunities for training of the participants. In addition, focus group discussions (FGD) were held with selected members from each of the groups via WhatsApp voice call feature, and WhatsApp group chat at the end of the training.
			The results show that majority (83.7%) of the respondents were willing to pay for virtual training in future, and average amount WTP calculated as X5,773 (<$15). Semi-synchronous medium using whatsapp and telegram were the most preferred virtual learning platforms. Majority of participants reported high degree of satisfaction with 'interactions on and administration of the virtual class platform', 'learners' comportment on the platform', 'the course content, timing and duration.

			With their expectations met, participants regarded semi-synchronous virtual platform to be as effective as face-to-face training and also regarded virtual training as innovative with strong potentials to opening more opportunities in higher education teaching and learning. Amongst the strengths of the virtual learning platform included self-paced learning experience, real time feedback opportunity, and comfort of learning from the convenience of the participants' home. We conclude that social media platforms portend great potentials for semi-synchronous teaching and learning in the post-covid era. These platforms are well suited for climes where synchronous e-learning is threatened by poor internet network and electricity.
4.	Impacts of the Fourth Industrial Revolution and COVID-19 Pandemic on the Design of Educational Spaces in Universities	Ms. Sara Hussein, Department of Architecture, Faculty of Engineering, Assiut University, Egypt	This paper aims to identify the expected impact of 4IR technologies on the design of educational spaces in the 4th generation universities including the impact of COVID-19 pandemic. The paper adopts the following methodological procedures: (i) The descriptive approach is used for determining the components constituting 4the generation universities. (ii) The analytical and comparative approach is utilized to analyze the relationships between the components of 4th generation universities and the expected impact of 4IR technologies on the design of educational spaces in universities. This includes the impact of COVID-19 pandemic on using the 4IR technologies on the educational spaces in the 4th generation universities in terms of the levels of digital transformation and e-learning expansion and their impacts on the design of educational spaces. The results from this paper include: (i) Determination of the components constituting 4the generation universities based on the 4IR technologies. (ii) Extraction of the expected impacts of 4IR technologies on the design of educational spaces in the 4th generation universities.

| 5. | Challenging the Future of Higher Education in Africa: Argumentation of Functional Internationalization Activities | Prof. Noel Kufaine, Namibia University of Science and Technology | The presentation is a product of an analysis of the book; Higher education in Africa: The international Dimension: by Damtew Teferra and Jane Knight. The book project was instituted to identify trends, new developments and challenges related to the international dimension of higher education. The book presented reports from 11 countries. (Botswana, Egypt, Ethiopia, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Senegal, South Africa and Tanzania). The study used an interpretive and descriptive approach. Qualitative data was generated through document analysis. Thematic analysis was deployed to identify emerging and dominating themes as a focus for interpretation of the study.

The general picture depicted from the sampled countries in the book revealed that; internationalisation is taking place on moderate scale; low to medium and limited in scope and organisation. Therefore, to simply accept the premise that internationalisation will be successful without policies and strategies do not only fail to recognise the circumstances of internationalization of higher education, but also overlooks the complexity and diversity of higher education and its vision, missions and values. This does not derogate the capacity of higher education institutions; however, it brings understanding on how higher education should act and use a criterion that recognises the diverse goals of higher education during internationalisation implementation. In conclusion, African higher education should learn to utilize research results in the formation of national and institutional policies. relations between individual nationals. |

The five papers in the table above succeed as research papers in their own right. Unfortunately, they were more academic in nature, highlighting what the authors perceived as important issues impinging on the higher education ecosystem. The papers never discussed the changing higher education landscape in Africa occasioned primarily by COVID-19 or how higher education in Africa will look like in future.

Changing Higher Education Landscape and the Future

Higher education can equip learners with the skills and competencies they need, to shape their own lives and contribute to the lives of others. There is no country that can develop without higher education, so higher education is central to social and economic development of any society. But higher education is changing and changing rapidly due to COVID-19 and other factors including social, economic and environmental issues.

We are facing unprecedented challenges – social, economic and environmental – driven by accelerating globalisation and a faster rate of technological developments on one hand, and the crisis precipitated by the COVID-19 pandemic, on the other hand. At the same time, those forces are providing us with myriad new opportunities for human advancement even though the future is uncertain and we cannot predict it.

The COVID-19 pandemic saw as many as 1.3 billion learners affected this year, as schools and universities were forced to close, and adopt 'blended' learning strategies, which mixes online with face-to-face teaching. As a second wave of COVID-19 saw cases resurging across the globe in October 2020, more than 27,500 adults in 29 countries were asked how they saw higher education being conducted in their country, five years from now (World Economic Forum 2020). Almost three-quarters (72%) of respondents said higher education in their country would be conducted online at least as much as in person. Thus, in 2025, higher education will be a hybrid of in-person and online learning.

As the world we live in changes to embrace technology futures, how and what we teach in our education system will also be reshaped to keep up to date with the growing demands of the 21st century.

Curriculum teaching and learning already extends well beyond the classroom and will continue to do so, and as higher education changes to suit the future's needs, the role of a teacher must also adapt and grow. It is each lecturer's responsibility to empower his or her students to take risks, be innovative and seize any opportunity thrown their way.

Alongside our changing notions of what constitutes a classroom, our ideas about the way teaching is delivered must also be reshaped. The old 'one model of teaching and learning fits all' is outdated and has no place in the agenda for future higher education. Lecturers should be facilitators of learning and students will have more control of their own learning journey.

To maximise the potential for individual progress, some elements of teacher-led learning will remain, which will augment traditional learning practices when combined with online digital media.

As we ride the wave of the digital era, it is becoming easier to get connected with a global reach. A world of information is at your fingertips with the click of a button or a simple voice command, and, as technology continues to advance, students need to grow their learning with it.

Technology is no longer a motivating factor when it comes to learning – it is a must. It's something that needs to be incorporated in the future of higher education to ensure students are equipped with the skills to cope in a world dependent on technology.

Technology has created endless boundaries of where learning can occur, with whom and why. The reality is, classrooms can be anywhere anytime. Students can be working on projects in virtual contexts with other students from around the world at any given moment. Technological advances have enabled interconnectedness of information and people with the touch of a button.

Higher education in the future will need to demonstrate how technology can be used to students' advantage, as well as teach future generations how to handle problems that arise from it. Technology can change learning forever and we need to embrace it and manipulate it to our advantage.

The concept of a lecturer standing in front of a room full of students who listen and respond to direction is increasingly a thing of the past. While not an entirely new approach, student learning spaces in the future will supercede the typical classroom that we know today. This will see students become partners or co-creators of their own learning.

Experiences that allow collaboration, communication and teamwork for all students often happen beyond classroom walls. We need to facilitate for these experiences in context, and our classrooms need to be a reflection of this. They will be set up to allow collaboration to occur among students especially when they are expected to undertake assignments and learning projects in small or large groups. In future, classrooms will coexist as physical spaces and online, flipping the current learning model upside down so that students can learn at home and spend class time collaborating and applying their knowledge to real-life issues.

Changing Higher Education Delivery Models: Higher education delivery models are quickly evolving. When the pandemic forced African higher education institutions to move rapidly to remote learning, many universities were unprepared and the cracks in traditional education delivery and business continuity plans began to appear. Higher education institutions in Africa leveraged Zoom platforms and other technologies to get over the hurdle. While this

is commendable, it is not a sustainable or long-term solution. Increasingly, the primary model for educational delivery is hybrid learning. In addition, just like the reduction in space needed for commercial offices, many schools are now emphasizing less classroom space and more investments in technology to accommodate asynchronous and synchronous learning modalities that are both remote and in-classroom.

Uptake in Digital Transformation: As a result of the pandemic, many university campuses in Africa are accelerating digital transformation. The move to a hybrid pedagogical model is being accompanied by a broader digitization of the entire institutions. For example, at the University of Professional Studies Accra (UPSA), students are divided into two alternating categories of online and in-person delivery whereby all online students are provided academic services through an application or portal for six weeks, after which they switch to the traditional in-person delivery mode, while those students who have been attending classes physically will move to the virtual platform. This approach has proved to be effective but at the same time the institution is significantly increasing its investment in technology to be ready for the future. For African universities in general, there is the broader shift to a digital approach to campus operations and student experience. Also, it should be noted that the internet currently offers students access to all kinds of free educational content, such as massive open online courses (MOOCs) and YouTube videos. Several companies (especially large tech ones) are getting into the educational content and delivery game directly, with offerings like Google certificates in cloud computing, heightening uptake in digital transformation in educational delivery in Africa.

Cybersecurity: Like other sectors of our economy, higher education has experienced a rapid transformation due to COVID-19. The pandemic has exacerbated the need for digital, technology-enabled education experiences. Even the most traditional of schools have now been online out of necessity. The risk of doing business online has equally increased. Cybersecurity is now a top priority. Outside of the occurrence of something like a major breach, cybersecurity has not typically been on the radar of those at the highest levels of management at the institution. That's changing – and needs to. In Ghana, for example, it has been reported that $19 million was lost to cyber criminals in 2020 and $240 million in 5 years (Graphic Showbiz national newspaper 2021).

College and university networks were an appealing target for cyberattacks prior to COVID-19. However, the shift to remote and online learning en masse quickly increased the number and severity of cyberattacks on institutions to an alarming level. For example, cyberattacks on schools increased 30 percent in July and August 2020 – a greater increase than in any other sector (Check Point Software Technologies 2021). It's become critical that college and university leaders prioritize their information security strategies to safeguard both student and institutional data and resources.

A Case for Hybrid Mode of Instruction in African Universities

As universities on the continent continue to open their doors for academic business in the face of unrelenting COVID-19 pandemic, hybrid learning involving a blend of online and in-person modes of educational delivery, has become a viable option. Because of COVID-19, traditional physical instruction as we have known it for many decades will forever be changed. The lasting impact of the pandemic, coupled with the advances of learning technology and the expectations of today's students makes a strong case for hybrid learning.

Granted that the hybrid learning approach will not look the same everywhere in Africa, as every institution will need to determine what works best for their students, faculty and fulfillment of their mission. However, in one way or another, all institutions will have to be hybrid, a mix of face-to-face and online instruction because of a number of factors. These factors include:

(i)   *Meeting the Expectations of Modern Students:* African higher education institutions are already challenged with meeting the expectations of today's digital native student. These students have grown up online and hardly remember a time when they did not have a powerful mobile device supporting every interaction. The modern student lives in a hybrid world of their own creation. They are very familiar with the potential of the hybrid environment, and will not be satisfied with an education that consists solely of classrooms, lecture halls, whiteboards and PowerPoint slides.

(ii) *Flexibility of the Hybrid Approach:* The hybrid learning approach is beneficial since it unleashes the power and possibilities of face-to-face and online modes of educational delivery. Carefully designed hybrid approaches allow lecturers to leverage the best of both the residential and online worlds. What is particularly exciting about hybrid teaching models is how the precious time spent face-to-face can be made even more impactful and valuable. For example, the construction of foundational knowledge can be left to the online modality, freeing the face-to-face approach to focus on meaningful discussion, interaction and activities that can only be performed in person.

(iii) *Potential for Tuition Cost Reduction:* Moving from a fully face-to-face to a hybrid model will present opportunities for academic institutions to explore new cost-reducing initiatives such as reduced need for residential and other facilities. Any money saved from these opportunities could ultimately be passed down to students in the form of lower tuition.

(iv) *Flexibility to Accommodate Future Disruptions:* COVID-19 has forced all of higher education to make immediate changes that no one would have thought possible.

It is time to learn from the experiences and begin developing the next generation of teaching and learning because no one knows what the future holds. But it is safe to assume that this time will not be the last time we have to deal with a situation that shuts down university campuses. By putting a hybrid model in place for all residential instruction, institutions will have the ability to transition to fully online delivery without disrupting the quality of the learning experience for students and faculty. The International University of Grand-Bassam (IUGB) in Côte d'Ivoire and Ashesi University in Ghana are two of the few institutions that were able to smoothly transition to online mode of educational delivery because they have been used to the hybrid approach before the COVID-19 pandemic.

Conclusion

As a result of the pandemic-related transitions and vaccinations on the rise, the most interesting questions now reside around where things will go post-COVID-19. How will higher education in Africa look like in the future?

It is clear that the future of higher education needs rethinking in many ways. International and multilateral cooperation within the higher education sector and with policymakers, communities and other stakeholders will need to be increased and strengthened.

Pandemics expose the lack of equity and fairness – in our societies. Yet times of crisis also give us a chance to redress the balance and to build stronger partnerships for action. We can achieve much more by communicating, planning, and working together in partnership for the wellbeing of African higher education community.

At this time of unprecedented crisis caused by Covid-19 pandemic the African higher education institutions should be open, working, and adapting to the new challenges we face. We all fully understand the tremendous human, social, economic, and political costs of this terrible new period, which have made the challenging environments in which so many of us work much more difficult. The African higher education community should be redoubling their efforts to be as flexible as possible and to remain maximally responsive to the new normal.

With the continuous and seemingly never-ending waves along with the vaccination procedure, the future of education is now a question that ought to be addressed and answered for millions of individuals. Higher education leaders around the globe are rethinking how to respond to post-pandemic changes and key questions readily come to mind. Will the academic courses take place in person, or should they continue solely online? How will the exchange programs proceed? What are the best suitable coping mechanisms for different institutions worldwide prioritizing the safety of students and staff?

African countries and donor agencies should ensure that research funding is maintained as research is vital for Africa's development. COVID-related research and research in other priority areas should be prioritized.

Even though we wish there were a 'panacea' for both the virus and to address these questions, there is none as of yet; what we do know, though, is that we can choose to be optimistic and predict a better possible future for higher education in Africa. This COVID-19 crisis will end, and it is our hope that the African higher education institutions will not just survive the present difficulties, but emerge from this period with renewed energy, resilience, and capacity for innovation.

Though the pandemic is not yet over, and we are certain to feel its effects for the foreseeable future, African universities have shown that they are capable of adopting new technologies and adapting to the changing higher education landscape. The institutions positioned to thrive in the future will be those that avoid the temptation to revert to pre-pandemic norms. Instead, it is expected that they will embrace the changes outlined above as an opportunity to invest in technologies that improve student experiences and business operations – ultimately making African higher education more accessible, flexible and affordable to students in the future.

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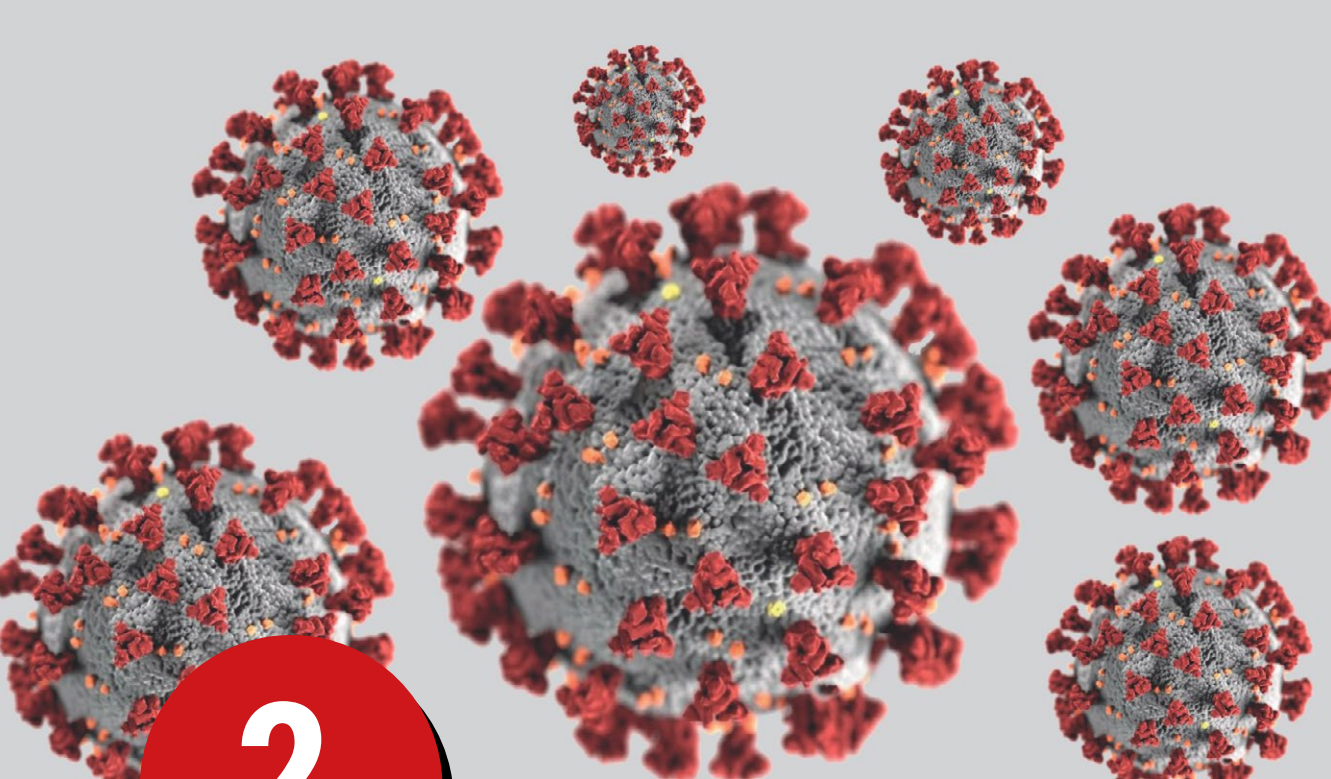
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SUB-THEME 2:

Contributions of African Higher Education Institutions to Addressing the Challenges Linked to the COVID-19 Pandemic

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Introduction

The first human cases of COVID-19, the disease caused by the novel coronavirus causing COVID-19, subsequently named SARS-CoV-2 were first reported by officials in Wuhan City, China, in December 2019 (World Health Organization, 2020). The 2019 Coronavirus disease (COVID-19), became a pandemic by 2020, adversely affecting countries' economies, jobs and claiming the lives of people around the world. This prompted worldwide action to control and mitigate the effects of the virus. In conformity with global quarantine actions, all sectors of countries worldwide were brought to a halt. This includes the educational sector. COVID-19's massive disruption and impact on the academic trajectory, particularly in Africa, has been significant. The pandemic accelerated the long-term challenges facing the higher education sector and exposed its deficiencies and inequalities. Teaching, learning, research, and community engagement activities were all adversely affected.

Beyond the pandemic's effect on higher education, higher education itself is a key player in the advancement of economies and therefore looked up to as a source to help solve some of the world's greatest challenges. The COVID-19 pandemic is no exception. Again, given the community engagement function and the role of Higher Education Institutions (HEIs), Africa and the world looked up to HEIs to contribute and reach out and help rescue society from the pandemic.

In this chapter, we identify the challenges brought about by the COVID-19 and examine higher education's efforts/contribution to solving these challenges at two levels – first to the Higher Education sector itself, and secondly to the general society within which Higher Education Institutions exist. We further attempt to proffer some recommendations and policy direction to strengthen the higher education sector in Africa and build resilience towards future pandemics, disasters, and crises.

Challenges Facing African Higher Education In The COVID-19 Era

The pandemic brought face to face teaching and learning to a halt, propelling institutions of higher learning to adopt online and distant learning approaches. This came along with its own myriad of challenges, as the change had occurred suddenly, and with little warning. The key challenges included a lack of access to technology, an unsuitable home learning environment, and a lack of access to learning materials (E-learning Africa, 2020). A main challenge for teachers was the lack of appropriate training to design and manage distance learning programmes. This impediment was worsened by the lack of infrastructure: electricity, connectivity, devices; and a lack of appropriate learning materials: books, television and internet-enabled devices (E-learning Africa, 2020). Other challenges, as identified by participants at the AAU's 15th General Conference are outlined below.

