

THE ROLE OF UNIVERSITIES IN RESPONDING TO AFRICA'S PROBLEMS AND DEVELOPMENT NEEDS

A Keynote Speech by

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On the Occasion of Celebrating Makerere at 100 Years

High Level Symposium on theme:

THE ROLE OF UNIVERSITIES IN RESPONDING TO AFRICA'S PROBLEMS AND DEVELOPMENT NEEDS

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Protocol

His Excellency, The President of the Federal Republic of Uganda, represented by the Vice President Her Excellency Jessica Alupo

The First Lady & Minister of Education & Sports, represented by the Minister of State for Higher Education Hon. J.C Musingo.

The Honorable Minister for Science, Technology, and Innovations (STI), Dr. Monica Mesereno Masanza.

The Chairperson of Council Makerere University, Mrs. Lorna Magara.

The Chairpersons of Council from other universities.

The Vice Chancellor of Makerere University, Prof. Barnanas Nawangwe.

Visiting Vice Chancellors from sister universities.

Members of Council

Members of Management

Invited Guests

Members of the Press

Ladies & Gentlemen!

I want to recognize my wife, Mrs. Peggy Anigbogu, and all the leaders of Institute for National Transformation Uganda who are here present. I have been asked to speak for about 40 minutes on the topic of this Symposium: **The Role of Universities In Responding To Africa's Problems And Development Needs.**

Introduction

Tertiary education is changing globally in a fundamental way, moving from the medieval era or the First-Generation University (1GU) model, to the Humboldt or the Second-Generation era (2GU) model, and now into the modern Stanford University, MIT, and University of Cambridge era, now called the Third Generation University or 3GU model. University education has been forced through these changes, both in structure and functionality, to remain relevant and competitive. African education systems must undertake pragmatic and issues-relevant reformation, to prepare a new breed of Africans to address the emerging threats and opportunities that await them now and in the future. I will briefly examine the forces that were propelling these changes in approach to tertiary education in the past and then fast-forward to what we must do today to respond to the needs of Africa today and in the future.

Education in the Medieval Era or First-Generation University (1GU) Model.

When Christianity was adopted by European nations in the Middle Ages, schools were started in which all lectures were given in Latin, hence they were called Latin Schools. These schools were often located near an important church or a monastery, and the focus was on the preservation of the sacred body of letters and sciences - antiquities from the era of barbarism. These schools eventually became the forerunners of the first universities as individual lecturers were given licenses by the city magistrates and the Church authorities to give public lectures.

Pierre Abelard (1079 – 1142) was one such public lecturers who is seen today as the ancestor of the University of Paris, established in 1200- fifty-eight years after

his death.¹ His method of instruction for sciences, theology, and the liberal arts were through oratory, argumentation, rationalism, promotion of the sovereignty of dialectics. These approaches remained the model which the future university was to follow. Abelard became the soul of scholastic philosophy that lasted five centuries up to and beyond the Renaissance period.²

The oldest university in the world is the University of Al-Karueein, founded between 857- 859 AD in Fez, Morocco. However, the oldest university modeling the Abelard method was established in Bologna, Italy, in 1088. The University of Bologna was followed by University of Paris, then Oxford, Cambridge, Arrezzo (Italy), Palencia (Spain), Padua (Italy), and Napoli (Italy). At the end of the 13th C, there were about 20 universities, and by the 15th C, another 25 were established including the first German university, University of Prague.

The key characteristics of First-Generation Universities include focus on learning for the sake of acquiring new knowledge in a discipline. The teacher is seen as an expert who uses basic research to gain understanding of aspects of life. The 1GU had great influence in all matters of life during their era. They intervened in politics, and were confidants as well as critics of royalty, pressing them to perfection, and educating future princes of Church and state alike. However, because they existed in an epoch when the only question was how to preserve the deposit of traditional beliefs and bring discipline into the Church and political affairs in times of great turbulence, the 1GUs were not armed for the conquest of science. ***They commented and discussed but had little to no application of knowledge.*** It is

¹ Compayre, Gabriel, Abelard and the Origin and Early History of Universities, reprinted from the 1902 edition by the University Press of the Pacific, Honolulu, 2002.

