



## Innovation and Entrepreneurship Education: A New Curriculum Paradigm in the Gambia

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### Abstract:

This paper discusses on the new curriculum approach being pursued in The Gambia, which is introducing innovation and entrepreneurship courses in all educational programmes at tertiary and higher education levels. The Government of The Gambia through the Ministry of Higher Education, Research, Science and Technology (MoHERST) has in 2021 taken up a policy decision to introduce through and embedded approach innovation and entrepreneurship modules in all educational courses at tertiary and higher education levels (MoHERST, 2022). The paper relying on

existing literature and policy documents discusses on the education structure of the Gambia and the qualifications frameworks in place to guide the deployment of this new curriculum approach, identifying the collaboration pathways with industry actors and in alignment with international best practices (NAQAA, 2022). The paper further elaborates on the role of each of the actors of the innovation ecosystem and how they coordinate in promoting the development and implementation of the new curriculum in The Gambia. It has detailed how the academic institutions, industry actors, regulators, students, as well as communities interrelate in nurturing and pursuing innovation and entrepreneurship skills towards strengthening the innovation ecosystem in The Gambia. This paper further discusses on the potential benefits of the new curriculum approach and the impact it will create in supporting and ensuring a sustained socio-economic development is achieved in The Gambia. Finally, the paper concluded by proposing policy recommendations for adoption in enriching and upgrading the new curriculum approach in a bid to improving its impact in the overall national development drive in the Gambia.

**Keywords:** *new curriculum approach, education structure, Gambia, innovation ecosystem, entrepreneurship, higher education transformation.*

### Introduction

Over the past years, The Gambia has registered significant levels of economic performance characterized by strong GDP growth rates of nearly 6 percent per annum (MoFEA, 2022). In complimenting this trend government has been

devoting appreciable amounts of time planning for development through capital investments and macroeconomic stability with a lot of focus on science and technology planning and innovation.

During the 2019, Innovation Survey of The Gambia, it was established that the Gross



Expenditure on Research and Development (GERD) as a percentage of the GDP as of 2018 stands at 0.07% (Darboe, 2020), which is significantly below the target set by AU member states. More than a decade ago, since the 1% of the GDP investment target in research and innovation has been proposed.

Cognizant of the above trend, and in line with Governments deliberate attempt to transform and upgrade tertiary and higher education to serve as catalyst of development, there is a new policy drive to embed innovation and entrepreneurship in all curricula at post-secondary education institutions in The Gambia to help reverse the situation (MoFEA, 2018).

Key amongst these is the upgrading of the Gambia Technical Training Institute (GTTI) into the University of Applied Science Engineering and Technology (USET), as well as establishing regional Technical Vocational, Education and Training (TVET) institutions in every administrative region of the country.

In addition to the establishment of these institutions, the government of the Gambia through the National Accreditation and Quality Assurance Authority (NAQAA) have taken up a policy decision in 2021 to introduce innovation and entrepreneurship education in all educational programmes at tertiary and higher education levels.

As part of the policy decision, institutions have been tasked to re-align their curriculum as well as ensure the relevant support structures and synergies are in place towards this new paradigm. This includes the engagement of all relevant stakeholders of the innovation and entrepreneurship ecosystem to ensure the curriculum is responsive and relevant to the labour market.

Globally, there is a growing importance of knowledge and innovation to economic growth and technological competitiveness in all fields and it is a strong concern for scientist, managers and for countries in its entirety (Stam, 2015). The universities, business sector and the public sector all play an important role in the

development of innovation (Stenberg & Westerlund, 2008).

The key to innovation development involves a close collaboration with science, financing, and technology and this has led to the development of the triple helix model. In recent times innovation has been an ingredient to manage the global competitiveness and companies must deal with the creation of new products and services (Makasi & Govender, 2015).

Also, innovation is an essential driver of value creation, economic growth, and social welfare and it is driven by an interest in finding new sources of economic growth, rising productivity, international competitiveness, and addressing social and environmental challenges (Zhu, L. & Wang, 2023). This has made it very relevant in any academic programme, as it ensures graduates creativity, relevance and vibrance in delivering personal and institutional goals.