The Inability of Students and Teachers to Adapt to the Newly Implemented Online System

As mentioned earlier, in a bid to curb the outbreak and facilitate healthy and sanitary practices to eradicate the pandemic, higher learning institutions, at the onset and peak of the health crisis, were compelled to switch from the traditional face-to-face learning to the adoption of contemporary digital systems. This was an alternative approach to maintain and promote teaching and learning, despite the restrictions imposed by COVID-19.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), over 188 countries closed their educational institutions globally. This impacted over 87% of the world's student population, constituting about 1.52 billion students. Furthermore, about 60.2 million teachers were no longer in classrooms. In Cameroon, for example, 1,029 students across state universities were interviewed. 84.5% reported that they were not well versed with online platforms. This led to irregular attendance and poor performance, repetition and some students dropping out. It also increased teachers' workload. A total of 66.6% and 66.5% admitted that they had inadequate computer and typing skills, respectively.

Teachers also reported that they experienced difficulties in following up on students' learning and evaluating their performance. 54% reported that they had no support in navigating online systems, especially with the sudden shift from the traditional face-to-face teaching methods to using online systems. In comparison, 68.4% had difficulties submitting assignments (Etomes, 2021). In Cameroon, the national average of household electrification is 54% (World Bank, 2017). This meant that there was an irregular supply of power to foster online teaching and learning. The Cameroon experience largely reflects what happens in other African countries.

Lack of Readily Available Content Online

Another big challenge, as identified by participants at the AAU's 15ᵗʰ General Conference, relates to the issue of Higher Education Institutions in Africa not readily having their content online. This made the transition to an online and virtual mode of teaching and learning difficult. The long-existing internet challenges faced by the continent compounded the difficulty, thwarting the gains made towards ensuring inclusiveness.

The digital divide (the gap between individuals with access and skills to use technology and those without access and skills) has also been strongly felt. In their publication *'Understanding the impact of the digital divide on South African students in higher educational institutions"*, Faloye & Ajayi (2021) posit that the ongoing technological developments introduce new learning patterns that expose the digital divide among students. For instance, students unfamiliar with the use of learning platforms such as Moodle might not perform well academically. The call to restructure educational systems to accommodate digital immigrants in all spheres of technology-based learning has thus become an important one needing urgent attention.

Lack of Educational, Technological and Technical Capacity to use Online Systems

Another important aspect that stands out in assessing the key challenges faced by higher education in Africa, linked to the COVID-19 pandemic, is the lack of educational, technological and technical capacity to adapt to online systems. Educational technology is defined as the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski & Molenda, 2008).

It can be said that the low internet coverage and accessibility problems in Africa makes it difficult to foster a smooth learning and teaching experience via online systems. In a study undertaken by Aristovnik et al. (2020) targeting higher education institutions in 62 countries, it was reported that only 29.2% of African students across various universities who participated in the study had good internet coverage during the online learning experience. Of this percentile, Mozambique reported 14.4%, while Kenya reported 17.8%. Etomes (2021) provided some statistics on the challenges students in Cameroon faced with accessing online resources.

There was an incompatibility between phones and applications used for online studying, which made the applications difficult to use. They also experienced poor internet connections. 73.19% had access to mobile phones, of which 70.2% reported poor phone quality. Only 30% had access to a mobile connectivity network.

High Cost of Private Technological and Technical Support

The individual cost of securing technological and technical support during the period was another challenge that students and teachers faced. This change to e-learning, coupled with the financial challenge institutions face, meant that students had to procure their internet and technological facilities. In some instances, the internet cost was combined with what was charged by respective universities for providing teaching and learning services. Nevertheless, the cost of education increased the amount of money the institutions spent providing the education product or instruction during the COVID-19 pandemic (Massa, 2020). This increase is related to purchasing new and updating old technology platforms for remote learning, increased online instructional support, and the high cost of updating and maintaining the COVID-19 safety environment on campuses (Massa, 2020).

Lack of Mobility and Practical Experience

Participants at the 15th General Conference of the AAU also identified the reduced academic mobility, reduced student enrollment, difficulty in attracting international students, and the fact that online learning limits students from the practical skills needed, as being among the key challenges. All these ultimately affect the provision of equal and quality education and educational opportunities, and professional development.

Health and Safety Complications

Factors such as budgets, admissions, public health and safety of the university community have all been affected, due to the COVID-19 pandemic. This has seen some institutions declaring fiscal crisis and initiating various funding reforms to close the financial gaps, as part of their survival strategy.

Despite these and other challenges, higher education institutions in Africa responded and demonstrated their critical role through the following means to ensure the progress of their core business:

Continued Education by Ensuring the Transition from Traditional Teaching Method to the Adoption of Online Systems.

To ensure the safety of the students, lecturers, administrative staff and other key stakeholders, African Higher Education Institutions, like their counterparts across the globe, adopted the strategy of moving to online teaching and learning. South Africa, for instance, which had one of the most dangerous strains of COVID-19, witnessed its universities deciding with the Department of Education backed by their Government to move to online learning mode.

The University of KwaZulu-Natal (UKZN), for example, shifted from traditional teaching methods to online due to the coronavirus. According to the university, the UKZN Teach Online Strategy (UTOS) is designed to assist academics in adopting technology-enhanced teaching and learning culture. They used several platforms to communicate with their students online, such as online notes, audio lectures, videos and notices. They had zoom or Microsoft teams lectures which were placed on Moodle. Assessments were also uploaded and graded through the same medium.

Other institutions moved to virtual platforms such as Sakai, Moodle, Oylex, etc., while others relied on trainings offered by the Association of African Universities to set up their Learning Management Systems (LMS). In addition, HEIs organized several webinars to build the capacities of their student and staff in quality online education.

Promoting Research, Intellectual Property and Collaborations between Higher Education Institutions and Industry to Mitigate the Effects of the Pandemic

Universities are knowledge disseminators through teaching and certification and knowledge creators through research, innovation, and invention, leading to the production of goods and services that can be commercialised. These roles are changing as universities are increasingly creating linkages with industry, and governments are demanding universities to justify their existence and funding through contributions to the overall economy. In this

context, intellectual property and knowledge management constitute alternative sources of funding through the commercialisation or licensing of intellectual property and knowledge management, especially allowing universities to operate efficiently.

Higher Education Institutions have taken to the development and promotion of their intellectual property, from students and staff, to promote their status in their countries and contribute their quota to the development of their countries. Therefore, the role of research, training, and the employment of modern technology, especially in the wake of the pandemic, in higher institutions and their contributions towards ameliorating the effects of the pandemic cannot be overlooked.

The HEIs also contributed to solving the challenges, by undertaking various research, collecting data and information which were all useful to gathering insights about the pandemic and informing their national level interventions.

The Adoption of the Culturo-Techno Contextual Approach

As presented at the 15th General Conference, a contribution that addresses some of the challenges faced by students at Higher Education Institutes that is worth noting is the adoption of the Culturo-Techno Contextual Approach (CTCA). It is an approach (method) of teaching and learning science designed to break down many of the traditional barriers to the meaningful learning of science.

Such barriers as fear of science due to its special language and mathematical orientation; deficit of facilities for teaching and learning; abstract nature of some of the concepts; and perception that science is only for the gifted are melted and broken down by CTCA. The approach is an amalgam, drawing on the power of three frameworks- (a) cultural context in which all learners are immersed; (b) technology-mediation to which teachers and learners are increasingly dependent; and (c) locational context, which is a unique identity of every school, and which plays a strong role in the examples and local case studies for science lessons (Awaah et al., 2021).

In a study reviewing the efficacy of the Culturo-Techno-Contextual Approach in breaking difficulties related to study concepts within the African Region, Gbeleyi (2020) asserts that the significance of harnessing and using indigenous resources in teaching some computer studies/ICT concepts is necessary. He argued that this could only be a success if all stakeholders in the education sector would see its relevance and support it in all ways towards achieving effective strategies for teaching computer studies/ICT concepts in our secondary schools. Onowugbeda's (2020) study supports this opinion by arguing that integrating indigenous (cultural) knowledge in the biology classroom is possible to support meaningful learning and cultural sustainability.

Hence, in this epoch, the Culturo-Techno Contextual Approach reconciles traditional teaching methods and practices with contemporary online systems, innovations brought

about by the pandemic by referencing traditional and well-known concepts to provide context and enable students to understand and navigate the newly implemented online systems.

AAU'S COVID-19 Response and Support to Members

The Association of African Universities took a number of steps towards helping its membership of over 400 Higher Education Institutions in Africa, and the general African Higher Education community to manage the impact posed to HE by the COVID-19 Pandemic. The following support initiatives indicate how the AAU contributed towards ensuring that COVID-19's impact on education is minimal:

Mapping out universities' urgent needs: Through a survey, the AAU conducted an assessment on the preparedness of African universities to adjust to the COVID-19 safety measures introduced by African governments. This survey helped the AAU understand the urgent needs of the HE community and respond with relevant programmes to meet those needs.

Partnering with key institutions to support African universities: The Association partnered eLearn Africa and Wiley Education Services to quickly support African Universities migrate their teaching and learning activities to online platforms. This partnership was targeted at responding to the challenges that member universities reported in coping with the COVID-19 disruptions, through the survey. Some of the top challenges reported included 'limited preparedness for online courses', the 'digital divide' that is affecting students living in unconnected areas, broad 'infrastructure' challenges, 'lack of e-learning platforms' and 'handling large numbers of students online'. In addition to eLearn Africa and Wiley Education Services, AAU also partnered other institutions, such the Open Educational Resources (OER) Africa, and The Think Modular – Digital Solutions GmbH (Austria), in delivering some webinars and virtual capacity building for the Higher Education community.

Advocacy and Communications: The AAU made a special appeal to African Governments to support African Higher Education Institutions and to use the COVID-19 pandemic as an opportunity to strengthen Africa's educational institutions by making them much more resilient to unforeseen crises. This can be accessed from here. Additionally, AAU and the Regional Research and Education Networks issued a statement concerning the need to develop strong campus networks infrastructure to facilitate high speed communications and all types of digital learning services.

A strong campus network is important for effectively implementing eLearning and providing other administrative support to students and faculty. This statement can be accessed from here. Again, at the initial stages of the Coronavirus pandemic, the AAU issued a press statement which touched on the disruption on education activities and proposed some responses and recommended resources.

The Association continued to share regular communication with its stakeholders via its mailing lists, newsletters, social media and other communication platforms. Additionally, a resource page was created on the AAU website on COVID-19 which provided relevant information, including resources to help AAU members stay in touch with their students and key stakeholders. The link is available here- https://www.aau.org/covid-19/. Furthermore, the AAU TV section contributed to the literary works on the pandemic by writing various articles which were published by other media institutions such as the University World News, Ghana Web and Modern Ghana. The TV also produced special features and videos on the pandemic which were broadcasted on its own channel.

Finally, the Secretary General gave a solidarity message in English and French to the African Higher Education stakeholders.

Webinars and online trainings on topical issues: AAU postponed all its face-to-face capacity building initiatives that were scheduled from March 2020 and resorted to webinars and online trainings to build the capacities of HEI stakeholders to support them cope in the face of the pandemic. While some targeted academics, others focused on students and other HE players such as the African National Higher Education Regulatory Agencies. Webinars hosted covered topics such as: Effective Integration of Online Education in African Universities; Online Teaching & Learning; *Emergency Remote Teaching* ; Supporting Academic Libraries in the COVID-19 Era; *Emerging Issues and Rapid Response to Students Needs and Support Services; Google Suite Tools for remote teaching: a response to COVID 19 disruptions* **and several others.**

This link can be followed to view recorded versions of webinars implemented by the secretariat https://www.aau.org/webinars/aau.php. The AAU's regional offices (Northern and Eastern Africa Regional Offices) were also heavily involved in implementing various online sessions and trainings customized to suit the needs of the stakeholders in those regions.

Engagement with the Diaspora: Through the AAU's North America Office (NAMO), the AAU strengthened its engagement with the diaspora to contribute to African HEI's efforts in curbing the effects of COVID-19. The close collaboration with the diaspora has seen collaborations between African Universities and institutions/individuals in the diaspora. The Association has also facilitated the engagement of relevant stakeholders in understanding the importance of integrating the diaspora in African Higher education.

Engagement with Stakeholders and participation in events organized by them: The AAU recognizes the need to work with its stakeholders in reducing the negative impact of COVID-19 on higher education and life in general. The AAU thus actively participated in various events, including webinars and other online sessions organized by its stakeholders. Additionally, the AAU participated in a global prayer for humanity event hosted on the 14th of May 2020. Among those who participated were the Archbishop of Canterbury,

His Eminence Prof. Ahmed Al-Tayyeb, the Grand Imam of Al-Azhar, the Center for Interreligious Dialogue in Iran, the Islam Adyan Foundation, the World Jewish Congress, the Institute of Jainology, the Ecumenical Patriarchate of Constantinople, the World Council of Churches, as well as Buddhist representatives, and Hindu spiritual leaders.

Challenges Brought About By COVID-19 to Society and HEI'S Contribution to Addressing these Challenges

The challenges brought about by the novel corona virus pandemic to individuals, societies and economies of countries and the world are enormous. From complete shutdowns at the peak of the pandemic, to over stretching the health systems due to the number of people to be attended to vis-à-vis the low number of medical personnel and people who offer essential services. In Kenya for instance, it is reported that there are just 200 ICU beds for a population of 50 million, and in Mali and Liberia there are only a few ventilators for their population of several millions (El-Sadr & Justman (2020).

Aside health focused challenges, businesses in economies suffered greatly. Some businesses/ firms closed completely while employment was also affected. A study conducted by the Ghana Statistical Services, in collaboration with the UNDP and the World Bank revealed that in Ghana for instance, 35.7 % of business establishments had to close during the partial lockdown imposed by the Government, as part of its measures to reduce the spread of the COVID-19, disease. 46.1 % of business establishments report that they reduced wages for 25.7 percent of the workforce (an estimated 770,124 workers). While 4.0% percent of firms indicated laying off workers, corresponding to 1.4 percent of the workforce (an estimated 41,952 workers).

These are very few of the challenges society faced during the Pandemic. Higher Education institutions responded through various interventions. We profile here in this section, how Higher Education responded to the challenges linked to COVID-19, using the brilliant example of The Africa Higher Education Centres of Excellence for Development Impact (ACE Impact) Project, as a case study. The ACE Impact project is a World Bank Initiative in collaboration with the Governments of the 11 participating West African countries and Djibouti.

The Association of African Universities is the Regional Facilitation Unit for this Project. The ACE Impact Project aligns with the AAU's 2021-2025 Strategic Plan and is one of the key projects through which the Association is achieving its goals and targets of transforming Africa's Higher Education. The project aims to support higher education institutions in specializing in STEM, Environment, Agriculture, applied Social Science/Education and Health. It is currently being implemented in Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea, Niger, Nigeria, Senegal, Togo in West Africa and Djibouti with a total investment of 350 million USD.

The 53 ACE Impact Centres, in line with the project's objective to address regional developmental challenges, launched several initiatives in the areas of scientific research, technological innovations, among others, to support the management of COVID-19 and its impact on the continent. These are presented in this section as follows;

Scientific Research

Centres in the thematic areas of health rose to the occasion and undertook key scientific research which were critical and helped shaped the COVID-19 response at the national and continental levels. Specifically, Centres of Excellence in the fields of genomics and infectious diseases were instrumental in the genomic sequencing of the virus. Notable among these are the African Centre of Excellence in Genomics of Infectious Diseases (ACEGID) hosted by the Redeemer's University in Nigeria and the West Africa Centre for Cell Biology of Infectious Pathogens (WACCBIP) hosted by the University of Ghana.

The centres successfully sequenced genomes of SARS-CoV-2 (COVID-19 virus) and also tracked mutations of the virus leading to the discovery of the new variants in the respective host countries and the continent at large. Again, ACEGID developed a COVID-19 screening tool to measure individual risk levels. WACCBIP also provided free screening for exposure to SARS-CoV-2 in various suburbs in Ghana as part of its COVID-19 Seroprevalence Study. The contributions of these centres have been acknowledged by governments of the host countries, continental and international bodies (including the World Health Organization and the Africa Centre for Disease Control and Prevention), media houses and various stakeholders within and outside the science fraternity.

Other centres such as the Centre of Excellence in Reproductive Health Innovation (CERHI) and the Africa Centre of Excellence for Neglected Tropical Diseases and Forensic Biotechnology (ACENTDFB) both in Nigeria also availed the centres' laboratories for further relevant research.

Groundbreaking Research

In line with contributing to knowledge about the virus, its management and impact, studies were conducted by some Africa Centres of Excellence. These include:

i)   Study to *examine how the COVID-19 is spreading in time and into new areas, its impact on urban mobility, and the environmental effect of the lockdown in Ghana* conducted by the Regional Transport Research Centre (TRECK) in the Kwame Nkrumah University of Science and Technology (KNUST).

ii) Study on antimalaria agents and its effectiveness in combating the virus by Centre for Applied Informatics and Communication (CAPIC) in Nigeria.

Centre faculties also partnered with colleagues from other institutions in conducting cutting-edge research in relation to the pandemic and innovative ways of teaching and learning. These include:

i)   *Diverse contexts of the COVID-19 pandemic* by Prof. Abdoulaye Diabete et. al.

ii)   *Delivering Chemistry Education in African High Schools during COVID-19 pandemic* by Prof. Peter Okebukola et.al.

Technological Innovations

Some Africa Centres of Excellence came up with technological inventions which contributed greatly to the fight against the COVID-19 pandemic. Additionally, to prevent the spread of the virus and aid individuals to take precautionary measures against infection, most of the centres engaged in the manufacturing of protective items including ventilators, face shields, hand washing equipment, among others. For instance:

i)   The Centre for Mathematics, Computer Science, and ICT (CEA-MITIC), Senegal developed a software for the electronic management of COVID-19 patients' files and an app for self-screening.

ii)   Centre for the Teaching & Learning Math and Science for Sub-Saharan Africa (CEA-MS4SSA) also produced solar-powered hand washing equipment for institutions in Niger.

iii) The Centre of Excellence in Logistics and Transport (CEALT), Djibouti; Centre of Excellence for Valorization of Waste Products with High Value Added (ValoPro), Cote d'Ivoire; Oak-Park, Nigeria manufactured face shields.

iv)   Centre for Science, Technology and Engineering for Entrepreneurship (STEE) invested in the production of hand washing equipment for various institutions in The Gambia.

Public Sensitization and Mass Production of Protective Items

The Centres worked closely with their host universities to raise awareness about heightened hygienic practices. This was achieved using different channels such as posters, digital campaigns, memos and publication in the media. ACEs such as the Centre for Public Health and Toxicological Research (ACE-PUTOR), Centre of Excellence for Population Health and Policy (ACEPHAP), Africa Centre of Excellence for Drug Research, Herbal Medicine Development and Regulatory Science (ACEDHARS), engaged in diverse sensitization campaigns to enhance knowledge of the general public on the pandemic.

Moreover, at the peak of the pandemic when protective items such as sanitizers were scarce, some ACEs invested in the mass production of sanitizers and disinfectants for various

communities in their respective countries. These centres include the Centre for Training and Research in Water, Energy and Environmental Technologies (2iE), Centre of Excellence in Training, Research and Expertise in Drug Sciences (CFOREM) both in Burkina Faso, College of Engineering at the University of Abomey Calavi in Benin *(produced over 1000 litres each day)* ValoPro, Center of Excellence in Climate Change, Biodiversity and Sustainable Agriculture (CEA-CCBAD), Cote d'Ivoire and the Centre of Excellence for Future Energies and Electrochemical Systems (ACE-FUELS) in Nigeria.

This in only one example of the various ways through which higher education institutions across the continent contributed to the fight against COVID-19. Several other ways have been documented and others still need to be researched on and properly documented as well by Higher Education Institutions and stakeholders.

General Conference Papers Presented on this Subtheme

At the AAU's 15th General Conference, nine (9) scientific papers were presented on the subtheme "Contributions of African Higher Education Institutions to Addressing the Challenges Linked to the COVID-19 Pandemic". Four of these papers were presented at parallel session II while the remaining five were presented at parallel session III. The papers that featured at parallel session II are presented here as follows;

- *Paper 1*: Results from a global study: Covid-19 impact on Student Affairs and Services across the globe with focus on Africa: towards a systemic understanding of student success in Africa. Presenter: Dr. Birgit Schreiber et al, Vice President, International Association of Students Affairs and Services (IASAS), Germany

- *Paper 2*: Knowledge banks as vehicle for development and the role of African HEIs. Presenter: Mr. Abednego Corletey, Senior IT Specialist, AAU, Accra, Ghana

- *Paper 3*: Challenges Faced by Students During the Covid-19 Lockdown: Rethinking the Governance of Higher Education in Cameroon. Presenter: Dr. Sophie Etomes, Lecturer, University of Buea, Cameroon

- *Paper 4*: Contributions of African Higher Education Institutions To Addressing The Challenges Linked to Covid 19 Pandemic. Presenter: Ms. Yeukayi Dzapasi, Lecturer, Harare Institute of Technology, Harare, Zimbabwe.