² Chartularium Universitatis Parisiensis, Dalalain, Paris, 1889 (quoted from Compayre, op. cit.)

amazing that this approach to pedagogy is still very popular in Africa where many lectures, thesis, and dissertations are hardly converted into tangible policies, products, and services.

The Second-Generation University (2GU) Model

The 15th Century ushered in a new and disruptive era with the fall of Constantinople in 1453. Renaissance and Humanism, which emphasized human dignity, freedom, the value of the individual, were becoming popular. In the 16th C, great revisions on the foundations of theology emerged. Led by Martin Luther and John Calvin and others. In the 17th and 18th C, university conversations were greatly influenced by the emergence of eminent mathematicians such as Copernicus, Ramus, Galileo, Descartes, and Huygens. Emphasis shifted to exact observations about nature. With the publications of Boyle, Newton, and others, the experimental method formed the basis for scientific work that complemented reasoning. These led to the establishment of applied sciences, such as engineering, forestry, and veterinary sciences and the establishment of Special Schools outside the university to house them. **With this the influence of the Church over universities started to decline.** Polytechnics and military sciences emerged. Even religious dissidents created their own universities, such as the University of Leiden in Germany. **After a lengthy struggle, the exact sciences were finally recognized as disciplines taught in universities. Specialized chairs and institutes remained outside the university before true faculties of science were founded by the end of the 19th century.** Unlike the Middle Age 1GUs, the 2GUs were using objective, systematic, and reproducible experimentation methods, and transparent argumentation to reach conclusions. The University of Berlin founded by Wilhelm von Humboldt, which was later named after him, represent one of the first shift towards the Enlightenment university. Humboldt

persuaded the King of Prussia to establish a university based on liberal ideas of the philosopher, Schleiermacher, who said:

*"..the function of the university was **not to pass on recognized and directly usable knowledge such as schools and colleges did**, but rather to demonstrate how this knowledge is discovered, in order to stimulate the idea of science in the minds of the students, to encourage them to take account of the fundamental laws of science in all their thinking."*³

With this new approach to pedagogy, the 1GU model that appeared after the French Revolution, the model of specialized colleges where students learned under an almost military discipline environment, started to decline and the Humboldt University model became increasingly popular. **By 1950, the number of such universities numbered over 200 with over 600,000 students and 32000 professors.**⁴

The Humboldt university (2GU) model focused on research carried out according to the modern methods of rationality, experimentation, argumentation, and transparency, allowing for verification, expansion, and authentication of results by external reviewers and published in specialized journals or books that could be obtained by anyone. **Education became integrated with research allowing students and assistants to share increasing responsibilities. Specialization became the characteristic feature of the 2GU model.** Universities became organized into monodisciplinary faculties. For example, Natural Philosophy was

³ J.G., Wissema, Third Generation University, 2009

⁴ Wissema (2009)

broken down to Mathematics, Physics, Chemistry, Biology, Economics, and Social Sciences while faculties in Theology, Medicine, and Law remained.

The **nationalization** trend in the 19th C made Humboldt universities national universities. Teachings were conducted in national languages. As a result, universities became the pride of their nations, especially with the introduction of the Nobel Prizes in 1901, which made clear where the leading institutions of thought were located. These universities faced little competition from each other for students as they drew them from their direct neighborhoods. German universities became popular and the destination for higher education for nationals from other nations. German became the language of science and of international journals. Funding was principally through national budgets and at the goodwill of the autocratic kings of the 19th C and later, on the political parties. The Enlightenment Era taught that education should have the highest priority as a tool for national and individual development and well-being. Bent on encouraging the lower income groups to participate in education, government kept tuition low resulting in ever increasing student population and decreasing percentage contribution of tuition to the national budget. These two trends would eventually lead to crises of sustainability and sharp decrease in the quality of education.