Entrepreneurship trends have been greatly linked to educational programmes, and success factors have been registered in institutions like Stanford and MIT (Zhu, F. & Hawk, 2016). The academic values of these programmes have been designed through asymmetric pathways that ensure funding by government and the demand for funding from universities is equivocal, thus creating an impact.

## Regional and Global Trends in Innovation and Entrepreneurship Education

In promoting research and development in line with the African Union (AU) Agenda 2063, it has been established that with the exception of South Africa, no other African country has achieved this goal to date, and that most Sub-Saharan countries devote between 0.2% and 0.3% of their GNP to scientific R&D, which is ten times less proportionally than the OECD countries (Gaillard & Mouton, 2022). This could be greatly link to the weak absorption capacities for innovation and entrepreneurship development in academic and research and development institutions.

At the Global level, institutions such as the World Intellectual Property Organization (WIPO) and, World Trade Organization (WTO) puts greater emphasis on promoting innovation and entrepreneurship for an increased industrial development, hence, their call for adoption of these courses in education and training programmes. For example, (Koibichuk et al., 2023) argued that the development of science, education and business is important for ensuring the sustainable development of society. These global trends have created pushes for governments of least developing countries to exploit the potentials of innovation and entrepreneurship towards ensuring rapid technological developments.

The Africa Regional Intellectual Property organization (ARIPO) promotes innovation as a means for economic development and provides technical support to members states in utilizing intellectual property rights (IPRs) for innovation and entrepreneurship projects.

According to the World Bank, countries like Rwanda, Ghana, and South Africa has ensured that the development of innovation and entrepreneurship is linked along the lines of curriculum through pedagogies and instructional competencies. For instance, according to (Ojeaga, 2014) utilizing innovative skills which improve knowledge sharing was likely to make Africa take advantage of its young population to drive economic growth. The vector auto regression results also provided an understanding of the nature of innovation and capital flow shocks transmitted to growth in Africa.

The lessons of entrepreneurship clinics in Ghana and Demola framework approaches will be relied on to provide guidance on the theoretical and practical delivery of the programme (Sowe & Mwila, 2023). The Demola framework uses five dimensions to stimulate and support entrepreneurship training. These includes playing games, using reflections to impact entrepreneurial learning, empathy through developing skills to feel and understand experience, creation of creative skills, and experimentation through communication,

problem solving and collaboration (Oosthuizen Jacobus, 2017).

## **Innovation and Entrepreneurship Ecosystem of the Gambia**

The Gambian government aims to build a mass of viable and competitive productive capacity in science, technology, and innovation to achieve the structural transformation of its economy as enshrined in the MoHERST Strategic Plan, 2021 - 2025. The government is poised to enhancing the national environment for the growth of entrepreneurship, investment opportunities, business, and the well-being of civil society (MoHERST, 2022).

The Gambian innovation ecosystem is being positioned to take up the challenges of addressing the pressing economic and social transitions, which has been greatly lined to lack of incentives to support innovation for development.

Understanding the need to strengthen the ecosystems, the Gambian government aims to build a mass of viable and competitive productive capacity for an innovative and entrepreneurial citizenry.

These capacity ranges from core engineering and digital competencies that will serve as catalyst for socio-economic development. Government has formulated strategies that will enabling innovation, and to this many innovation and entrepreneurship projects have been seen in critical sectors of the economy including ICT, engineering, tourism, agriculture, and renewable energy.

To support the overall innovation and entrepreneurship ecosystem, the Government is also poised to establish a national research and innovation fund, which could be readily accessible to researchers, innovators as well as entrepreneurs in promoting and enhancing their activities.

## **Education Structure in the Gambia**

The Gambia has four levels of education; Basic Education (nine years of interrupted learning –

made up of lower and upper basic education); Senior Secondary education; Tertiary Education; and Higher Education. The Gambia's tertiary education is understood as the initial level of post-secondary education, but not degree awarding, and covers the 'TVET' system, and admits students with entry requirements from either grade nine or twelve, while the higher education deals with all forms of degree awarding institutions (MoBSE, 2020).

In all the programmes in the education sector, there has been no institution offering courses on

innovation and entrepreneurship prior to the policy decision to have it embedded in all levels of post-secondary education. Correspondently, to meet the vertical permeability and transition demands, soft innovation and entrepreneurship courses are required at basic and secondary level, to help develop the interest and mindsets of students at an early stage.