The five papers which featured at parallel session III under subtheme II are also presented below;

- *Paper 1*: Review of Empirical Studies on the Efficacy of the culture-techno-contextual approach (CTCA) in breaking difficulties related to studying concepts within the African region. Presented by Dr. Fred Awaah, University of Professional Studies, Accra, Ghana.

- ***Paper 2***: Challenges faced by Higher Education Institutions when migrating from traditional to digital classrooms during COVID 19. Presented by Prof. Vanie Naidoo, University of KwaZulu-Natal, Durban, South Africa.

- ***Paper 3***: Enhancing the contribution of Higher Education in Fourth Industrial Revolution. Presented by Mr. Ndirangu N. Ngunijiri, University of Nairobi, Kenya.

- ***Paper 4***: Framing the Role of Higher Education in Sustainable Development: A case Study Analysis. Presented by Prof. Suzanna Elmassah, Cairo University, Egypt.

- ***Paper 5***: Education and Culture is the Proper Entrance to Africa…! "Green Entrepreneurial Education in Africa." Presented by Professor A. Ead Hamed, Cairo University, Egypt.

Key Discussion and Issues following the Presentation of the Papers

Parallel Session II

Paper 1: *Results from a global study: Covid-19 impact on Student Affairs and Services across the globe with focus on Africa: towards a systemic understanding of student success in Africa,* highlighted the importance of student affairs in mediating and mitigating factors/issues that relate to student access, persistence, retention and success. It reported that especially during the Covid-19 pandemic, Student Affairs and Services (SAS) are among the most responsive and relevant divisions at Higher Education Institutions. It was discussed that to advance student and higher education success, contextual factors, including social and cultural, community and family factors must become the focus of our attention. The issues/key recommendations from the discussions were that SAS responses need to be diverse, textured, and differentiated, since different contexts, institutions and students require different/a variety of responses.

It was also mentioned that the most challenged students (socially, psychologically, physically, financially, etc) need to have a safe campus experience to support their successes. The need to continuously train staff and equip them with the necessary tools were underscored. Among others, institutions were called on to make local, differentiated and autonomous decisions that support development and learning.

Paper 2: Knowledge banks as vehicle for development and the role of African HEIs

 The paper described knowledge banks as a collection of articles and web-resources from a library or third-party source, which are designed to facilitate rapid and deep professional learning. It identified key challenges of research to include the lack of policies to manage research processes; the inability of institutions to retain knowledge, a practice which impacts their visibility and status as research institutions, as well as the lack of co-ordination between

knowledge creators and knowledge managers. Some recommendation from the paper and the discussions are captured here as follows;

- Stakeholder meetings to bring together the various parties (Management, Researchers, Knowledge Managers, Legal Department, Marketing Unit etc) to examine how to implement the complete research management cycle was indicated as being important.

- The establishment of an institutional repository that will archive all research deposited at the research and publication office was recommended.

- It was indicated that the repositories should be open access full text online platforms which should be managed by the library.

- African HEIs were called on, to track where submitted research works are finally published to ensure copies of such research are retained locally preferably on their Institutional Repository.

Paper 3: Challenges Faced by Students During the Covid-19 Lockdown: Rethinking the Governance of Higher Education in Cameroon.

The paper reported the key challenges faced by students during the Covid-19 lockdowns to include inadequate internet facilities, inadequate peer support, epileptic power supply, inadequate finances and lack of training among others. Other general issues brought about by the Covid-19 pandemic include irregular attendance/absenteeism leading to poor performance, repetition and dropout, difficulty for teachers to follow-up on students learning and evaluate students' achievement, and low students' commitment. The recommendations from the presentations and discussions included the need for training of stakeholders, the adoption of an institutional approach to blended learning, the development of an online learning management system and regular supply of electricity and internet.

Paper 4: Contributions of African Higher Education Institutions To Addressing The Challenges Linked to Covid 19 Pandemic.

A key finding from this paper was that higher education institutions can contribute immensely to the amelioration of COVID-19 challenges. It called on researchers to carry out disciplined research to better understand the problems confronting the Zimbabwean society due to COVID-19 and offer plausible solutions. The recommendation and conclusions from the presentation and discussions were that -

- Strengthening collaboration with key stakeholders, sharing experiences and best practices, conducting research in key problem areas, implementing community intervention programs, facilitating voluntary work by students and staff as well as instituting policies and programs to address the welfare of students and staff during the pandemic were key strategies that HEIs could implement.

- HEIs should focus on areas of expertise including managing the economy in times of health crises, public policy in health emergencies, psychological wellbeing in crisis situations, poverty and social inequality, social and behavioral change communication and violence against women and girls in times of health emergencies

- HEIs should also seek to build credibility by tracking and reporting their successes in order to be taken seriously by key partners in the fight against the challenges of COVID-19.

- Furthermore, African governments should assist HEIs with adequate financial resources to undertake their COVID-19-related initiatives.

Parallel Session III

Paper one (1) covered a review of empirical studies on the efficacy of the Culture-Techno Contextual Approach (CTCA) in breaking difficulties related to studying concepts within the African region. It described the CTCA as an approach (method) of teaching and learning science designed to break down many of the traditional barriers to the meaningful learning of science. The study sought to establish whether or not the indigenous knowledge systems have influence on students' understanding of concepts within the African region. It posits that the Integration of indigenous (cultural) knowledge in teaching will enable meaningful learning and cultural sustainability. It highlights that, students will understand concepts taught in schools much better when traditional examples related to their environs are used as the basis for teaching. The paper recommended the testing of this concept/ invention at other global regions to establish its efficacy

The second paper, "Challenges faced by Higher Education Institutions when migrating from traditional to digital classrooms during COVID 19" focused on COVID- 19 and the migration of HEIs to online teaching and learning. It studied the perceptions on E-learning in African Universities, specifically from the south Africa perspective, using an example from the University of KwaZulu- Natal and how they migrated to online learning platforms. The paper also outlined the challenges institutions face through the online learning mode as well as the way forward.

Paper 3, titled "Enhancing the contribution of Higher Education in Fourth Industrial Revolution" reported that societal changes from the 4th Industrial Revolution (4IR), will require higher education to develop greater capacity for ethical and intercultural understanding. The paper explored the contribution of higher education in the fourth industrial revolution. While it identified some positives, it also found some downsides, such as the reluctancy of HEIS in preparing and adapting to the current technology transformation. It also reported that it appears higher education institutions are unprepared for the 4IR The paper made some key recommendations, such as the need to encourage and strengthen University-Industry linkages, and curricula review, among others.

The fourth paper presented under this subtheme 'Framing the Role of Higher Education in Sustainable Development: A Case Study Analysis' set out to investigate the roles and practices/activities being undertaken by HEIs towards the achievement of sustainable development. Three institutions were sampled for this study -The Leuphana University of Lüneburg (LUL) – Germany; The University of Tokyo (UT) – Japan, and Cairo University (CU) – Egypt. The study adopted five models for the investigation and found some variations on the levels of achievement by the three case study institutions. It proposed that HEIs ought to commit to a reporting and documentation system for its existing sustainable development practices. The integration of Sustainable Development concepts into the formal and non- formal programs of HEIs was also recommended. Institutions of higher learning were also encouraged to find new ways to spread awareness on sustainable development.

The final paper – "Education and Culture is the Proper Entrance to Africa…! "Green Entrepreneurial Education in Africa" hinted that recent economic challenges have necessitated the championing of entrepreneurial activities. The paper recommended Green Entrepreneurial Education as a key factor which will catalyze the development of new skills by students and make them competitive for the "green jobs" and "green entrepreneurial enterprises". It therefore called on institutions of higher learning to adopt this concept.

During the discussions following presentations, participants at the General Conference acknowledged that there is a myriad of challenge associated with online teaching and learning as a result of the COVID 19 pandemic. They therefore acknowledged the need to maintain quality teaching and learning experiences despite COVID 19. The need for Africa to build resilience towards pandemics and disasters was recognised and linked to the importance of stakeholders to invest towards the availability and enhancement of technology for use by all.

Policy Recommendations and Key Next Steps

While the pandemic disrupted the world's economy, the most significant loss is the loss of lives which affected the wellbeing of students and teachers in higher institutions. This necessitates the establishment of policies in universities to promote the mental and physical wellbeing of students and university staff. The following are thus recommended.

Provision of More Lenient and Flexible Policies and Interventions to Cater for the Needs of those Affected by the Pandemic

The coronavirus has led to the loss of lives and the disruption of social engagements. This taxed the mental, as well as physical health of millions around the world. Situations like infection fears, increased workload, and changes in curriculum, frustration, boredom, financial loss, burnout, anxiety, panic attacks, and post-traumatic stress affected both

students and teachers' motivation, concentration, and social interactions. This affected teaching and learning.

A recent survey of currently enrolled undergraduate college students in the United States (US) revealed that nearly half of them (49%) think that COVID-19 will negatively impact their ability to complete their degrees or credentials (Marken, 2020). University leadership need to support academic staff and students who have faced challenges and major emotional hurdles during the pandemic. For example, new leave policies should be in place to provide the opportunity for staff affected by the pandemic in any way to recover.

Similarly, the avenue must be provided for students who suffered trauma from the outbreak to recover and ample consideration to complete schoolwork. For instance, the provision of professional phycologists, psychiatrists and counsellors, either on university premises or available via helplines, can serve as mental health support for staff and students in universities who may have suffered fear and anxiety as they watched their loved ones, family, colleagues and friends pass away or get infected with the virus. Institutions of higher learning can also bring in motivational speakers via webinars to communicate awareness about hygiene, health and other safety measures and wellness issues that should be adhered to during the pandemic.

Provision of Avenues to Alleviate the Financial Burdens of Students and University Staff

One of the challenges that both students and staff faced was financial constraints which arose from the cost of securing private internet and technological facilities. In addition, the cost of education was increased during the pandemic to accommodate universities' efforts to acquire and bolster their technological and technical Capacity to provide teaching and learning services on online platforms. To alleviate some of their financial burdens, it is recommended that the cost of education be reduced/maintained to make considerations for people who had their means of livelihood come to a standstill get back on their feet.

Training both Teachers and Students to use Online Platforms and Tools

The ability of teachers and students to adapt to online systems cannot be overlooked. While both need to be trained, the onus falls on teachers trained to use online platforms to provide students with a comprehensive online learning system. They need to acquire online-driven competencies in planning, implementing, and assessing the performance of their students. Therefore, teachers must be provided with adequate training courses to assist them in effectively implementing the courses through electronic delivery. There are various devices available with innovative tools for teachers to access and promote learning for students with diverse educational needs.

The technology devices, design of the program, choices of instructors, responsive curriculum, and supportive stakeholders are necessary and significant for the successful delivery of the

lessons in an online environment (Barr & Miller, 2013). The training for the teachers can improve student learning in educational programming for the instructors to facilitate the goals aligned to the learning goals of higher education institutions (Ludeman et al., 2009). For example, the University of KwaZulu-Natal (UKZN) provided the avenue for all staff, both administrative and academic, as well as students to have online training to navigate the new online platforms. Some students, especially those in rural areas during the pandemic, did not have access to technology, nor skills to access online systems for learning. It is recommended that learning centres should be set up in rural areas to ensure no one is marginalised.

Implementation of Economic Models and Policies to Recover Losses Incurred During the Pandemic and Bolster the Economies of Affected Countries

One of the effects of the outbreak of the coronavirus is the disruption of the world's trade and other economic activities. It exposed the vulnerabilities in supply chains, industry, and society, which must be dealt with to protect economies from current and future health crises. In a study undertaken in Zimbabwe by Dzapasi (2021), the study's correspondents identified the need to develop and implement effective economic models to foster resilience and preserve socio-economic advancement during and after the pandemic.

This necessitates collaborations between key stakeholders like government institutions, businesses and third sector organisations. One other correspondent highlighted the need for adequate financial resources to fund Higher Education Institutions to launch effective programs that can help alleviate the effects of the pandemic. Funding can greatly benefit COVID-19 related research and green Entrepreneurship is one of the solutions that was recommended and identified to help ameliorate the financial and economic aftermath of the coronavirus. The Green Project (2012) defines green entrepreneurship as those activities that address environmental/social problems/needs through the implementation of entrepreneurial ideas.

Documentation of Research, Development of Ideas, and the Promotion of Intellectual Property

All research undertaken during the onslaught of the coronavirus must be documented and practicalised for the development of society. This requires strong intellectual property policy frameworks and other infrastructure to bolster the protection of the creations of citizens. While institutions of higher education are responsible for the provision of adequate and efficient policy structures to protect their material interests and the interests of their students and workers, much onus falls on the governments of countries to accede to the accepted international and regional standards of practice where intellectual property and its tenets are concerned.

A good intellectual property policy in any country could attract investors for higher education institutions because it is assured to protect their investments. This investment

could be in the form of technology, resources, technical expertise, and money. Opportunities for innovative partnerships can be identified by highlighting areas of innovative similarity and overlap.

This creates an avenue for collaborations with other institutions of higher learning and industries for the benefit of students and university staff. Information on the innovation capacity in different areas can accelerate the diffusion of innovations between markets and help identify knowledge networks and technological strengths. All these factors could assist governments and universities in making institutional and technological provisions to ameliorate the current condition of teaching and learning and safeguard against any crisis in the future.

Adhering to Health and Safety Regulations

Universities must continue to provide the necessary hygiene and safety measures to students on campus. However, students and staff must also commit to safety and hygiene. They must wash their hands regularly with soap or use hand sanitisers outside their buildings, and they must always use their masks and practice social/physical distancing. They must take responsibility and be more vigilant and adhere to health and safety regulations.

Conclusion

In conclusion, participants at the 15th General Conference of the AAU reiterated the need for institutions of higher learning to set up local repositories to help researchers access information more quickly and freely. At the AAU level, it was indicated that research outputs are being uploaded on the Associations' repository called the Database of African theses and dissertations, including research (DATAD -R).

The need to strengthen institutions in countries and to document how each institution addressed COVID-19 at their individual levels was also recognised. Calls to strengthen collaboration with industry, as well as the practicalisation of research conducted for the use and benefit of society were made.

Again, it was highlighted that for African Higher Education Institutions to address the challenges linked to the COVID-19 pandemic, there is the need to invest efforts and resources to enhance the digital way of teaching and learning. HEI's should be prepared and ready for the new transition and should implement a holistic approach to solve the challenges linked to the COVID 19 pandemic. Working with government agencies and advocating for the formulation and implementation of policies aimed at continuously improving HEI's in this era of COVID 19 was deemed necessary.

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![Sustainable Development Goals logo and the 17 SDG icons]

3

CHAPTER THREE

SUB-THEME 3:

Contributions of African Higher Education Institutions (HEIs) Towards Achieving the Sustainable Development Goals

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BACKGROUND

SDGs and Higher Education in Africa

Institutions of Higher Education are critical for propelling the achievement of the 2030 Agenda for Sustainable Development (AfSD) and its accompanying 17 Sustainable Development Goals (SDGs) (Vuyo et al., 2020). The United Nations General Assembly formally adopted the universal, integrated and transformative 2030 Agenda for Sustainable Development along with the 17 Sustainable Development Goals and 169 associated targets in September 2015. While it needs to be emphasised that SDG Goal 4 addresses education in all its ramifications through the Education 2030 Framework for Action (FFA), all the other 16 global goals for sustainable development have significant links with education.

The 2020 Agenda for Sustainable Development presents a plan of action and a blueprint towards the transformation of our world. It calls on all countries and stakeholders, acting in collaborative partnerships, to implement the plan and ensure its achievement. Higher education worldwide, and in this case in Africa, is widely acknowledged as a major stakeholder in transforming the continent's economies. Thus, a major stakeholder in the pursuit of the achievement of the SDGs.

The SDGs build on the achievements of the Millennium Development Goals (MDGs) and aims to complete what the MDGs failed to complete. The 17 Goals are integrated, indivisible and balance the three dimensions critical for sustainable development, i.e. - the economic, social and environment.

Specifically, the 17 Sustainable Development Goals seek to achieve the following — *Goal 1.* End Poverty in all its forms, everywhere. *Goal 2* - End hunger, achieve food security and improved nutrition and promote sustainable agriculture. *Goal 3* - Ensure healthy lives and promote wellbeing for all at all ages. *Goal 4* - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. *Goal 5*- Achieve gender equality and empower all women and girls. *Goal 6*- Ensure availability and sustainable management of water and sanitation for all. *Goal 7*- Ensure access to affordable, reliable, sustainable and modern energy for all. *Goal 8*- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Goal 9- Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation. *Goal 10*- Reduce inequality within and among countries. *Goal 11* - Make cities and human settlements inclusive, safe, resilient and sustainable. *Goal 12* - Ensure sustainable consumption and production patterns. *Goal 13* - Take urgent action to combat climate change and its impacts. *Goal 14*- Conserve and sustainably use the oceans, seas, and marine resources for sustainable development. *Goal 15*- Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification,

and halt and reverse land degradation and halt biodiversity loss. *Goal 16-* Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels. *Goal 17-* Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.

Given the importance of higher education in the achievement of the SDGs, as well as the call for higher education to be responsive to the transformation agenda of the continent, the Association of Africa Universities (AAU) prioritised the discussion on Higher Education's Contribution to the Achievement of the SDGs as one of its six (6) subthemes during the 15th General Conference, hosted in July 2021. This platform provided the unique opportunity for African Higher Education Institutions to discuss their strategic plan in realising the SDGs and ensuring that they impact their immediate community in line with the African Union's Agenda 2063 (The Africa We Want).

It is worth stating that players in the African Higher Education space have always had a role to play in accelerating progress towards the achievement of key global and continental agendas such as the UNESCO Global Action Programme on Education for Sustainable Development, the Paris Agreement and the Africa Union's Agenda 2063, among others. Sustainability and preservation of the gains made so far in the pursuit of these blueprints hinge on the collective efforts and partnerships of all key stakeholders, including Higher Education.

Focus on Higher Education in Africa

The world's economy is undergoing rapid changes, with knowledge unseating physical capital as the source of wealth. These changes are driven by factors such as technology, globalisation, and internationalisation. As knowledge appreciates, higher education's centrality to the transformation agenda becomes more evident.

Examining the current state of higher education in Africa to understand its strategic positioning and readiness to fully take its place and be responsive to the ongoing changes is therefore crucial. Since time immemorial, African Higher Education Institutions have been labelled as ivory towers with little impact on the socio-economic development of their communities and countries. They are also tagged as elitists, given that only a few of its citizens can access higher education. For instance, in Sub-Saharan Africa, only 9% of the traditional aged cohort for tertiary education continue from secondary to tertiary education – the lowest regional enrollment rate in the world (World Bank, 2021).

These are compounded by the numerous challenges facing African higher education - funding, weak research base, governance, issues concerning quality vis-à-vis quantity, accessibility, and affordability, among others. The UNESCO Science Report, published in

2021, for instance points out that Africa spends only 0.59% of its Gross Domestic Product (GDP) on research and development, compared to a world average of 1.79%. Similarly, Africa accounts for a mere 1.01% of global research and development expenditures, 2.50% of global researchers and 3.50% of scholarly publications, compared to 45.7%, 44.5% and 48.0%, respectively for a region such as Asia.

Investments in African Higher education need to be increased. The respective stakeholders – development partners, governments, philanthropists, and the general stakeholder community need to increase their input to the sector to strengthen and increase its effectiveness, given its critical role in the scheme of affairs. Worth highlighting is that despite these challenges, there are some great initiatives on the continent that are impacting positively on the African Higher Education space. Some of these initiatives are spearheaded by the Association of African Universities in its attempt to consolidate the role and relevance of African higher education in achieving the African Union's Agenda 2063, the *Africa We Want*.