To address diminishing education budget and increasing running cost due to increasing student population, universities started looking for ways to generate revenue. These included entering into contracts with industries for research especially in science and technology. Prior to this, there has been a sharp divide between universities and industries. The great inventors of that era such as James Watt, Thomas Edison, Graham Bell, Henry Ford, and George Eastman, operated

outside the shores of universities, although universities benefited to some extent from their work.

Although the 2GU model has brought unprecedented benefits to society for over two centuries, it is failing to provide the intellectual and creative environment that is required to improve the poor economic conditions in their host nations. Few of them are not international centers of research excellence, because the basis for evaluation and promotion only emphasize teaching, basic research, and community service. They have created little incentive or rewards for increase in commercialization or exploitation of know-how. As a result, the 2GU are giving way to a new university model, the 3GU.

The Third Generation Universities 3GU

The Cambridge Phenomenon – Education for Social Change

Cambridgeshire was one of the poorest counties in the United Kingdom. Today, it is the second richest, adding nearly £30 billion a year to UK economy.⁵ Thanks to the strong interactive relationship with University of Cambridge which was of itself subjected to a modernization journey that lasted for 30 years, aimed at maintaining its image as a global top-ranking university. The transformation of both the university and the community together is today called the **Cambridge Phenomenon**. Similar developments had occurred much earlier at MIT and Stanford University in the USA, leading to phenomenon transformation of their environments. In all cases, there were three interacting developments that led to the transformation: 1) development of a community of high-tech enterprises; 2) modernization of the university to structure to finance would-be leading-edge science-technology-innovation research (STIs); and, 3) developing technostarters

⁵ <https://www.cambridgeindependent.co.uk/>

facilities to be supported by universities, government, business angels and venture capital funds.

In case of University of Cambridge, there were emergence of clusters of high-tech industry (about 370 in 1987) stemming from spinout research activities of the university. Entrepreneurs became drawn to the scientific and increasingly dynamic environment creating an innovative and entrepreneurial ecosystem. By 2009, over 3000 high-tech industrial cluster had been created in the Cambridge Technopole providing direct employment for over 60,000 and indirect employment for another 120,000. Although only 10% of the industries were directly initiated by the university, the others were there because of the university. Although Cambridge was and still is a typical research university with the highest number of Noble Laurates, (83 as of 2008), its modernization, journey which started in 1990, began with intentional collaboration with industries on a large scale. Embedded research, in which a team of researchers from industries co-locate with researchers at the university, grew. It started bidding for government grants and went on to compete favorably for special government education funds aimed at turning scientific discoveries into commercial products and processes in order to maintain a strong knowledge-driven economy. Cambridge created Entrepreneurial Centre to offer training in innovation and entrepreneurship. Later they created Cambridge Science Park for the incubation of spinout industries. It provided seed funding and teaching through the Technology transfer office. Later a Private Technology Park was created. Venture Capital and Business Angel Funds became available. The MIT, Stanford and University of Cambridge models shifted university objective from primarily education and research of the 2GU model to education, research, and know-how exploitation; and the role of university from discovering nature to creating value. The 3GU model puts emphasis on education for social change.