Initiatives such as the Harmonisation of African Higher Education, Quality Assurance and Accreditation (HAQAA), which has been established to support the development of a harmonised quality assurance and accreditation system at institutional, national, regional and Pan-African continental levels, are key to improving and streamlining quality higher education systems. HAQAA is funded by the European Union Commission, in the context of the Africa-EU Strategic Partnership, and has the AAU involved as a partner.

Quality Assurance tools such as the African Standards and Guidelines for Quality Assurance (ASG-QA), African Continental Qualifications Framework (ACQF), African Quality Rating Mechanism (AQRM) and others have all been developed and are being implemented with the ultimate goal of improving the quality and harmonisation of African higher education and supporting students' employability and mobility across the continent. Partners such as the African Union, the Association of African Universities and OBREAL Global are involved in the implementation of such frameworks.

The establishment of the Pan African University (PAU) by the African Union Commission (AUC) is another laudable initiative transforming the higher education space in Africa. The PAU is the culmination of continental initiatives of the AUC to revitalise higher education and research in Africa under the Second Decade of Education for Africa and the consolidated Plan of Action of Science and Technology for Africa. It seeks to exemplify excellence, enhance the attractiveness and global competitiveness of African higher education and research and establish the African University at the core of Africa's development.

Another initiative which is worthy of mention here is the Africa Higher Education Centers of Excellence Project, a World Bank initiative in collaboration with governments of participating countries to support Higher Education Institutions in specializing in STEM,

Environment, Agriculture, Applied Social Science/Education and Health. The project is currently being implemented in West and Central Africa (ACE Impact Project, with a total investment of 350 Million USD) and in Eastern and Southern Africa (ACE II, with a total investment of 140 Million USD). The Association of African Universities is the Regional Facilitation Unit for the ACE Impact project, while the Inter Universities' Council for East Africa (IUCEA) is the Regional Facilitation Unit for ACE II. All together 77 Centres of Excellence in 53 Universities are involved in the two projects which are currently running. ACE is increasing access to higher education through scholarships to both males and females. Research activities are also being strongly promoted through various levels of investments (investment in infrastructure to create a conducive atmosphere for research work, faculty internships and exchanges etc).

The Science Granting Initiative (SGCI), which is being implemented in 15 sub–Saharan African countries, and which aims to support the development of research and evidence-based policies that will contribute to economic and social development on the continent, is a great gain for Africa's HEIs. The Research Management Project component of this project, for instance, has an overall goal to fortify the capability of Science Granting Councils in explicit areas of research management, namely research excellence, research ethics, emerging scientific practices (especially open data, open access and scientific citizenship) and development of online grant management systems. The Association of African Universities (AAU) is the lead partner in the implementation of the SGCI Research Management Project, being implemented in the following 15 countries - in Ghana, Burkina Faso, Cote d'Ivoire, Senegal, Botswana, Malawi, Uganda, Kenya, Tanzania, Mozambique, Zimbabwe, Zambia, Ethiopia, Namibia, and Rwanda.

Again, higher education in Africa is being guided by agendas and roadmaps such as the African Union's Continental Education Strategy for Africa (CESA 16-25), adopted in 2016 in Addis Ababa, by the Summit of Heads of State and Government of the African Union. CESA's goal is to respond to human capacity and empowerment challenges through transformed education systems, processes and products. It is a tool through which education and training are positioned to be instrumental in achieving the continental Agenda 2063 and other relevant global development goals, including the SDGs. Aside from CESA, other blueprints guiding Africa's HEIs include the Science, Technology and Innovation Strategy for Africa (STISA) 2024 and the Digital Transformation Strategy for Africa (2020-2030).

Broad factors such as internationalisation and technological advancement all present opportunities for higher education in Africa to improve its engagement and contribution towards achieving the SDGs.

Role of HEIs in Achieving the SDGs

As cited in a European Universities Association (EUA) publication *titled 'Universities and Sustainable Development - Towards the Global Goals',* higher education has a pivotal role to play in all the three broad categories that the SDGs can be grouped: wellbeing, the environment and the economy (EUA, 2018).

Goals falling under the well being category comprises Goal 1 (No poverty), Goal 2 (No Hunger), Goal 3 (Good Health and Well Being), Goal 4 (Quality Education), Goal 5 (Gender Equality), Goal 6 (clean water and Sanitation), Goal 10 (Reduced Inequality) and Goal 11 (Sustainable Cities and Communities). This section attempts to explore the correlation and key role Higher Education plays in achieving the goals in this category.

Education is regarded as an anti-poverty program in many developing countries. Through the acquisition of education, individuals can develop the required competencies and proficiency to pursue empowerment opportunities and meet livelihood opportunities in a much better way, therefore saving themselves from the poverty zone (Kapur, 2019).

Indeed, poverty has several interconnected causes, and thus, a magic formula to eradicate it cannot be used. However, society can consider education as a risk reduction element of high poverty, which may prevent the occurrence of another generation, much poorer (Mihai et al., 2015). Several statistics and reports show that the level of schooling of a population is correlated with its economic development. A study conducted by UNESCO (the UN Educational, Scientific, and Cultural Organisation) examined the correlation between poverty and the accessibility of education. It showed that the majority of out of school populations are in poorer countries, with such countries generally having lower incomes and being located in regions including Sub-Saharan Africa, Central and Southern Asia, Eastern Asia and South-eastern Asia, and Western Asia and Northern Africa. The UNESCO study also revealed that poverty rates impact gender disparities in education, showcasing that more females than males are likely to be out of school in low-income and lower-middle-income countries. (UNESCO, 2017).

So far, the narrative strongly highlights higher education's role towards achieving Goal 1 (No Poverty), and subsequently Goal 2 (No hunger). Goal 2, because an educated and empowered African citizen, will most likely be able to access a wide range of opportunities with their education, freeing themselves from poverty and affording the necessities of life, such as food. Such a citizen will also be able to access good health and be more informed to make healthy life choices and positively impact the environment via good sanitation practices.

Beyond all these benefits to be obtained at an individual level due to acquiring higher education, HEIs contribute heavily, to this category of SDGs (wellbeing), through their

research activities. University hospitals are among several others that can be singled out as contributing to sustainable communities and cities through the churning out of medical professionals who support societies and health care systems. The research conducted by HEIs are also key in responding to societal problems – be it industry, health, water, sanitation etc.

Again, HEIs themselves serve as employers of thousands of people – both through direct employment of faculty and administrative staff, and indirect employment and opportunities provided to businesses and communities in their environs.

Education has also been proven to directly impact or have a role regarding the attainment of SDG Goal 5 (Gender Equality). A briefing paper published by Oxfam titled *'The Power of Education to Fight Inequality'* confirms the unparalleled power of public education (more broadly- not only higher education) to tackle growing inequality and bring us closer together. It however concludes that to achieve this, education must be both of good quality and equitable; it should be free, universal, adequately funded, with well-supported teachers, and accountable public oversight (Walker et al, 2019).

The second set of goals (categorised under The Environment) include Goal 7 (Affordable and Clean Energy), Goal 13 (Climate Action), Goal 14 (Life Below Water) and Goal 15 (Life on Land). Higher Education again plays a key role in the achievement of these goals. For instance, it has been noted that in the last 15 years, marine biologists have become increasingly focused on the issue of climate change due to increased awareness because of impactful scientific reviews like the Intergovernmental Panel on Climate Change (IPCC), the United Nation's body for assessing the Science related to Climate Change.

In line with this, the number of marine science papers on climate change has doubled every five years since the first UN report on climate change in 1990 (Jex, 2016). This reveals a good amount of research being undertaken by stakeholders in this area, including higher education institutions. Aside from the key impactful research being undertaken by higher education institutions on the SDGs Goals that fall under The Environment category, higher education is also responsible for training specialists who spearhead the affairs of key institutions established for these various key issues. Furthermore, training of specialists such as marine scientists and biologists, ecologists, specialists in oceanography and climatology, energy sector specialists and professionals, among others are all undertaken by higher education.

Finally, the goals categorized under economy include Goal 8 (Decent Work and Economic Growth), Goal 9 (Industry, Innovation and Infrastructure) and Goal 12 (Responsible Consumption and Production). Indeed, higher education has been considered both an 'engine' for innovation and a 'catalyst' for sustainable development (Cai et al., 2020). As indicated by UNESCO's Chief of Higher Education Sector, Peter J. Wells, "Perhaps

never before in recent history has the role of higher education been so intricately tied to the economic, social and environmental fabric of the modern world" (Grau et al. l, 2017). Besides, there is a wealth of literature and information from various bodies that corroborate the importance of higher education to industry, innovation and research, and the generation of decent work and economic growth.

In a meeting held between the Association of African Universities (AAU) and the Africa Private Sector Summit (APSS) representatives on 6th October 2021, for instance, the two parties acknowledged that economic transformation could not materialise without the institutions that produce the requisite skillset and human resources – higher education institutions. Strategically positioning higher education to make it relevant to the industry has been a key priority of the AAU. Earlier in March 2021, the Association signed a Memorandum of Understanding with the Pan African Chamber of Commerce and Industry to promote the continental integration of Africa through education, trade, and investment under the Regional Economic Communities (RECs) trade agreements and the Africa Continental Free Trade Area (AfCFTA).

Higher Education again provides individuals and citizens with the requisite skills needed by the job market, thus expanding the net of opportunities accessible to a person. The findings of a study revealed that there was positive and significant relationship between higher education and employment (Shabbir, et al, 2018). The same study further indicated that higher education predicts high and sufficient employment chances for students. These aspects can be said to be responding to the strategic contribution of higher education to the SDG focus on Decent Work.

Additionally, Goals 16 (Peace, Justice and Strong Institutions) and 17 (Partnership for the Goals) fall under a category delineated as Strong Institutions to support the SDGs, and here again, Higher Education Institutions form part of such organisations which are accountable to society and a part of the achievement of the SDGs. A key function of higher education, aside teaching, learning, and research, is community engagement. This role requires universities and institutions of higher learning to be effective contributors, through engagement and partnership with other key stakeholders towards the development of their communities, societies, and economic systems among others.

The United Nations explains - A successful sustainable development agenda requires partnerships between governments, the private sector and civil society and that these inclusive partnerships should be built upon principles and values, a shared vision, and shared goals that place people and the planet at the centre. Higher Education Institutions are key partners in the development agenda for all these institutions mentioned by the UN - governments, the private sector and civil society. HEIs are also key in ensuring a peaceful environment within which the SDGs can thrive and can be pursued. Without peace and justice, it will be more difficult to pursue other targets. Higher Education helps

in the training and equipping of individuals (students) with key characteristics and qualities important for peacebuilding – mutual respect, reconciliation, equity, among others.

The discussion in this section has outlined some of the notable ways that African Higher Education contributes to the attainment of the 17 SDGs or the various roles that African Higher education can contribute in this regard.

However, participants at the AAU's 15th General Conference acknowledged that for institutions of higher learning to be more effective in terms of their contributions, some key conditions need to exist/be improved.

Key Conditions Necessary for African HEIs to Effectively Contribute to the Attainment of the Sustainable Development Goals

Central to HEIs ability to contribute effectively, as identified by the General Conference participants, is partnerships and collaborations. Stronger and closer collaborations among institutions of higher learning on the continent and beyond, on the one hand, and between them and other key players – Governments, industry, think tanks, civil society, etc. were recognised as catalytic to the effective contribution from the sector. Collaboration is important for various reasons – it helps avoid/reduce duplication of efforts so that more energy and resources are channeled towards achieving more outputs, instead of different teams focusing on a singular target.

Again, collaboration helps improve efficiencies and streamlines key action points towards a much bigger goal. Besides, a key tenet of partnering is that a benefit comes from creating a collaboration based on the idea that the individual partners cannot accomplish their goals on their own.

Thus, the partnership creates the ultimate win-win situation (Eddy, 2010). In line with partnerships and collaboration, a related call was for HEIs to also promote inter/intra Africa exchanges.

Participants further called for awareness and commitment to the Sustainable Development Goals and Agenda 2063. They pushed for an awareness creation to promote the ownership of the SDGs, localising it for various stakeholders (including students) to relate to it and see their role in its achievement. They underscored the need to customise communications and frame them to specific roles of institutions and groups to make the SDG's more relatable and significant in the African context and not abstract.

A publication by the University World News, for instance, highlights the limited visibility and few direct mentions of Higher education in the Goals. It shows that Higher Education and Universities were called out directly in only two instances out of the 169 targets. "The

first instance is target 4.3 of SDG 4, which is about ensuring equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university education, while the second instance refers to target 4.b of SDG 4, which deals with the number of scholarships available to developing countries for higher education enrolment in specific fields within developed and other developing countries," (Calderon, 2021).

To an extent, this calls for the deliberate investment of more effort by higher education stakeholders to clearly tease out their linkages to the SDGs, outline their key role and make their contributions more visible.

Again, the conference participants outlined other factors upon which successful contribution of HE hinges. These included - Strong political will to reform and boost the education and training sector, a peaceful and secure macro environment, and inclusion of key SDG targets in frameworks and policies at HE institutional levels. Others included strengthening institutional capacity building towards the SDGs and promoting a common understanding and trust existing between partners, among others.

Papers Presented on the Subtheme and key Issues

Five (5) scientific papers were presented on the conference' subtheme 3, '*Contributions of African Higher Education Institutions (HEIs) towards Achieving the Sustainable Development Goals*. The titles of the papers and paper presenters are presented here as follows;

- Paper 1: The Last Digital Frontier: The History and Future of Science and Technology in Africa, presented by Mr. Brian Asingia, CEO DreamGalaxy Platform.

- Paper 2: Intellectual Property and Knowledge Management in Institutions of Higher Education in Zimbabwe. This was presented by Dr. Stanislas Bigirimana, Co-founder Code Empire, Harare, Zimbabwe.

- Paper 3: Higher Education Institutions' Contribution to SDGs and the Impact to Education, Research and Economic Development from the Perspective of Ethiopian Universities of Applied Sciences. Dr. Margareth Gfrerer, Managing Director of the Ethiopian Institute for Higher Education (EIHE), Addis Ababa, Ethiopia, was the presenter of this paper.

- Paper 4: The Proliferation and Propensity of Publications in Predatory Journals among Academics in Institutions of Higher Education in Ethiopia: Implications for the SDGs. This paper was presented by Prof. Mohammed M. Yimer, Vice Dean of the Faculty of Social Sciences and Humanities, Woldia University, Ethiopia.

- Paper 6: Engendering Sustainable Development Competencies in Higher Education: The Case of Egypt. The presenter was Prof. Suzanna ElMassah, Professor of Economics and Finance at Cairo University and Zayed University, Egypt.

Key Highlights and Discussions Following the Presentation of Paper 1

This presentation noted that Higher Education Institutions in Africa are well-positioned to play a critical role in the achievement of the SDGs. Specifically, it called for the focus on four key issues- **Identity** (this encompasses the localisation of the SDGs, collaborating and promoting intra Africa research on the SDGs among others). The second issue related to **Ownership** (this stressed the need to encourage more local businesses to contribute to HE on the continent by giving scholarships to students, as against scholarships being granted by foreign agencies). It called for stronger partnerships with the African Regional Intellectual Property Organization (ARIPO) to train students on Intellectual Property Rights and to encourage students and faculty to register their IPS.

The third issue raised here was that of **Trust** (the paper called for the cultivation of ethical leadership, where HEIs themselves are role models for ethical attitudes through their daily operations). Finally, the fourth issue raised by this paper was **Scale (**HEIs were charged to support cultural exchanges, venture into regional and global markets, and ensure that their goals and targets were aligned with the global goals. Stakeholders were also encouraged to normalise cross border exchanges and strengthen already existing initiatives in this regard).

The presentation also encouraged HEIs to relook at their grading systems and the structure of what constitutes a good grade. It proposed that beyond just Grade Point Averages (GPA), students should also be graded based on their innovations, ownership of IPs, or creating something new – Business or knowledge etc.

The paper identified some risks and challenges which adversely affect the efforts of African Higher Education Institutions, and these include the lack of reliable power and connectivity, the non-existence of an African Union Privacy Bill (a bill at the level of the EU's General Data Protection Regulation etc).

It also identified Regional Fragmentation in Telecommunications, the lack of political will to implement African Union policies and the over-reliance on foreign expertise and tools as key drawbacks. It proposed some solutions, including offering free public wifi in cities and schools, institutions using solar power and wifi/5G innovations, ensuring legal protection and enforcement, adopting mobile phones as the center of service delivery through which institutions can reach students from cut off locations.

Key Highlights and Discussions Following the Presentation of Paper 2

Paper 2 argued that intellectual and knowledge management are part of the management of contemporary universities given the changing business models of institutions and that intellectual property and knowledge management have the overall goal of wealth creation (Edvinsson & Stenfelt, 1999). It highlighted the importance of university-industry linkages to African HEIs and called on HEIs to work more closely with the industry/private sector. Further, it promoted "entrepreneurial university" as a good concept to be adopted in transforming HEIs and noted that research commercialisation and technology transfer are a core part of an entrepreneurial university. It also made a call to universities to invest in the appropriate knowledge management mechanisms.

Focusing on Higher education in Zimbabwe, the paper assessed how academics have shifted from Publish or Perish paradigms to the Protect, Publish and Prosper paradigms, which implies generating knowledge, protecting it as intellectual property and transforming it into commercialisable products and services. It indicated that institutions such as technology transfer offices had been established (Siegel, Waldman & Link, 2003) and that a new paradigm, referred to as the triple helix university-industry-government (Etzkowitz & Leydesdorff, 1995) had been adopted.

It hinted at the need for individualised empirical studies to assess to what extent institutions of higher education in Zimbabwe have adopted knowledge management and intellectual property exploitation to generate revenue and improve their processes.

Key Highlights and Discussions Following the Presentation of Paper 3

This research explored HEIs contributions to the SDGs and their potential to develop the local, regional, national, and global economies from Ethiopian Universities of Applied Sciences. Its main objective was to learn from other HEIs and ascertain what they had achieved as explicit contributions to the SDGs through teaching and learning, research activities, employability of graduates, changes in the respective institutions, and collaboration with industries and communities.

It analysed HEIs success stories from other contexts and selected those applicable to Ethiopian Universities of Applied Sciences. The criteria for the selection were set in advance. The adjustment of the selected case studies, their teaching and learning approaches, as well as necessary measurements, potentials for start-up or incubation and potentials for employment, were discussed in the study.

Following the research question "What can HEIs contribute to the SDGs within their means to create impact for the local, regional, national and global community as well as for the organisation itself?", this research screened 54 case studies. These were implemented

at HEIs around the globe and published on the website for the Sustainable Development Solution Network – A Global Initiative for the United Nations and titled -Accelerating education for the SDGs in Universities (UNSDSN, 2020).

The paper concluded that SDGs create potentials for HEIs and start-ups, incubation centres and employment in general. Furthermore, it indicated that the SDGs have potentials for economic development and innovation. As shown in the selected case studies, the SDGs are relevant to teaching and learning, influence the quality of education, globalise education, and turn responsibilities to students, lecturers, scientists, and researchers at all HEIs worldwide.

It ended by stating that the question about the value of SDGs interventions at HEIs remains open as long as the quantification procedure of SDGs activities cannot be tackled.

Key Highlights and Discussions Following the Presentation of Paper 4

This paper, titled *"The Proliferation and Propensity of Publications in Predatory Journals among Academics in Institutions of Higher Education in Ethiopia: Implications for SDGs",* noted the mounting rumours on the credibility of journals in which research work appears. It studied the factors influencing Researcher's choice to publish in predatory journals.

Specifically, the study investigated 32 published authors from seven (7) universities. The findings revealed that some researchers published in such journals in pursuit of a rapid publication process. This was done in line with fulfilling the publication requirements for a promotion. It found out that there were variations across disciplines – ie. Researchers in social sciences, business, economics and engineering, were more likely to publish in a predatory journal than researchers in fields like Agriculture and health science. Overall, 89% of the articles published by the study population were in predatory journals.

The presenter proposed that stakeholders/researchers need to garner international experience and a wider exposure to academic work at an international level as a solution. The paper also recommended that all HEIs, Ministries of Education and research offices should work proactively to warn their staff at all levels concerning the implications of predatory journals.

Key Highlights and Discussions Following the Presentation of Paper 5

Under the title – *'Engendering Sustainable Development Competencies in Higher Education: The Case of Egypt'* this study examined the role of Cairo University in promoting sustainable development competencies through its formal and non-formal education. It identified; "competency" as a critical term that calls upon institutions to use enhanced indicators that measure real-life outcomes to determine "competency" rather than relying on test scores. The paper referred to competencies as personal characteristics that afford the effective execution of a particular task in a given organization.

The finding revealed that there is a significant difference in the level of sustainable development competencies between students in different fields of study. It recommended the creation of a coordination body in institutions to coordinate Sustainable Development related activities and to lead the universities in building students' Sustainable Development capacities.

Some Challenges Faced by African HEIs in the Implementation of the SDGs

The Global Network for Innovation (GUNi)'s 2019 publication on *Implementing the 2030 Agenda at HEIs: Challenges and Responses,* indicates that research undertaken to explore the key challenges hampering HEIs effective contribution to the Global Goals identified institutional obstacles as the most significant ones which urgently need to be addressed. It further highlighted specific obstacles including lack of support from management, lack of appropriate technology, lack of awareness and concern, lack of an environmental committee in some institutions, lack of legislation and guidelines, as challenges. It also referred to the lack of knowledge and education on the topic, lack of training and collaboration, lack of incentives for innovations, the many restrictions and bureaucracy faced by institution of higher learning, the lack of entrepreneurship and public-private partnership among others. Mention was also made of the lack of dialogue, capacity and decision, lack of commitment and discipline, just to highlight a few.

Similarly, participants at the Association of African Universities'15th General Conference, identified the following as some key challenges in HEIs effective contribution to the achievement of the SDGs - lack of knowledge/awareness and low dissemination of information on the SDGs (to HEI stakeholders-students, lecturers etc), poor leadership to drive the achievement of the SDGs and resource mobilization challenges (finances was identified as a key challenge). They also raised issues of mismanagement and low resourced human resources, the lack of policy direction and implementation strategies. The lack of social entrepreneurial practices, laws and systems, as well as connectivity challenges and poor physical infrastructure to support their work were key among their concerns/challenges.

In the context of challenges faced by Open Distance E-Learning (ODeL) institutions in contributing to the SDGs, a recent study (Mawonde, A. and Togo, M. (2021) titled '*Challenges of involving students in campus SDGs-related practices in an ODeL context: the case of the University of South Africa (Unisa)*', sought to explore the challenges faced by ODeL institutions to involve students in campus sustainable development goals (SDGs) related practices. It found out that few students were involved in some campus SDGs-related practices and few of them were involved in off-campus SDG projects. It attributed this to issues/challenges such as the distance between the University of South Africa (Unisa) and the students, lack of finance, the misconception around SDGs and a lack of interest in SDGs. The geographical distribution of ODeL students was concluded as the major barrier to student involvement in SDGs.

African Universities must put in measures to overcome these challenges and all others, to foster their impactful contributions in this area. A number of solutions as key next steps, indicating what we should be focusing on, as stakeholders, are presented in the next session to provide a guide, one that can be adaptable to suit the local conditions of institutions.

Key Next Steps/Way Forward

Having deliberated on their role in achieving the SDGs, African higher education stakeholders at the 15th General Conference, made some recommendations. These are captured here as key next steps towards overcoming the challenges identified earlier, and generally, towards ensuring that HEIs' contributions to the attainment of the SDGs is much more significant than it currently is.

The need to increase awareness creation and ensure that all HEI stakeholders understand the sustainable development goals, own them and are aware of the various ways in which they can contribute, was identified as an important starting point. HEIs were encouraged to ensure that at an institutional level, their overarching goals and targets were realigned in line with the SDG aspirations.

Undertaking SDGs focused research, specifically, sufficient applied and action type of research was called for. Also considered as important was the issue of taking a critical look at knowledge management, with reference to aspects of dissemination, making use of information, avoiding brain dumping (putting in mechanisms to ensure that experienced / retired professors remain and continue to contribute to the knowledge generation process).

Under skills development to support the SDGs, participants underscored the importance of adapting curricula to ensure that they are locally relevant and globally competitive, promoting practical knowledge acquisition through engagements, exchanges and internships. Again, the readaptation of syllabus based on the dynamics of the SDGs and working closely with industry practitioners and other stakeholders in development of curricula, without compromising quality, was encouraged.

The promotion of the acquisition of soft skills by students (thinking skills, problem solving skills, creative skills, leadership and management skills among others), was discussed. The acquisition of digital skills was also mentioned as being important.

Participants also raised the importance of relevant data in the pursuit and tracking of the key achievements towards the SDG, noting that data is wealth and money. Along these lines, they indicated that Data Repositories for institutions of higher learning should be publicly available for research and decision-making purposes. On innovation, HEIs were called upon to support innovations which come from sources such as research, community engagement among others. The creation of innovation hubs, detecting local innovations,

stimulating innovations through the institution of competitions, awards, prices, policies etc were deemed necessary. Still on this tangent, stakeholders at the conference called for the allocation of funds at HEIs to support and implement innovations. The establishment of structures to support students and staff to register their innovation, as well as mentoring and coaching of innovative students was mentioned as being key.

Finally on collaboration and community engagement, HEIs hinted on the need to be proactive and engage their communities when they identify issues. Intra institutional collaboration, inter institutional collaboration, Intercontinental Collaboration, and international collaborations were all highlighted as being necessary. Stakeholders also recognised the need to galvanise political, technical and financial support towards generally strengthening the higher education space in Africa.

Policy Advice

The literature reviewed so far, and discussions from stakeholders at the 15th General Conference reveal that the role and contribution of higher education institutions to the SDGs is beyond dispute. However, discussants recognised the need for the implementation of policies that can fuel positive outcomes in the pursuit of the SDG goals, as well as policies that will create a more conducive atmosphere for HEIs to contribute more effectively.

It was recommended that HEIs in various countries should team up and advocate for their government to put in measures which encourage industries and companies to offer mentoring and internship support to students. This is to help students acquire work ready skills, provide them the opportunity to develop their problem-solving skills, among a plethora of other benefits, towards the attainment of the SDG targets.

Policies focused on generally improving the quality of higher education institutions, increasing investments (funding) to support research and teaching and learning was recommended.

Policies to promote collaboration between professors/lecturer and students in undertaking SDG related research project, was also recommended to be implemented by institutions of Higher Learning.

Engagement with policies or making recommendations regarding favourable policies to support the SDGs can be done by HEI stakeholders via various ways, including research, writing policy briefs, publishing opinion pieces in newspapers among others.

Concluding Comments

Strong commitment is required from all stakeholders/actors in implementing the various recommendations outlined in this chapter. Collaboration and deeper cooperation between HEIs and all key stakeholders need to be prioritised to achieve a greater impact. The benefits of such joint efforts are boundless – from the sharing of expertise, best practices and insights, resources, to jointly designing curricula and undertaking SDG focused research.

The HEIs also need to institutionalise efforts and key actions which serve as their ways of contributing the attainment of the SDGs. The inclusion of SDG targets in frameworks and policies at HE institutional levels should be prioritised.

In conclusion, this chapter, titled *'the Contributions of African Higher Education Institutions (HEIs) towards Achieving the Sustainable Development Goals'* has highlighted the various ways through which HEIs in Africa are contributing to the attainment of the SDGs, while recognizing that there still remains a lot to do. It calls on all stakeholders to join hands with HEIs to improve access and quality, effective funding, and joint collaborations and partnerships aimed at improving the Higher Education sector's effective contribution to the attainment of the SDGs.

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Sub-Theme 4:

Funding of African Higher Education Institutions in the Face of Unpredictable Economy

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Introduction

Damtew (2014) said "Financing higher education is an expensive enterprise, as Knowledge creation and knowledge dissemination and innovation do not come cheap".

One of the challenges facing higher education institutions in Africa is funding. The future of African higher education institutions depends on how they handle the challenges of funding. For the government institutions, the government has been the major financier. Over the years, the people have got to realize that what most African governments concentrate on is the issue of salaries of staff. They have paid little attention to issues concerning research, infrastructure procurement and maintenance, tools of teaching and learning and the neglect of the latter had impacted negatively on the quality of higher education in Africa.

The traditional sources of funding for most universities in Africa are:

a)   Tuition fees, education loans

b)   Scholarships from governments and private sector

c)   Grants from trusts

d)   Project-specific funds from the local development agencies

e)   Research and development revenue generation by the faculty

f)   Profit focused initiatives such as residences, common facilities, cafeterias,

g)   Township revenue.

h)   Joint ventures with corporates to bring their facility inside the campus to get jobs for the graduates and also collect revenues.

i)   Government subventions.

Each of the above traditional funding sources has experienced various degrees of challenges. For example, many countries in Africa running free education had stopped payment of tuition by students, and government subventions have become the major source of funding for higher education institutions. This would not have been a problem but for the fact that the government has failed to fund the universities based on the level of tuition fees, they would have paid if the tuition fees regime had not been removed.

Scholarships and Loans have become things of the past in many higher education institutions in Africa. Many scholarships that would have been floated have not been continued due to various political challenges in many countries of Africa. Grants from Trust have since been laid to rest in many African countries. The continent is becoming a continent where the rich appears to want to support sports, music, and entertainment rather than education.

Project-specific funds from the local development agencies have become a major source of infrastructural support for higher education in many African countries. These countries

have set up Education Trust funds, such as Tertiary Education Trust Funds (TETFUND) in Nigeria and the Ghana Trust Funds (GETFUND) in Ghana. In Nigeria for example, the main source of income available to the Fund is the two percent education tax paid from the assessable profit of companies registered in Nigeria. The Federal Inland Revenue Services (FIRS) assesses collects the tax on behalf of the Fund. The main source of funds for the GETFUND in Ghana is an amount of *money*, equivalent to two and one-half percent out of the prevailing rate of the Value Added Tax.

Funds that are received by African higher education institutions through other sources of funds are so little that they account for a very low percentage of the funds needed to run the institutions. The Project-specific funds from the local development agencies and research and development revenue generation by the faculty are not regular. Funds from institution activities which are run as a profit center like the residences, common facilities, cafeterias, are being generated to provide direct services to the students, usually at loss, when compared to the actual expenditure required for maintaining these services. If the governments in many African countries had seen universities as their partners in development, they would have been able to patronize these institutions of their various projects. This is not the case, and higher education institutions rarely benefit from support from local development agencies.

Research grants appear to be a source of income to universities in Africa, through the administrative charges that are derived from research grants. However, because the culture of proposal writing is dying in the continent, many African scholars have not thrived well in attracting external research grants into their institutions. It has been observed that many African universities do not have a Grant management office, and this lapse has made it difficult to account for research grants that are attracted to the various institutions

Need for Paradigm Shift

As African Universities move into the future, they need to plan strategically to obtain the funds needed for their missions. Raju Chandrasekar (2022) had proffered some sources of income that can help to improve the funding profiles of African Universities. These include:

- Education Trust Funds
- Alumni gifts
- Sale of case studies, publications, and University reviews
- Short course, certificate programs, diploma, and executive programs, focused degrees
- Payments from the industries for their recruitments for them.
- Gifts and Endowment

- Fee-based inter-university, intercountry, and intercontinental R&D and consultancy collaborations.

- Entrepreneurship development initiatives like the campus-based incubator, accelerator, tech park, business center, and share of the fees.

- Online delivery of the course to students.

- Learning of new skills, different from that of traditional education

These were among the reasons the AAU's Conference organized a session on Funding in African Universities.

Concerns about Funding

Funding issues have featured prominently at high-level discussions by higher education stakeholders all over the world, and in Africa in particular. According to Teferra (2005), higher education institutions in Sub-Saharan Africa (SSA) are the most financially challenged in the world, and yet they are expected to be globally competitive – in terms of research, teaching, and learning, as well as effectively pursue the several other functions that higher education institutions (HEIs) undertake.

The funding challenge has been exacerbated by the COVID-19 pandemic, which has affected Africa's economies and revenue generation by governments, thus reducing budget allocation to sectors such as higher education. Holding a discussion to highlight the key issues, proffer solutions, and recommendations towards achieving financial sustainability for HEIs is, therefore, a timely intervention. In line with this, the Association of African Universities (AAU), prioritized the topic 'Funding of African Higher Education in the Face of Unpredictable Economy' as the fourth subtheme at its 15th General Conference held in July 2021. Among others, the theme focused on key questions such as:

- How will African HEIs react, readjust, or restructure their institutional budgets and expenditures to cater for the challenges brought to bear on the funding of higher education as occasioned by the pandemic?

- How would HEIs react to austerity measures to be put in place by the government, and how would poor students, especially from the rural areas, fare in financing their education in the face of shrinkage in funds available for education?

- How are African HEIs generating revenues both internally and externally to give their institutions a clean and healthy bill of funding?

Key Presentations at the Plenary Session

Two key presentations were made at the conference on this theme. One focused on the main theme "Funding of African Higher Education Institutions in the Face of Unpredictable Economy" while the other addressed "Financing Higher Education in Francophone Africa: Challenges and Opportunities".

Funding of African Higher Education Institutions in the Face of Unpredictable Economy (Presentation by Prof. Peter Okebukola)

In his presentation, Prof. Peter Okebukola identified some forces shaping Africa's economies, including fluctuating crude oil prices. He mentioned that oil producers such as Algeria, Angola and Nigeria suffered badly from the plunge in crude oil prices, especially in the early months of the crisis. Depression in tourism was also highlighted as a key force impacting the economies of some African countries, such as Morocco, Tunisia, and Seychelles which are heavily tourism-dependent. Again, the COVID-19 crisis was said to have confirmed the differences between diversified countries and the exporters of industrial raw materials. The impact on North African countries which were in a growth rebound due to tourism was also mentioned. Aside from these, businesses, such as airline operating institutions, were also affected, with some still struggling to survive. This implies that their financial contributions to their respective countries/governments have also been affected.

In dissecting why economies of African countries were being referred to as unpredictable, reference was made to the sinusoidal pattern of growth ("up one day; down the next"), and the fact that over 60% of African economies went into recession between the year 2020 and 2021.

Stereotypical models of funding for African Higher Education Institutions

Even before the COVID-19 pandemic, funding for public universities in Africa was typically largely sourced from the proprietor (Government), while funding for private universities was largely sourced from tuition. Overall, funding strategies such as endowment funding and donations, including alumni, were indicated as weak features in most African higher education institutions. The relatively weak private sector contribution to financing African higher education was also mentioned, with a call to the private sector to engage more closely and invest in higher education.

Factors such as high poverty levels, powerful student and staff unions, a weak private sector, and the long history of dependence on government for financing tertiary education were outlined as among the driving forces behind the current financing models existing in African countries.

Funding of HEIs in the Covid-19 Era

The COVID-19 pandemic impacted negatively the finances of higher education institutions in Africa. General expenditures and prioritization by governments and corporate bodies have also differentially favored the health sector over other sectors of the economy, including higher education. The reduction in funding support resulted in huge salary cuts, staff layoffs especially of non-teaching staff, and governments shoring up revenue through the removal of subsidies. Quality delivery from the educational sector was also grossly affected.

Sustainable Funding Models in an Unpredictable Economy

Touching on sustainable pathways to funding Africa's HEIs in the face of an unpredictable economy, Prof. Okebukola underscored the need for institutions to boost their revenues by opting for the Open and Distance Learning (ODL) model to increase enrolment. He also called on Africa's HEIs to rethink staff remuneration, stating that with the new normal, shifting to about 75% of the pre-Covid-19 staff cost, especially in private institutions could be considered for the next year. This is to be periodically reviewed, with the expectation that when the economy normalizes, remuneration will revert to the pre-Covid-19 state. He also called for the shrinking of institutions' running costs to about 50% of pre-Covid-19 costs through increased use of technology for the conduction of meetings and classes and cutting down wastages on traveling. This presentation rounded up by calling for the redesign of governance structures (if possible) as part of the measures to ensure financial sustainability while paying attention to quality.

Financing Higher Education in Francophone Africa: Challenges and Opportunities (Presentation by Prof. Juma Shabani)

Speaking on the sources of funding and priorities of HEIs budget, Prof. Juma Shabani intimated that the source of funding in Francophone Africa is several, notable among them include the government, tuition fees, cooperation with Francophone institutions, and donor contributions. It was highlighted that in all Francophone countries, the budget provided by the government gives a major priority to scholarships and social aid grants to students. Worth mentioning, as the 15th General Conference participants were told, was the option adopted by Rwanda and Burundi to partner states of the East African Community to abolish the scholarship system and replace it with a repayable loan system.

Another scenario, where the provision of scholarships was not automatic to all students was referenced. The Democratic Republic of Congo (DRC) was mentioned as one of the countries practicing such a system. In such a system, however, the tuition fees paid by students were said to be very low and could not make any significant contribution to the budget of the higher education institutions. The funding allocation from the Government

for teaching and research was also considered so low that the relevance and quality of training and research are undermined.

The presentation dissected a case study of Senegal, where the budget for scholarships and social aid to students was said to represent 42% of the national higher education budget. This amount, according to Prof. Shabani, was higher than the budget of the Cheikh Anta Diop University of Dakar, with an enrolment of more than 75,000 students. He further mentioned that in Senegal, the tuition fees vary from $45 for bachelor's studies to $135 for doctoral studies, and the insufficiency of funding also negatively impacts the relevance and quality of training and research in the country.

Challenges and Opportunities

The most obvious challenge identified related to the fact that the budget allocated to teaching and research would continue to dwindle in view of the massification of student enrolments and implementation of the scholarships and students' social aid policy. On the flip side were available opportunities, namely the implementation of performance contracts for public universities, the establishment of virtual universities, and support from the Conference of Francophone Higher Education Ministers. These are further explained as follows:

Implementation of Performance Contracts: The performance contract is a funding mechanism signed between public universities and Ministries of Higher Education based on expected results from universities' strategic plans and national development needs. The contract specifies accountability requirements and arrangements for monitoring and evaluation of the implementation plan. Performance contracts are currently being tested in public universities in Senegal. This mechanism allows universities to have adequate resources to effectively implement their missions. Burkina Faso has also launched the implementation of performance contracts.

Establishment of Virtual Universities: Virtual Universities are being created in Francophone Africa mainly to address the challenge of massification of student enrolment and unequal access to higher education in these countries. It is expected that these virtual universities will help to improve the quality of training and at the same time reduce the cost of financial support to students given that they are not housed on university campuses. Currently, virtual universities have been established in Senegal, Côte d'Ivoire, and Burkina Faso.

The Conference of Francophone Higher Education Ministers: This Conference meets annually with the Francophone University Agency and the Organization International de la Francophonie to analyze projects of common interest to francophone countries and mobilize the necessary resources for their implementation. Examples abound of projects supported by the Conference.

PAPERS PRESENTED UNDER SUBTHEME FOUR (4)

This session, chaired by Dr. Jane Catherine Ngila (Ag. Executive Director of the African Academy of Sciences/Deputy VC-Academic Affairs, Riara University, Nairobi, Kenya) featured two scientific paper presentations which highlighted innovative financing options from Nigeria, and funding patterns in Lesotho. Synopses of the presentations are provided below:

Paper 1: *Innovative Financing Options for Higher Education in Nigeria: An Alternative in the Face of Unpredictable Economy,* Prof. Suleiman Mohammed (*VC, Nasarawa State University, Nigeria*)

The presentation was a study whose objective was to identify innovative financing methods for higher education in Nigeria and to examine how to explore the innovative methods as well as its prospects for revenue generation of each identified innovative method. The study used content analysis and systematic review as well as cross-country experience to achieve the two objectives.

This study was timely in view of the negative impact of the COVID-19 pandemic on higher education in Nigeria (and all other countries). It noted a rapid rise in student enrolments in Nigeria due to increasing in population while the cost of financing higher education has also increased. However, high financial requirements for higher education have not been equally matched by the availability of funds due to reasons such as instability in government revenue generation due to dwindling oil prices.