KIIRA MOTORS UGANDA

I will pause here to recognize Makerere University on the emergence of Kiira Motors Corporation out of your research laboratory lead by Engr. Paul Musasizi, who today is the CEO of Kiira Motors. I had the privilege of visiting Engr. Paul and his team here at Makerere in 2019 and they took me to a place near Jinga where the new site of Kiira Motors Corporation is being constructed. So, it is not that Makerere University is not already moving in this direction, but rather, **when will the phenomena of Kirra Motors become the rule and not the exception? When will it be a regular occurrence?**

I must also pause briefly to appreciate His Excellency, the President of Republic of Uganda and his administration for supporting efforts like Kiira Motors. I have had the great privilege of meeting several times with him, and I have come to admire his passion for the role of creativity and innovation in Africa development. In February 2007, I had the privilege of meeting with him at Kyankwanzi in the company of Mrs. Allen Kagina and Dr. James Magara, to share with him the curriculum we had developed for raising transformational leadership across Africa under the umbrella of Institute of National Transformation. He was happy with it but suggested that we add another lecture topic: ***The Role of Innovation in National Development***. Makerere University, if you can be deliberate in developing through research, knowledge and ideas that can be commercialized in large quantities, I have no doubt that you have a leader who is ready to support your efforts. I am also aware of the newly created STI Secretariat and the efforts of the Hon Minister for STI, Dr. Monica Musenero Masanza, an alumnus of Makerere University, and her team are making in this regard. Therefore, if Makerere University can be deliberate in restructuring towards education for sustainable development (ESD), you have a great future ahead of you.

EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

The 2002 UN World Summit in Johannesburg emphasized quality education as an essential tool for achieving a more sustainable world.⁶ It outlined reorientation of current education systems as key to sustainable development. According to outline, Education for Sustainable Development should:

1. Be embedded in an interdisciplinary and holistic the curriculum which allows for a holistic-institution approach to policy making.
2. Share the values and principles that underpin sustainable development.
3. Promote critical thinking, problem solving and action, all of which develop confidence in addressing the challenges to sustainable development.
4. Employ a variety of educational methods, such as literature, art, drama, and debate to illustrate the processes.
5. Allow learners to participate in decision-making on the design and content of educational programmes.
6. Address local as well as global issues and avoid jargon-ridden language and terms.

While ESD focuses on environmental concerns, it also addresses themes such as poverty alleviation, citizenship, peace, ethics, responsibility in local and global contexts, democracy and governance, justice, human rights, gender equality, corporate responsibility, natural resource management and biological diversity. These are among the complexity of issues facing Africa in the 21st Century. The holistic nature of EDS outline is informed by the characteristics required for its successful implementation. It promotes the development of the knowledge, skills, understanding, values and actions required to create a sustainable world, which

⁶ United Nations (2002) *Report of the World Summit on Sustainable Development*, Johannesburg, available: <http://daccessdds.un.org/doc/UNDOC/GEN/N02/636/93/PDF/N0263693.pdf?OpenElement>.

ensures environmental protection and conservation, social equity and economic sustainability. It seeks to develop the knowledge, skills, values, attitudes and behaviours in people to care for their environment and to enable future leaders to make decisions and carry out actions to improve quality of life without compromising the planet. It also aims to integrate the values inherent in sustainable development into all aspects and levels of learning.

In Conclusion

Universities have become the cradles of new economic activities. Thanks to the emergence of 3GU model that have given universities more freedom and opportunities to respond to national and global challenges. Such 3GU models have incubated companies that not only farm out research contacts to the universities but also offer challenging jobs for graduate students, hence, creating new different life to the already dynamic universities in the USA, UK, and even Asian nations. The Cambridge, the MIT and the Stanford University's "Silicon Valley Phenomena" evolved and emerged as they responded to several forces that demanded and propelled them to change. In each era, University education underwent changes in structure and functionality that would make it relevant and competitive.

Again, Africa faces complexities of issues in terms of internal and external threats as well as internal and external opportunities. Entrepreneurship is the spirit of today's global cultural climate. African universities must help Africa innovate her way out of her challenges and help her maximize her opportunities. This will happen with the help of governments that are willing to invest more on how to improve the innovation ecosystem in their nations. They will implement policies that will create holistic 3GU institutions and agencies where great ideas are

incubated and nurtured to full bloom products, goods, and services towards national economic development.

Thank you for listening!

May the Lord bless you, may God bless the Republic of Uganda, and may God bless Africa!

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