This has been worsened by the impact of COVID-19, as its contribution to the economic recession further reduced budgetary allocation to higher education, especially in the revised 2020 and 2021 budgetary allocations. According to the paper, the trend in 2019 to 2020 quarterly GDP statistics derived from the Nigeria Bureau of Statistics (NBS) showed that the education sector achieved negative growth and it was one of the most affected sectors during the COVID-19 pandemic.

Given this background, the paper posited that HEIs in Nigeria (and other African Countries) need to innovate and adopt alternative financing modules.

The study further reveals that innovative options such as research and innovation through university-industry partnerships, copyright and patent/commercialization of innovative ventures, creation of endowment funds, alumni funds, and bursary targeted at indigent students can bridge the gap in funding higher institutions in Nigeria. Others included investment income and profitable ventures, research projects and consultancy services, the introduction of new courses as well as the attraction of foreign students.

The research makes the case that countries such as the United States, United Kingdom, South Africa and India have been able to take advantage of the innovative financing methods

to improve funding in their higher education institutions. It concluded by highlighting the prospects inherent in innovative financing methods provided they are properly harnessed by stakeholders of Nigerian higher education. It called on HEIs in Nigeria to explore the various funding options identified for adoption and implementation.

Paper 2: *A Review of Funding Patterns for Higher Education Institutions in Lesotho,* Dr. Malefetsane Nketekete (*Lecturer, Dept. of Business and Management Development, National University of Lesotho, Lesotho*)

This presentation shared the findings of a study on different funding sources for higher education in Lesotho. The study, which reviewed national and institutional policy documents, as well as undertook targeted interviews, was necessary in view of the dwindling government subsidies in the sector. Its purpose was to develop a framework which could adequately improve funding of HEIs in Lesotho. Funding sources identified were varied and included subventions, student loans from the Ministry of Planning through the National Manpower Development Secretariat (NMDS), special project funds and other donor funding but there were no uniform patterns.

The paper highlighted that, consequently, securing a regular budget was a challenge. Funding leakage was another problem identified, moreso because some programmes that could only be offered outside the country were part of the funding pool. It was argued that such funds could have been used to fund other programmes which are offered in the country or alternatively, used to develop such programmes in-country.

In a related discussion, it was intimated that to avoid funds leakages in Botswana funding is provided for out-of-country study only if the relevant programmes are not available in-country otherwise the available funds were used to launch relevant programmes in-country such as the architecture and medicine study programmes which were introduced at the University of Botswana due to this reason.

Based on the findings, the paper proposed a framework for making funding consistent and cost effective in Lesotho. It recommended that deriving performance indicators from national plans and policies was critical to ensure that higher education responds to national developmental needs. Aside public funding, it also called for private sector involvement to be promoted as a matter of policy, and tax incentives given to all companies that contribute to HEIs in various ways to promote their active engagement.

Discussions on Key Strategies Available to HEIs in Responding to the Funding Challenges

Discussing the overall theme, namely *Funding of African Higher Education Institutions in the Face of Unpredictable Economy,* participants identified key strategies that HEIs in Africa could employ to ensure that the funding challenge does not stand in the way of achieving their

goals and serving their purpose in society. The discussion points and key actions that HEIs can undertake are highlighted in this section.

a) **University-Industry Partnerships:** Higher education institutions in Africa can take advantage of their strategic location and leverage their proximity to industry to partner with them and generate revenue in the process. A brilliant example of the University of Durban (South Africa), introducing engineering and agriculture programmes to feed a sugar processing factory located in its environs was cited. The company in turn provided internship and employment opportunities, as well as equipment and laboratories for research work by the university.

b) **Endowment Fund**: Endowment funding is an increasingly popular trend but securing the funds is not so easy especially in Africa where the practice is still novel. Continued effort is needed to popularize the practice and to convince public and private entities to contribute. It was mentioned, that though such a strategy is not an easy option in Africa, it is worth adopting. Such contributions could also be non-financial, and thus both financial and non-financial resources could be pursued.

c) **Improving Quality:** Attracting foreign students can also be a significant source of revenue, however, institutions need to improve on the quality of their programmes, infrastructure, curriculum, faculty etc. Therefore, HEIs were called upon to invest in improving quality in all its functions.

d) **Grant Seeking**: There were calls for institutions to prioritise and invest efforts in active grant seeking. It was noted that this would necessitate building competencies in proposal writing and related subjects through staff development programmes. Also critical was how to seek grants that are valid and relevant. Having a system or structure in place was thus highlighted. It was refreshing to note that some institutions have units dedicated to grant seeking. Also, teamwork and collegiality were identified as strong pillars to generate strong proposals and so institutions were advised to be consultative by engaging and involving finance, procurement, monitoring and evaluation and other experts in the proposal writing process.

e) **Proper Management of Existing Projects**: Good project management was highlighted as crucial to future grant seeking, thus HEIs were implored to ensure proper utilization of funds on existing projects and ensure proper accountability as well. Institutions were further called upon to adopt the mindset that no grant is big or small, as even 'small' grants could be leveraged to secure further funding, provided they are managed well.

f) **University-Community Engagement:** This was accentuated as being critical to financially support universities, especially if they took their services, such as

running mobile clinics for those who have those programmes, to the community. Furthermore, universities were advised to hold discussions with industry and government to jointly identify existing skill gaps to guide the introduction of new programmes to facilitate employment.

g) **Commercialization of Services and Products:** Opening of universities' services to the community/public was another strategy shared by participants. Examples were given of universities that have hospitals and mortuaries that are accessible to the public at a cost, or libraries with membership offers. The running of short practical courses by some units in the university can also be considered under this strategy, such as training in textile designs, confectionery, etc.

h) **Considering Intangible Assets**: Moving away from traditional economics and considering intangible assets including intellectual property and leveraging intellectual assets of HEIs to generate income was identified as a keyway of boosting institutional resources/funding for HEIs. The example of a research finding which led to the invention of a software solution operating on subscription basis and thus serving many people at lower cost, while raising funds for the institution was cited. The conference also recommended the implementation of professional short courses (also referred to as "block release programmes") that have high enrollment and usually targeting working students or professionals. This was also acknowledged as a way of making good use of infrastructure on weekends and during vacations, while raising money.

i) **Entrepreneurship (setting up of businesses/ income generating activities)**: Entrepreneurship and entrepreneurial pathways are already being explored by African Universities. Scaling up of such enterprises and employing various marketing strategies to increase their customer base could be explored. For the institutions which are not yet undertaking any forms of entrepreneurship, various examples of what they could do were outlined. For instance, it was mentioned that university farms could generate produce for sale, while engineering departments could run car repair services. The Lagos State University (LASU), Nigeria, for example, was said to generate revenue from consultancy services that it offers to private and government agencies. LASU also has various set ups including water purification plants (for 'pure water' production), bakery, pharmacy, and other general services that students need and therefore a ready market for its entrepreneurial activities is available. All these efforts help generate significant revenue for the institution, which it largely uses to address infrastructure needs (specifically hostel facilities) and to sponsor physically challenged students. Other ventures such as owning guest houses, offering of catering services by specific units, were all identified.

j) **Alumni Associations:** Alumni of HEIs were projected as another huge resource where funding can be raised if properly nurtured and tapped. An example from

the Texas A&M University in the USA was shared as an institution which is excelling in this area. It categorizes Alumni to include all former students, as well as even students who did not complete their programmes of study. This university has in existence a strong association, which is very well organized and contributes thousands of dollars annually. As part of their strategy to engage their past students, they have instituted awards for this group. Additionally, the president of their alumni group meets every new cohort of students (usually over 70,000 students) and initiates them into the association.

k) **Promoting Sports and Creative Arts:** The Texas A&M University was said to have a 105,000-seater stadium which generates millions from games for the University. African Universities were called upon to pay attention to sports as well as recognize different types of intelligence (music, fine art, etc.) and leverage these to support their fund-raising interventions. Besides, scholarships can be made available to students who excel in these areas, from the funding raised.

Wrapping up, participants acknowledged that though in some cases, policy restrictions (constitutional provisions, bye-laws, etc.) could pose challenges for fund raising or revenue generation, HEIs should explore all the funding models, as much as possible to enable them become financially sustainable.

Recommendations/Way Forward

The following were identified as laudable initiatives/actions to be undertaken by African HEIs to support their revenue generation efforts:

a) Drafting and implementation of funding strategic plans at institutional and faculty/ school / college levels that build on or feed into the overall institutional strategic plan.

b) Development of institutional strategic plans should be participatory, i.e. inclusive and involving representation from students, faculty, staff, etc. to build ownership and facilitate implementation.

c) The necessary structures to support fund raising should be developed. At Kenyatta University in Kenya, there is a DVC for Research and Innovation as well as a whole unit set up to build capacity and lead in strategic planning. They recently won a US$40 million grant from Bill and Melinda Gates Foundation and have raised over 500 million Kenyan shillings in 2021. The University ensures that its faculty are equipped with all the necessary tools to support research and grant writing (stata for data analysis, vivo, etc.).

d) Soliciting for research grants by creating synergies between the global north and south and using grant seeking enterprises to mentor students/ staff in the south.

That is to say that African HEIs should link up with the Diaspora and apply for grants jointly with them.

Call on the Association of African Universities by African HEIs

As the forum for consultation and exchanges, and the apex higher education body on the continent, African HEIs and stakeholders who participated in the 15th General Conference called on the AAU to implement a number of interventions to shore up their efforts as they strive to generate funding in the face of an unpredictable economy.

a) The AAU was requested to put together/ build a pool of experts from the Diaspora in various fields who can work with African universities on various grant seeking enterprises.

b) The Association was called upon to leverage conferences and its various events to set up a database of experts in the Diaspora grouped per fields/background.

c) The AAU was also tasked to explore possibilities of financing HE through sports.

d) The AAU was requested to build networks to bring researchers in various fields together to serve as a resource for grant seeking and also to offer nonfinancial support, such as free training, expert advice etc. via various means possible.

e) The AAU was urged to pursue and expand its existing interventions which promotes collaboration, as collaboration is a key ingredient in fundraising for higher education. The ongoing AAU initiatives that leverage expertise and resources in North African universities to meet gaps in universities in other regions were touted as laudable. The RUFORUM collaboration and funding mechanism where member universities have agreement among themselves to train students and staff at no or lower cost was also seen as a model to be adopted by other universities university networks.

f) The AAU was implored to work to attract more development partners to support ideas such as endowment of professors as a way to maintain talented faculty and facilitate mentoring

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CHAPTER FIVE

SUB-THEME 5:

Mainstreaming E-learning and the Digital Divide

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Introduction and background

In the guidebook[1] to a successful implementation of digital education produced for the African Higher Education Centers of Excellence project, e-learning is defined as the 'innovative use of digital tools, technologies, and practices during teaching and learning'. E-learning could also be referred to as 'Technology Enhanced Learning (TEL)'. The emerging digital technologies enable the development of blended or fully online courses or programs (World Bank, 2021).

Mainstreaming e-learning has become very critical for all educational institutions globally because of the challenges presented by the coronavirus pandemic that negatively impacted the smooth teaching and learning processes. The Cambridge Dictionary[2] defines mainstreaming as 'the process of making something start to be considered normal'. Making e-learning the norm has become important to address the pandemic restrictions while ensuring that education does not stop.

The pandemic brought to the forefront several weaknesses in African Higher Educational Institutions (HEIs) in relation to (1) their limited readiness to teach remotely, (2) the unavailability of quality and relevant teaching content for online delivery, (3) the limited experiences of faculty with teaching online, (4) the limited experiences of faculty in developing quality digital content, (5) the weak internet infrastructure in African countries that could not cater for the most vulnerable learners, (6) the slowness of HEIs in designing and deploying COVID-19 emergency response plans, (7) the resistance to online learning by some students who deemed it inferior to face to face learning and (8) the limited collaboration among HEIs for purposes of learning from each other about how to use technology for teaching.

Mainstreaming e-learning within African HEIs is particularly challenged by the digital divide that is evident in most African countries. The digital divide makes access to internet infrastructure, digital devices, and the requisite skills difficult for the disadvantaged learners and faculty. The digital divide in Africa affects those in the lower income brackets, those resident in remote areas not covered by communications infrastructure and those communities who are illiterate.

The Organization for Economic Co-operation and Development[3] (OECD) defines the digital divide as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities".

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1   https://ace.aau.org/wp-content/uploads/2021/11/0-Guidebook-to-sucessful-implementation-of-digital-edu-cation.docx.pdf
2   https://dictionary.cambridge.org/dictionary/english/mainstreaming?q=Mainstreaming
3   https://stats.oecd.org/glossary/detail.asp?ID=4719

The International Telecommunication Union[4] (ITU)'s *Measuring digital development: Facts and figures 2021* report indicates that 33% of individuals in Africa were using the internet compared to a world average of 63% and a Europe average of 87%. What is encouraging from these statistics is that between 2019 and 2021, internet use in Africa and the Asia-Pacific region increased by 23 per cent and 24 per cent, respectively. The ITU further reported that over the same period, the number of internet users in the least developed countries rose by 20 per cent.

There is still substantial work to be done by African governments to improve internet infrastructure in their countries for the benefit of educational institutions. The Khan Academy[5] website aptly describes the reasons for the digital divide and these include: (1) the huge government financial investments required to build the high-speed internet infrastructure, (2) the geographical considerations that make it difficult to wire large countries and island countries, (3) the fact that some countries have difficult and mountainous terrains that render the building of internet infrastructure difficult, and (4) some governments in Africa and globally feel threatened by the freedom of expression that comes with internet connectivity and therefore they restrict internet infrastructure development.

How the AAU is mainstreaming e-learning and addressing the digital divide

The Association of African Universities (AAU) has been supporting the development of e-learning in African universities since 2005. The support for e-learning growth by the AAU has been through the promotion of national research and education networks (NRENs). NRENs are key institutions that provide internet bandwidth services, cloud services and other value-added e-services to research and education institutions at reduced costs. The AAU recognized that the importance of building strong communications infrastructures for higher education and research institutions in Africa cannot be over-emphasized. Such infrastructure is needed to support advanced e-learning delivery through high-speed campus telecommunications networks. Through the support of the AAU and development partners, most of the African countries have established NRENs but the majority of these NRENs have not achieved the "maturity" status of development because of limited support from their governments.

Following the outbreak of the coronavirus pandemic, the AAU, the UbuntuNet Alliance (UA), the West and Central Africa Research and Education Network (WACREN), the Arab States Research and Education Network (ASREN) and the National Research and Education Networks (NRENs) in Africa issued a statement calling for investments to support the development and strengthening of campus networks & research and education networks infrastructure and provision of online/remote teaching and learning platforms/

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4   https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf
5   https://www.khanacademy.org/computing/computers-and-internet/xcae6f4a7ff015e7d:the-internet/xcae-6f4a7ff015e7d:the-digital-divide/a/the-global-digital-divide

tools for African Higher Education Institutions (HEIs). The statement noted that the campus networks, supported by the national and regional research and education networks, were fundamental in transforming methods of teaching, learning and research as a response to the COVID-19 pandemic that led to the closure of a large majority of African Higher Education Institutions.

In July 2020 a survey was conducted by the AAU to find out how the member universities were coping with COVID-19 related restrictions. Seventy-five (75) universities in 29 countries completed the survey. 76% of the universities reported that they were already using technology-supported teaching platforms. Only 9 universities out of 75 reported that they were not using any type of learning management system. Fifty-two (52) universities were using some type of learning management system – with the majority using the Moodle learning management system. The universities reported that their use of various e-platforms had grown during the COVID-19 lockdowns to reach and engage the students. These communication e-platforms included the university email systems, WhatsApp communication groups, university websites, FaceBook, Twitter, Instagram, university learning management platforms and telegram.

The universities made several suggestions for possible support areas that the AAU could focus on and these included (1) capacity building in instructional design and content creation, (2) identification of human resources for e-learning , (3) training of staff in on online teaching, (4) sharing of e-learning experiences and networking, (5) sharing of low technology e-learning platforms, (6) negotiations with Zoom to reduce rates for African institutions, (7) internet accessibility and (8) research collaborations on dealing with pandemics in higher education.

After the emergence of the coronavirus pandemic the AAU also engaged its member universities and other African Higher Education Institutions to promote e-learning development.

The AAU is continuing to provide online training and capacity building programs for academic faculty to learn how to teach online. These trainings are offered at institutional level or to individual faculty that are trained in groups / cohorts. Between 1st July 2020 and 30 April 2021, the AAU ZOOM platform hosted a total of 193 webinars and virtual workshops. The total number of webinars & workshop participants was 40,163.

The AAU partnered with eLearnAfrica to develop a learning management system called AAU-eLearnAfricaLMS (https://www.elearnafricalms.com/) that African Universities can easily adopt without the need to invest in e-learning infrastructure and support personnel.

The user-friendly learning management system is hosted on the cloud and is customizable for each interested university.

Objectives of theme V: Mainstreaming E-learning and the Digital Divide

The objectives of theme V: mainstreaming e-learning and the digital divide were to

1) Explore how the disruption brought about by the pandemic is widening the gaps of inequalities in Africa both within and across countries.

2) Discuss how African HEIs will contribute to the structural changes so that short term digital divides do not become wide and permanent.

3) Understand how the Management Information System (MIS) sections in the various HEIs relate with the ICT divisions in contributing to the mission and vision on the institutions.

4) Share the success stories that we have in Africa relating to the deployment of ICT to enhance access, quality and reduce the cost of education.

5) Discuss the obstacles that HEIs encounter in the adoption, adaptation and use of ICT in instruction and training.

6) Discuss how the availability of ICT or lack of it affects the objectives of setting up ODL in the various HEIs in Africa.

7) Hold open discussions of these and other related issues to throw light on the place and role of e-learning in a COVID-19 and post COVID-19 Africa.

Papers presented

A total of six papers were presented by:

1) Professor Benedicta Egbo, Emeritus Professor, Faculty of Education at the University of Windsor, Canada.

2) Andrew Mandla Mangena, Computer Science Lecturer, National University of Science and Technology, Bulawayo, Zimbabwe.

3) Professor Isaac Zeb-Obipi, Dean of Students Affairs, River State University, Port Harcourt, Nigeria.

4) Ms Rhoda Mahamah, Assistant Lecturer, University of Education, Winneba, Ghana.

5) Dr Sindiso Zhou, Lecturer of Applied Linguistics, Department of English, University of Fort Hare, South Africa.

6) Engr. Paul Tamaragaibi Elijah, Nigeria Maritime University.

A case of Innovation, renewal, and Mutual Interdependence in African Higher Education Post-Covid-19: Professor Benedicta Egbo, Emeritus Professor, Faculty of Education at the University of Windsor, Canada

Professor Egbo stated that very little empirical research had been carried out especially in the education sector, and this was due to the varying and mutating nature of the coronavirus. She added that while the pandemic had created enormous problems, it had also created opportunities in various sectors especially in education.

Professor Egbo's paper sought to provide a framework for new directions in African Higher Education considering the evolving COVID-19 global phenomenon. The paper recognized that empirical research on the pandemic especially in education, was still emergent. She used a critical analysis of an emergent phenomenon (CAEP) approach, to critically review and analyze the emerging literature on the subject as well as her expertise.

The research identified certain emerging themes concerning the direction of education in Africa, post-covid-19 and these were Teaching and Learning Sustainability, Innovation and Research Recalibration and Inclusion and Equity Issues.

To fully digitalize teaching and learning, African HEIs should urgently resolve the problem of infrastructure deficit and mainstream the use of Learning Management Systems. Curriculum Reforms need urgent attention with a focus on the determination of the required knowledge, skills, and competencies. African HEIs should drive curricular renewal for a post COVID Africa and determine what skills and competencies are non-negotiable. Professor Egbo called upon the African HEIs to address the philosophical question concerning the purpose of a university education within the context of current African and global realities. There is a need for the recalibration of the Research Agenda because the COVID 19 had exposed in stark terms, the existing gaps in research in African HEIs. There were opportunities to better prepare and position the continent for more robust responses to future pandemics.

COVID19 is a call to action - there should be mutual interdependence and increased collaboration among African HEIs. A recommendation of the establishment of shared technology commons among clusters of institutions on a sub-regional basis was made. African HEIs should take advantage of existing networks and collaborative projects which are leading some innovative and very promising initiatives e.g.: African Centres of Excellence (ACE), African Research Universities Alliance (ARUA), the Coalition for African Research and Innovation (CARI), as well as country specific academic & research consortia.

Professor Egbo recommended the following policy actions and "best practices":

1.   Digitalization and mainstreaming of Learning Management Systems (LMSs).

2.   Recalibration of research agenda through increased focus on STEM, public health, vaccine development and other subjects.

3. Increased use of Hybridized and HyFlex course delivery modes.

4. Infrastructural development (especially in technology).

5. Faculty/student capacity building in the use of ICTs and research.

6. Development of resource sharing initiatives to promote mutual interdependence.

7. Establishment of stringent outcomes' measuring mechanisms.

8. Establishment of constructive partnerships (regional, international & industry specific).

9. Strategic focus on promoting digital inclusion and equity in African HEIs.

An Assessment of factors Contributing to a Digital Divide in Mainstreaming e-learning in Higher Education, a selected case of a University in Bulawayo Province, Zimbabwe: Andrew Mandla Mangena, Computer Science Lecturer, National University of Science and Technology, Bulawayo, Zimbabwe

Mr Mangena stated that to properly address the digital divide, the first step was to review the causes contributing to the digital divide. The digital divide is caused by digital inequalities between people, households, and other aspects. To assess the factors contributing to a digital divide in mainstreaming e-learning in Higher Education, the research paper considered the following research questions: (1) Why has e-learning been mainstreamed? (2) To what extent is the University resourced to fully implement e-learning? (3) What are the attitudes of the students and lecturers when it comes to e-learning? (4) What are the challenges that lecturers and students have when implementing e-learning?

The Results/Findings revealed that e-learning was being mainstreamed because it was an alternative way to continue learning during the COVID 19 Pandemic. Another reason which emerged on why e-learning must be mainstreamed is because e-learning had become inevitable after the rapid changes in technology.

Concerning whether institutions were resourced sufficiently, the participants expressed their disappointment on the low level of resourcing for the National University of Science & Technology in Zimbabwe. The respondents pointed out there were limited resources, and they also questioned the training of some lecturers on use of e-learning.

With regards to attitudes participants said that the attitudes were a bit varied for both lecturers and students. Some went on to highlight some reasons for this such as resistance by the elderly lecturers and elderly students. Some lecturers and students emphasized that the uptake seemed somewhat negative because of limited resources and the fear of using new technologies.

Concerning the challenges of implementing and mainstreaming e-learning, lecturers and students mentioned that they did not have gadgets in the form of laptops, computers, appropriate software, data cost and also the skills to use the gadgets and software. Students went on to express that some students are based in remote rural areas where electricity is not available. Respondents also revealed that even though internet facilities were available the services were very poor and very expensive.

The study found that the factors contributing to a digital divide in mainstreaming e-learning in Higher Education were as follows:

1. The availability of computers or devices needed for e-learning by both students and lecturers.

2. The ease of use and limits of robust e-learning software compatible to students' and lecturers' devices that address all e-learning needs.

3. Accessible, stable and affordable internet connectivity in the form of Wi Fi or data bundles for both students and lectures at the university and at home.

4. The presence of reliable and dependable electrical power sources needed to use computers or any other e-learning device.

Mr Mangena's paper discussed some of the challenges of e-learning as the costs of acquiring gadgets, unreliable internet connectivity, un-affordable internet access, limited policies governing digital issues, limited stable electric power source required for the computer devices and un-availability of robust e-learning software.

Mr Mangena recommended that Ministries of Higher and Tertiary Education, Science and Technology should collaborate with stakeholders to map out ways to bridge the digital divide. University staff should be continuously trained and retrained on how to navigate the new trends in ICT.

Leveraging on technology in managing student affairs, the River State University E-voting Experience: Professor Isaac Zeb-Obipi, Dean of Students Affairs, River State University, Port Harcourt, Nigeria

Professor Isaac Zeb-Obipi stated that the use of technology had gone beyond teaching and learning within tertiary educational institutions and was now used outside university campuses. The River State University used digital technology to manage students' leadership elections that were traditionally done in two stages:

1. Congress election where every student votes, and

2. Delegate election where only selected representatives of students vote

Some challenges associated with the election procedures were rigging, violence, voter

apathy, physical accreditation of voters, use of ballot paper boxes, stakeholder influence and certainty of outcomes even before voting. With the COVID-19, traditional voting procedures would be an invitation for a community spread of the virus.

This paper focused on the use of technology in students' governance in terms of Electronic Voting or e-voting by students at the Rivers State University, Nkpolu Oroworukwo, Port Harcourt, Rivers State, Nigeria.

The research problem was the use of technology in students' governance given the problems associated with such elections every year, and the possibility of preventing such problems through e- voting. The study aimed at demonstrating the application of technology in the conduct of students' union elections and sought to:

   a)   identify the challenges of physical elections,

   b)   discuss the concept and forms of E- voting,

   c)   state the dimensions and logistics of the Rivers State University (RSU) E- voting System,

   d)   indicate the guidelines required for a successful e- voting model, and

   e)   make recommendations for the adoption of this model.

The findings of the research were that:

   a)   the power of technology has gone beyond e- learning,

   b)   e-platforms now drive students' management in diverse forms,

   c)   students are exercising greater control over how they are managed,

   d)   challenges are being surmounted through further innovations, and

   e)   the COVID 19 pandemic has made leveraging on technology in this area more imperative.

Professor Isaac Zeb-Obipi concluded by stating that the deployment of ICT at the River State University was a success story. Such success stories are necessary for mainstreaming of e-learning in African HEIs to bridge the digital divide.

Recommendations from the study included the following:

   a)   AAU should encourage the use of technology in student affairs management,

   b)   African HEIs should tap into this area of technology application to enhance students' management,

   c)   Software developers should obtain stakeholders' buy-in and provide support services,

d) Software developers should exercise patience and integrity to overcome cynicism, suspicion, and desperation, and

e) Software developers should ensure a robust, transparent, and resilient e- voting system.

E-Learning platform preferences of graduate students of the University of Education: Ms Rhoda Mahamah, Assistant Lecturer, University of Education, Winneba, Ghana

Ms Rhoda Mahamah's research sought to examine what informs graduate student preferences of the e-learning platforms. Aspects that were studied included easy accessibility, ease of use, convenience, and favorable cost. The research further investigated the challenges that graduate students envisaged would affect the use of e-learning platforms in their respective universities - ranging from poor internet connectivity, high cost of internet data bundle, inaccessibility of e-learning devices such as laptops, routers, WIFI, among others.

Some of the reasons informing graduate students' preferences of the e-learning platforms were reported to be easy accessibility, ease of use, convenience, favorable cost of data, and ensuring social distancing.

Additional reasons informing graduate students' preferences of the e-learning Platforms were indicated to be that using e-learning would ensure strict adherence to the social distancing protocols.

Students who preferred the video conferencing platforms were inspired by the interactive opportunities offered by the platforms. Some students indicated that the learning management system and Zoom provide opportunities to ask questions and interact with colleagues and instructors during online lecture sessions.

One challenge that the graduate students envisage will affect the use of e-learning platforms in the university is the cost of data.

The paper recommended the following policy issues that university authorities should consider:

1) Adopting WhatsApp for engaging students during COVID-19 because of its ease of use, convenience, and ease of accessibility on students' smartphones.

2) Putting in place strategies to mitigate poor internet connectivity outside the university campus and the high cost of data bundles.

3) Striving to enhance internet connectivity for students within campuses.

4) Implementation of advanced e-learning platforms to support the educational ladder.

Using emoticons to reduce transactional distance, navigating the contextual complexities of COVID-19 imposed virtual learning spaces: Dr Sindiso Zhou, Lecturer of Applied Linguistics, Department of English, University of Fort Hare, South Africa

Dr Sindiso Zhou specified that research indicated that migrating entirely to virtual learning from the traditional way, was a huge step which required elaborate planning.

The research problem was that virtual learning was imposed before equipping the students and lecturers with the necessary skills and tools to navigate the available online spaces effectively for optimal intellectual engagement and positive learning outcomes.

The Research Objectives were to:

1. Explore and problematize the limitations of exchanges in virtual learning platforms.
2. Analyze the use of emoticons in reducing transactional distance in virtual learning spaces, particularly in the COVID 19 crisis.
3. Theorize relearning through a Digital Dialogic Pedagogy to empower transition teams in virtual learning.

The paper is anchored on a theoretical framework called concepts of Multimodal Discourse Analysis and Online Collaborative Learning.

The paper sought to investigate how the use of emoticons could assist in communicating to reduce transactional distance, which was a barrier to student learning.

The findings of the research indicated that emotion icons could help to reengage students, support, and rebuild relationships to facilitate the establishment of firm foundations for students them to be receptive to academic learning. Sharing social and emotions through emoticons facilitates collaboration and co-creation. As hyperconnected individuals, students live in a digital bubble. The paradox of hyperconnectivity is that it isolates individuals from their significant others. There is need for relearning the navigation of virtual spaces for purposes of helping students construct and acquire as much meaning as possible for positive learning outcomes.

The findings could facilitate the design of inclusive learning tools and contribute to relearning toolkits, transition team skillsets, and transition pedagogies. These could form crisis methodologies for implementing important student communication strategies, and cognitive processing to humanize online education and bring it closer to the learner. Just because we are in the age of machines and artificial intelligence does not mean that student needs and socio-emotional support have become obsolete. Dr Sindiso Zhou's paper recommended a continuous process of embedding and integrating discourse strategies that work for students, into the existing curriculum, before, during as well as in post-pandemic situations.

Mainstreaming E-learning across the digital divide in Africa: Engr. Paul Tamaragaibi Elijah, Nigeria Maritime University

Engr. Paul Tamaragaibi Elijah said that Africa as a continent still struggled to catch up with other continents in innovation and the use of digital technology in educational and non-educational institutions. The level of acceptance and usage of digital technology for teaching and learning seemed to differ across the different African regions.

The objective of the study was to determine if higher educational institutions in East and West Africa were ready for e-learning during the un-avoidable digital age and considering the barriers faced in the adoption of technology in teaching and learning.

The study population comprised all the ICT heads in the ICT units of the 1,225 higher education institutions recognized by Unirank in 2020. One hundred and sixty institutions were randomly selected for the study with 80 institutions in East Africa and 80 institutions in West Africa. Findings of the study revealed that the institutions in West Africa were better ready for e-learning than those in East Africa. The study also revealed that the effects of digital divide included delay in communication and social isolation, that the barriers to mainstreaming e-learning across the digital divide include poor infrastructure and government regulations among others.

Engr. Paul Tamaragaibi Elijah's paper recommended the following:

1. A needs assessment should be carried out to determine the nature and dimension of the digital divide existing among different educational institutions in Africa so that specific government and private sector interventions can be provided in overcoming these problems for the effective mainstreaming of e learning.

2. Students and higher educational institutions should be provided with some level of motivation to improve their e-learning readiness as this is essential for bridging the digital divide.

3. ICT monitoring and evaluation departments should be established in these institutions to help ensure that the positive gains of utilizing digital tools are harnessed and the negative effects are quickly addressed for the goals of the institution and that of the continent at large to be adequately achieved.

4. It is important for the government to partner with administrators of higher educational institutions in Africa in the development of an ICT framework that will guide teaching and learning activities to ensure that the gains of technology are adequately harnessed by these institutions in the leaning process.

5. Government should partner with technological organizations around the world for the manufacturing of pocket friendly digital devices that can be used for enforcing e-learning in higher educational institutions in Africa as a way of bridging the digital divide.

Summary of Conclusions and Recommendations

The African universities suggested the following possible support areas that the AAU could focus on to mainstream e-learning and reduce the digital divide: (1) capacity building for universities and academic faculty in instructional design and quality content creation, (2) sharing of e-learning experiences and networking, (3) sharing of low technology e-learning platforms, (4) negotiations with video conferencing providers to reduce rates for African institutions, (5) support to address internet accessibility and (6) research collaborations on dealing with pandemics in higher education.

Some of the recommended policy actions and best practices suggested digitalization and mainstreaming of Learning Management Systems (LMSs); recalibration of research agenda through increased focus on STEM, public health, vaccine development and other subjects; increased use of Hybridized and HyFlex course delivery modes; infrastructural development (especially in technology); faculty/student capacity building in the use of ICTs and research; development of resource sharing initiatives to promote mutual interdependence; establishment of stringent outcomes' measuring mechanisms; establishment of constructive partnerships (regional, international & industry specific) and strategic focus on promoting digital inclusion and equity in African HEIs.

Factors contributing to a digital divide in mainstreaming e-learning in Higher Education were found to be the unavailability of computers or devices needed for e-learning by both students and lecturers; the limited ease of use and limits of robust e-learning software compatible to students' and lecturers' devices that address all e-learning needs; inaccessible, unstable and unaffordable internet connectivity in the form of Wi Fi or data bundles for both students and lecturers at the university and at home and the limited presence of reliable and dependable electrical power sources needed to use computers or any other e-learning device.

Recommendations from one study encouraged the use of technology in student affairs management. African HEIs were encouraged to tap into this area of technology application to enhance students' management. Software developers were advised to obtain stakeholders' buy-in and provide support services; exercise patience and integrity to overcome cynicism, suspicion, and desperation, and ensure robust, transparent, and resilient e-voting systems.

Based on the results from a study that explored graduate students' e-platform preferences, the following policy implications for university authorities were recommended as part of mainstreaming e-learning and addressing the digital divide: adoption of platforms such as WhatsApp for engaging students during COVID-19 because of their ease of use, convenience, and ease of accessibility on students' smartphones; implementation of strategies to mitigate poor internet connectivity outside the university campuses and the high cost of data bundles; Enhancement of internet connectivity for students within campuses and implementation of advanced e-learning platforms to support the full educational processes.

One of the research studies indicated that emotion icons could help to reengage students,

support, and rebuild relationships to facilitate the establishment of firm foundations for students them to be receptive to academic learning. Sharing emotions through emoticons facilitates collaboration and co-creation – and could facilitate the mainstreaming of e-learning. As hyperconnected individuals, students live in a digital bubble. The irony of hyperconnectivity is that it isolates individuals from their significant others. There is need for relearning the navigation of virtual spaces for purposes of helping students construct and acquire as much meaning as possible for positive learning outcomes.

There are opportunities for designing of inclusive learning tools and contributing to relearning toolkits, transition team skillsets, and transition pedagogies. Even in the age of machines and artificial intelligence there is a need to address student needs and socio-emotional support to address the digital divide and promote quality learning experiences.

A needs assessment is recommended to determine the dimensions of the digital divide within African HEIs so that interventions could be initiated to mainstream e-learning. ICT monitoring and evaluation programs should be supported to track the progress of e-learning implementation and ensure that lessons learned are effectively used. Partnerships must be encouraged between governments and African HEIs, and governments and technological organizations to support e-learning development and maturity.

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CHAPTER SIX

SUB-THEME 6:
Contributions of the Diaspora to African Higher Education

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Introduction and Background

The Association of African Universities (AAU), Africa's apex higher education organisation, is an avid advocate of institutional strengthening and uses its platforms to champion this course. One of its strategies is the advocacy for effective linkages of all academics of African descent with the continent's higher education institutions. In October 2007, the AAU dedicated its three-day biennial Conference of Rectors, Vice Chancellors and Presidents of African Universities (COREVIP) held in Tripoli, Libya to the theme *"The African Brain Drain: Managing the Drain, Working with the Diaspora"* to relaunch its current discourse on turning the African brain drain to brain gain. The creation of its North America Office (NAMO) in October 2019 was another thrust by the AAU to forge a closer relationship between Africa and its academic Diaspora. The NAMO has since organised two successful academic Diaspora Homecoming Summits, all held virtually in September 2020 and September 2021 to reinvigorate the urgency for African academics all over the world to be mobilized to build a robust and resilient African higher education system.

At the political level, the overtures from the African Union (AU) have increased the impetus for Africa to work more closely with its 6th region, the Diaspora. Aspiration 5 of the AU's Agenda 2063 envisions "an Africa with a strong cultural identity, common heritage, shared values and ethics" (African Union, 2014 pg 8). This call for an African cultural renaissance is to inculcate and promote Pan Africanism through all spheres of cooperation and integration among all persons of African descent. The successful organisation of the AU's African Diaspora Summit in 2012 and the aftermath creation of the Diaspora Division within the AU Commission is seen by academics as an opportunity to court the support of the Diaspora to enhance African universities (Oanda & Obonyo, 2021).

Serving as the higher education implementation agency for the AU in the actualization of its 2016-2025 Continental Education Strategy for Africa (CESA 2016-25), the AAU leverages this mandate and its niche in networking to engage in identifying current challenges and cementing sustainable relationships between universities in Africa and the continent's academic Diaspora. At its 15th quadrennial General Conference held virtually in July 2021, the Association used its august platform to continue the discourse. Under the conference's 7th subtheme, *Contributions of the Diaspora to African Higher Education*, ably chaired by Prof. Goolam Mohamedbhai, former Secretary-General of the AAU, seven (7) eminent diasporic African academics spoke dispassionately about the building blocks required of Africa's higher education to attract and engage its academic Diaspora. These speakers were:

1. Prof. Margaret King – President/CEO of Global Institute of Planning and Sustainable Development, USA

2. Prof. Nkem Khumbah – University of Michigan, USA

3. Dr. Norman Fortenberry – Executive Director, American Society for Engineer Education, USA

4. Prof. Paul Zeleza – Vice Chancellor, United States International University, Africa, Kenya

5. Prof. Damtew Teferra – Founding Director, International Network for Higher Education in Africa

6. Prof. Chux Daniels – Research Fellow in Science, Technology and Innovation Policy, University of Sussex, United Kingdom.

7. Dr. Arikana Chihombori Quao – former Permanent Representative of the African Union to the United States of America

The commonalities in their presentations were the Diaspora's preparedness to engage with Africa, and the need for Africa to develop receptive policies and structures to attract them. Some of the challenges of higher education in Africa were also identified, with the AAU and other supranational institutions called upon to serve as facilitators to integrate the Diaspora into the continent.

This report captures the key discussion points of the speakers and places these points under differentiated topics, supported by literature and commentary on each topic. It is structured under the following sub-headings:

1. The Current State of Africa's Higher Education Institutions

2. The Diaspora and how they have imparted Africa

3. Diasporic Interventions in African Higher Education

4. Notable Initiatives Promoting Diasporic Academic Engagements in Africa

5. Critical Success Factors for Effective Engagement with the Africa Academic Diaspora

The Current State of Africa's Higher Education Institutions

Recent global phenomena like climate change and outbreak of pandemics such as the Ebola and COVID-19 have revealed many weaknesses of Africa' academic and research institutions in managing emergencies. As aptly put by Dr. Chux Daniels at the AAU General Conference, COVID-19 is exposing many fault lines in Africa's higher education, including resilience, sustainability, business continuity, research and physical infrastructure (inclusive of digital infrastructure and hardware) and capabilities and skills.

Indeed, a more responsive African higher educational sector is required in the recently rolled out African Continental Free Trade Area (AfCFTA) whose successful implementation depends on the skillset, new knowledge, technologies and innovations churned out by the sector, in collaboration with industry and the private sector in general. But despite

the reasonable growing number of universities in Africa, the continent is still plagued by low research outputs and even lower output in research and development (R&D) and innovation, essential ingredients for economic growth and development. Regional trends in the allocation of resources to R&D, according to the latest fact sheet of UNESCO Institute for Statistics, puts Sub-Saharan Africa at an average 0.7%, which is the second lowest in the world. North America and Western Europe are at an average investment of 45%. Again, Sub-Saharan Africa is the second lowest in R&D intensity (i.e. R&D expenditure relative to the size of the regional economy) which, at an average 0.4% in 2017 is below the global average of 1.7%. While business enterprises have contributed immensely to funding of R&D in Europe and in many countries in the Americas, in Africa business sector funding had only been significant in South Africa, Morocco, Gabon, Eswatini, Tunisia, Botswana and Namibia (UNESCO, 2020). The continent's abysmal contribution in these makes it a net consumer and end user of research outcomes in all disciplines. Partially accounting for this poor performance are the quantitative and qualitative insufficiencies of faculty with research doctoral degrees in African universities who are depended upon to train future researchers and academics.

Also being blamed for Africa's low contribution to the global knowledge pool is the unceasing migration of the academics both internally to other sectors (such as politics and the private sector) within the same country, and externally to other countries and oversees for better conditions of service. Described as the 'brain drain', literature blames wage gaps, political repression and lack of opportunities at home countries, and, on the flip side, selective immigration policies through scholarships and other incentives in destination countries as impacting heavily on the Africa brain drain syndrome (Akinrinade & Ogen, 2011; Olutayo, 2017).

Caught in the quagmire of losing its human resources through brain drain, Africa cannot depend solely on the existing skills set to meaningfully implement its developmental agenda to achieve set goals. Interesting statistics from a 2016 African Capacity Building Foundation (ACBF) study on the capacity requirements for the implementation of the first 10 years of African Union's Agenda 2063 indicated that:

- Africa then had only around 55,000 engineers but needs an estimated 4.3 million engineers, hence the continent needs to produce over 300,000 engineers each year until 2023.

- The continent also had only around 21,000 geologists but needs an estimated 174,000 geologists, meaning it needs to produce 19,000 each year until 2023.

- The continent again had only about 82,000 agricultural scientists but needs an estimated 152,000, so it needs to produce over 8,000 each year until 2023.

It is therefore not an understatement that the skills of the African academic Diaspora must be leveraged to build capacity of Africa's local institutions in the long run and, in the

interim, fill the gaps critical to catapult the continent into socio-economic development and global competitiveness.

The Diaspora and how they have imparted Africa

Akinmusuru et al (2007) classify the Diaspora as:

- o   Those at mid-career in their home country at the time of emigration and have maximum attachment to the home country and its institutions.

- o   Those who go overseas for graduate studies, but career openings prevent their return. They have substantial attachment to their home country and some of its institutions.

- o   Those who go overseas for undergraduate studies, but career openings also prevent their return. They also have some attachment to their home country.

- o   The "1st generation" pre-teens who accompany emigrating parents and whose level of attachment to home country is limited to observed levels of commitment of their parents.

- o   The 2nd and later generation immigrants whose commitment to their home country is only for cultural reasons and nostalgia.

From the classification above, the African Diaspora are people of African descent spread across generations with roots or interest in Africa but dispersed worldwide. They thus include the offspring of migrants taken out of Africa and those who have voluntarily left their countries of birth and are domiciled in foreign countries as citizens. It is interesting to note a new dimension to the definition of Diaspora to include migrants who have left their home countries but are living in other countries within Africa.

Africans in the Diaspora remitted $48 billion to the continent in 2019, which for the first-time placed remittances from as the largest external financial source for Africa even though the flow is believed to be much higher (ACCORD, 2021). Even though these inflows fell in 2020 due to the COVID-19 pandemic, the inflows from remittance to Africa (still considerable low by international standards) has sent clear signals to African governments to concentrate on tapping funding from their Diaspora through improvement in resource mobilization and reduction in transactional costs.

Their concentration on financial remittances put African Governments at the receiving end of neglecting intellectual remittance from its Diaspora despite the fact that it is in tapping into the best of its academics that the continent can develop itself. The continent has a repository of some of some of the best brains in the world. In the quest for a vaccine against COVID-19, Dr. Kizzmekia Corbett, now assistant professor at Harvard University, played a lead role in the development of the Moderna vaccine and has been named among

Times magazine's heroes of the year (The Boston Globe, 2021; The Washington Post, 2021) while Dr. Joseph Nkolola of Harvard School of Public Health also played a key role in the development of the Johnson and Johnson vaccine (Daily Mail, 2021). The human resources from Africa' knowledge economy is readily available, as has always been, for Africa to competitively position itself on the global scene. What is needed is effective coordination to bring the best from the intellectual African Diaspora to develop the continent and its educational institutions.

Diasporic Interventions in African Higher Education

The Diaspora interventions in the development of higher education in Africa are not new though not without controversies. They had endeavoured to support the continent's development through volunteerism, establishment of professional networks, forging linkages and facilitating knowledge-sharing initiatives. The pacesetters were the descendants of the African forced migrants during the era of slavery who were based in the Americas and the Caribbean. They set out to promote African consciousness and educational thought to challenge the race supremacy of the Europeans.

The efforts of the pioneer academic Diasporas tapered into the ushering in of the era of nationalism and Pan-Africanism during the first half of the 20th century with calls for indigenous Africa universities that train indigenous Africans on local content and confer degrees with worldwide recognition that grant the African holders access to positions hitherto reserved for Europeans. This new breed of intelligentsia championed the establishment of secular African universities founded on African culture to counter Africa's loss of identity and humanity through the imposition of European religions, cultures and philosophies on their colonies. Pan Africanists likes H.E. Dr. Arikana Chihombori Quao who, in blaming religion as the cause of Africa's identity loss, called on participants of the 15th AAU General Conference not to perpetuate these conspiracies.

Also, among the contemporary Pan Africanists vehemently resenting the imposition of foreign philosophy and thoughts on Africa is the celebrated Molefi Kete Asante[6] who opposes the genealogy of modern philosophy, history and mathematics to the Greeks. He argues that it is a known fact that astrology, geometry and medicine started from Africa, and that the Kemet (the ancient name for Egypt) and Nubia (including part of Sudan) civilizations in Africa existed several centuries before Greek was established some 1000 BC. These civilizations advanced technological knowledge that built the pyramids 25 centuries BC when the Greek and Roman empires had not been established. Likeminded scholars have argued that Africa, as the cradle of civilization, gave birth to the university concept - a community of scholars with an international outlook.

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6   A celebrated historian, Africologist and professor at the Department of African American Studies at Temple University, USA.

The immediate post-independent era in Africa saw its Diaspora academics pursuing this new agenda of promoting African philosophy only to be truncated by the ideological warfare of the Cold War (1947 to 1989). The Cold War pitched America and its allies against the Eastern bloc countries (Soviet Union, China, etc.) and each side stealthily provided higher education opportunities for African students as a tool to spread their political and socio-economic philosophies. The diaspora academics in this era were thus caught up in the new western scramble to control African elites that defined the Cold War (Burton, 2020). African higher education institutions lost their autonomy and the Pan Africanist development model being promoted by the academic Diaspora was changed by a curriculum fashioned and aligned to the development ideologies of the Cold War allies (Burton, 2020).

It also needs to be stressed that from within, the continent had not always been receptive to the Diaspora. Literature alludes to some level of hesitancies from the political elites in Africa during the immediate post-independence nation-building period. Some of them were tolerated but received with considerable suspicion, and sometimes were marginalized (Oanda & Obonyo, 2021). In more modern times, even where dual citizenship has been legislated, the elite Diasporas' voice on political issues in some countries have been abhorred, and they still cannot contest for public service positions in these African countries.

In academia, there is resistance to the Diaspora to context and hold management positions for fear of influencing change in the culture of leadership in these institutions. Another resistance to engaging them has its foundation on a colonial legacy of discriminatory staff policies and generous remunerative packages advanced in favour of expatriate staff. In teaching and research functions, the academics in the Diaspora are seen as being used to perpetuate the internationalization ideologies of their sending universities to deepen the marginalization of knowledge generated from within Africa (Oanda & Obonyo, 2021; Mihyo, 2008).

On their part, the Diasporas have also raised concerns about their rejection by the political and academic leaderships. They claim Africa is not receptive to new ideas and reject any form of criticism from the diaspora whom they claim "do not know the situation" on the grounds (Societe Francaise de Realisation d'Etudes et de Conseil [SOFRECO, 2010 pg 78]). Where they have committed to engage with Africa, the Diaspora identify other constraints such as not having enough time to participate in research programs, or unfavourable political, security and economic environments in African countries as barriers. Amutuhaire (2020) identifies the scheduling of African academics in the Diaspora at the dictates of the administrators in African universities as a frustration to the efforts of the Diaspora to engage.

With internationalization of higher education becoming more pronounced as the world gravitates into a global village, the impacts of the COVID-19 pandemic establish a rationale for enhanced collaboration among higher education institutions. The dictates of the 21st century everchanging global phenomena make the internationalization of African

universities to engage with its wider academic constituents for transformative education a non-negotiable issue. Even supranational bodies like UNESCO are urging universities worldwide to incorporate internationalization within their missions and academic systems (Gacel-Avila, 2005 cited in Amutuhaire, 2020).

According to De Wit (2012 cited in Amutuhaire, 2020), Africa has the most internationalized higher education system in the world in terms of its number of academics with foreign degrees as well as the horde of knowledge and concepts imported from abroad. Oanda (2016) also postulates that African academics who study abroad constitute the highest percentage of diaspora academics. In his presentation at the AAU General Conference, Prof. Teferra asserts that in the US alone, one (1) in two (2) of the African Diaspora has a university degree, and for the data on the Ethiopian Diaspora, it has similar, if not higher, higher education attainment as the US population.

In a survey on a different tangent in the European Union, SOFRECO (2010) analyzed academic faculties on French universities' websites and asserts that the findings seem to suggest that the number of Diasporic academics have been hyped due to the absence of reliable data. Analyzing the faculty of Toulouse University on the university's website, SOFRECO reported that of the about 4,000 research fellows, only about 30 teaching staff were from Africa. At Université de Pau et des Pays de l'Adour, only 3 of the 759 research fellows were from sub-Saharan Africa, and at the national level of 92,000 research fellows working in France then, only 3,400 (3.7%) were from abroad, inclusive of all nationalities. The report extrapolated that the African diaspora could not make up more than 1 % (or in terms of figures, 900 research fellows) of the faculty in France.

But no matter the intent of internationalization, as it has now been established as a perpetuity in higher education, the concept should be supported for maximum benefits to African universities. The COVID-19 pandemic provides the opportunity for Africa to pursue aggressive research collaboration and infrastructure development with the academics in the Diaspora and their professional networks as well as historically black colleges and universities (HCBUs) through an umbrella body like the AAU.

Prof. Nkem Khumbah affirmed at the AAU General Conference that irrespective of one's conceptualization, the Diaspora gave Africa its Pan-Africanism identity, which caused the continent to develop the necessary structures to overcome colonialism. They gave the negritude, language and concept for Africans to reclaim their humanity, and are willing to more towards the continent's development.

There have been recent initiatives on intra-Africa internationalization (or regionalization) in African universities through students' exchange programmes. The ECOWAS Nnamdi Azikiwe Academic Mobility Scheme (ENAAMS), the Mwalimu Nyerere African Union Scholarship and the Partnerships for Skills in Applied Science, Engineering and Technology (PASET), as well as the establishment of the African Union's Pan African University

to support the training of high-quality academics and nurture research capacity on the continent. Adamu (2012) and Sehoole & de Wit (2015) believe that regionalization in higher education will yield greater regional cooperation, partnership and integration in Africa.

Notable Initiatives Promoting Diasporic Academic Engagements in Africa

Prof. Nkem Khumba noted at 15th AAU General Conference that there are hundreds of diasporic networks that can support Africa but all they need are African partners to work with. He further stated that advisers to Presidents in the US are top brass scientists, and Africa can tap into such potentials too in its academic Diaspora. He called on the AAU to develop a database of academic networks and connect them to its member universities.

Prof. Paul Zeleza spoke about the opportunities offered by the Carnegie African Diaspora Fellowship Program (CADFP) initiated in 2011 for only African-born academics in the United States and Canada to build capacities in curriculum co-development, collaborative research, and graduate students graining and mentoring in local Africa universities. The CADFP, funded by the Carnegie Corporation of New York, has extended from an initial six African countries (Ghana, Nigeria, Kenya, Uganda, Tanzania, South Africa) to nine with the inclusion of Ethiopia, Rwanda and Senegal in 2019. On the success of the programme, Prof. Zeleza noted that 528 fellowships were provided from over 1,250 requests from about 234 accredited universities through which over 700 new programmes were developed. Based on its success a new programme, the 10-10 project, was birthed at the maiden African higher education summit on revitalizing higher education for Africa's future in Dakar, Senegal in 2015. The 10-10 project seeks to sponsor 1000 academic from both the historic and new Diaspora anywhere across the world to support capacity building in any of the eight (8) priority areas identified at the Dakar Conference.

Other diasporic African initiatives identified at the Conference include the "Heritage Africa Incorporated" initiative, which began as social network of African professionals in USA leveraging their expertise in higher education, health, engineering, information technology, agriculture, environment and other disciplines to support higher education in Africa.

At the inter-governmental and international levels are initiatives both promoting diasporic interventions and the building of local capacities within Africa. The German Academic Exchange Service (DAAD continues to finance its Sur-Place-Scholarships scheme instituted in 1962 to support the study of Africans at African higher institutions. The Africa-EU Strategic Partnership promotes human capital development and strengthens the links between education, training, science and innovation. The Council for the Development of Social Science Research in Africa (CODESRIA) also builds the capacities of academics on the continent to write scholarly articles and manuscripts. It also brings African Diaspora academics to the continent through a number of schemes to assist in capacity building in various disciplines.

Also duly recognized for promoting Diaspora relations in Africa are UNDP's Transfer of Knowledge through Expatriate Nationals (TOKTEN) launched in 1997; UNESCO-HP Brain Gain initiative (BGI) initiated in 2006; the World Bank's African Diaspora Programme launched in 2007; the International Migration Office's Migration for Development in Africa (MIDA); The African Union Diaspora initiative; and the former Royal Society – Department for International Development (DFID) Africa Capacity Building Initiative.

Critical Success Factors for Effective Engagement with the Africa Academic Diaspora

The ultimate goal of strengthening the African higher education institutions is to enhance its global competitiveness through its human capital and infrastructural development. The skilled Diaspora are enablers and need their counterparts and African governments to lift the impediments for successful engagements. Discussants at the AAU General Conference posited that Africa institutions of higher learning have the potential to engage and must, of necessity, do that. Stressed as important for meaningful engagement was the need to strengthen higher education management of both receiving and sending institutions so they can work seamlessly together. They urged African institutions to do a thorough introspection of their current systems to ensure the sector become very attractive to the academics from outside the continent. According to Prof. Khumba, there are hundreds of wealthy Diasporas who are ready to support Africa, but they are not engaged. Prof. Damtew, pointing to the engagement of the Diaspora in Africa, asserts that in Ethiopia, the Council of Ethiopian Ministry of Science and Higher Education has numerous working groups with chairs from the Diaspora.

Critical for effective engagement in the educational sector is the development of transformational leaders whose mission should include creating entrepreneurial universities out of their institutions. The current structure of the university governance system therefore needs overhaul. Likewise, Africa governments are also called upon to pick success stories from outside the continent to build human capacity in Africa. Again, the People's Republic of China is cited as depending on its cultural policies to draw affinity from its Diaspora to return to the country and invest in key sectors. India's technological and technical policies and infrastructure is attracting droves their Diaspora back.

Discussants identified strategic plan developed participatorily with both internal and external stakeholder inputs as a sign of good corporate governance in universities that attracts academics. Financial sustenance and accountability are also identified as key success factors. Institutions should therefore desist from operating on shoestring budgets. Proper nurturing of students to develop them into responsive alumni networks are also identified as pre-requisites as disgruntled students make non-supportive alumni. Also recommended as critical was a strong and quality Board which understands its role as a trustee and assisting in fund-raising for the institution.

Supporting literature has categorised roles for different stakeholders in order to successfully court the academic Diaspora to engage with Africa universities (source). These are listed as follows:

Role of African Governments

1. The African Union, the African Development Bank and, by extension, all continental African organizations, should include high-tech Diaspora researchers into their conversations.

2. African Governments should reconceptualise their definition of 'a citizen' to include every African overseas in tandem with AU's conceptualization of the African Diaspora as one community of 'all people of African origin' living outside the continent irrespective of citizenship, nationality, and historical constitution.

3. Africa Governments must provide a conducive environment for diasporic collaborations by heavily investing technology infrastructure that facilitates distance learning and online higher education.

4. African Governments should also develop policies such as visa fee waivers that relax travels to home countries, and removal of barriers on the importation of research materials and supplies to promote collaboration between scholars and their networks. In addition to establishing Diaspora offices to foster closer relationships with the Diaspora, they should work collaboratively with diplomatic missions and higher education institutions in their country to pass such information to the Diaspora.

5. In the area of trade and commerce, African Governments should learn from the success of the Islamic bonds issued on the international capital markets to explore issuing Diaspora bonds to tap into the huge financial assets of its Diaspora.

6. Furthermore, Africa should leverage the advantages of Diaspora networks for information on international trade investments and business opportunities between the continent and the host countries of the Diaspora.

7. Politicians are urged not to interfere with the autonomy of the Africa university and 'return the universe in the university'. The academic Diaspora would be attracted to universities and research institutes in Africa that enjoy autonomy and are also not prone to closures due to political activism on campus.

Role of the AAU

8. The AAU is called upon to accept Diaspora universities in the Americas, Caribbean, Europe and elsewhere as members of the Association since in many of

these about half of their students' population are of black descent, and they also most likely face similar challenges such as high staff turnover like their African counterparts though the scale may not be the same.

9.   The AAU is tasked to serve as the big umbrella that brings all the various Diaspora networks together and, in addition, build a comprehensive and complex database of the academic Diaspora in their various disciplines. The Association should ensure that it protects these databases it creates.

Role of Universities

10.   The African culture on in-house recruitment based on 'whom you know' or 'they know the problems on the grounds' hinders the progress of its universities because the best talents are not necessarily those recruited. African universities are therefore urged to open their recruitment to all, just like what pertains in the United States of America. Senior African Diaspora academics should be encouraged to serve as vice-chancellors, and other leadership and management positions in African universities or as members of the governing councils.

11.   Since state funding of higher education continues to dwindle, universities are advised to establish special units that champion fundraising from donor agencies and other sectors. Possibly, each university should establish an endowment fund and also veer more into entrepreneurial activities for their sustenance.

12.   African universities are further advised to create appropriate incentives to draw individual and group networks to connect to academic institutions on the continent.

13.   African universities must work under their umbrella body, the AAU to develop a comprehensive database of academics, researchers, and university professionals in the diaspora. Current data on existing academics in the Diaspora appears inaccurate or are not in easily accessible due to data protection regulations.

14.   As the main customers of higher education institutions, students' engagement is essential in strengthening academic management systems. The strengthening should include developing responsive curricula that inculcate realities the students will encounter in real life situations. Pandemics and diseases, cyber thefts, and poverty reflect Africa's immediate needs which should be factored in. The academic Diaspora then comes in to revamp the curricula for global learning outcomes.

15.   African universities approach to education and training should be holistic in developing the learner. They should therefore tap into non-academic inventions

for synergetic relationships by identifying inventors and technologists in the community and providing them with the space and conducive environment to improve upon their inventions. In light of this, universities need to establish a Business and Technology Centre for effective coordination with the out-of-school inventors. The Diaspora would come in to support inventions and innovations identified by African universities.

16. Since digital technologies are central to collaboration, African universities must build the capacity in their local staff to take advantages of the opportunities created by ICTs to engage with their academic Diaspora. Many learners are subscribing to Open and Distance Learning due to its flexibility, affordability, and other attractions, and this should be fully explored to promote Diaspora relations in Africa.

17. African universities also engage the academic Diaspora to develop joint courses for vacation and summer schools, collaboration in manuscript and textbook publications including local re-publication of Diaspora authors' books as well as undertake collaborative seminars and draw research agenda which are experiential, innovative, and problem solving. They are also urged to establish visiting professorships for their counterparts in the Diaspora.

Role of the Academic Diaspora

18. Information is key for effective engagement but some of the Africa academics in the Diaspora make themselves as discreet as possible while others claim they are unaware of the existence of any professional or alumni association of alumni back home. The academic Diaspora are therefore advised to join professional and academic networks in their countries of stay. Prof. Molefi Asante urges all academic institutions overseas with African heads to establish Departments of Diasporan Studies to facilitate information exchange.

19. With numerous African professionals circulating within the continent, the Diaspora from within (those working out of their countries of birth but within Africa) should be mobilized by the African Union, the AAU and national Governments and connected with those outside the continent to beef up their collective support for the continent.

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