This is shown in the structure below as per the Education Sector Policy, 2016-2030.

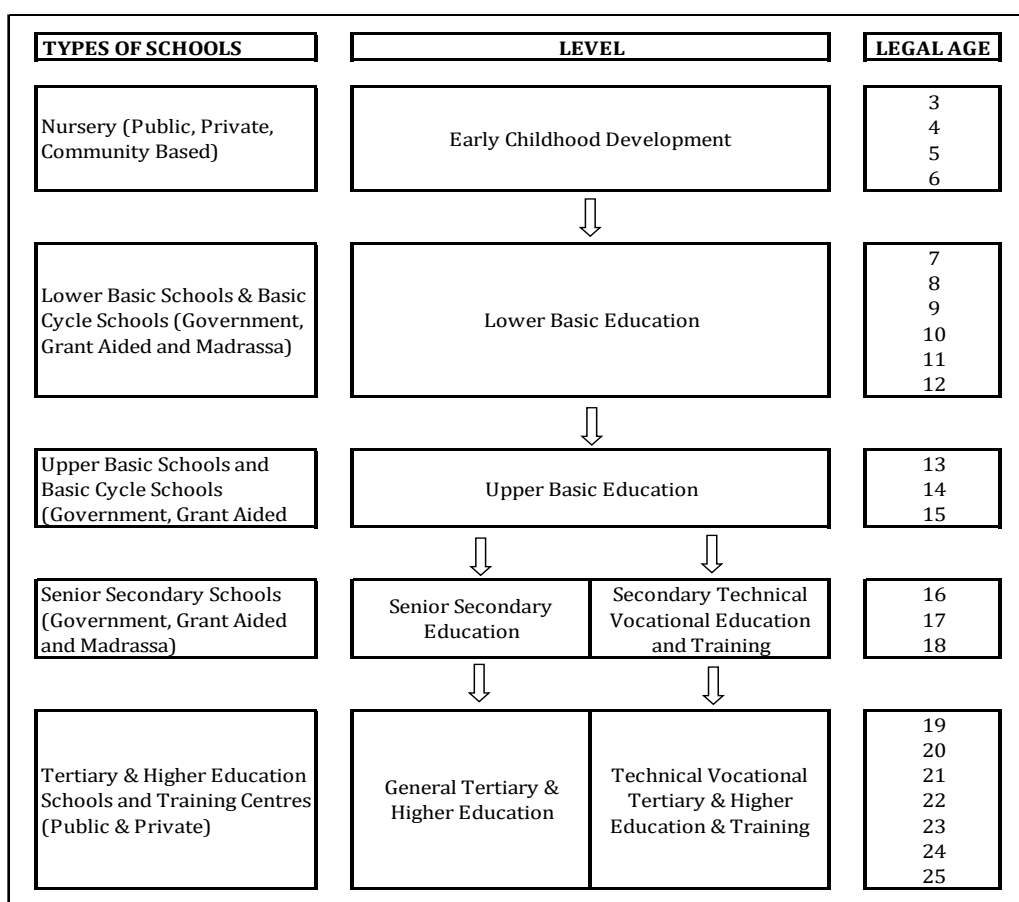


Figure 1. The Gambia Education Structure

Justifiably, according to the World Bank, despite sub-Saharan African countries making attempts to improve TVET education, the formal sector until now has not been unable to supply the jobs needed to absorb in the labour market (Adams, 2008). Also, (Oketch & Lolwana, 2017), discussed that there is a need to introduce curricula initiatives and delivery approaches that

can have a positive impact on youth employability. Based on this gap, it has become evident that countries should adopt revised curriculum strategies.

### Innovation Hubs

As part of the new curriculum approach, the government plans to establish innovation hubs in training institutions that will support the growth and development of entrepreneurship, innovation, and business development as well as addressing critical challenges in all sectors of development. In line with the argument by (Herron & Wolfe, 2021), such hubs have been used as support structures for delivery of practice base and problems solving.

The hub is envisioned to serve as a one-stop centre for providing opportunities for skills acquisition, innovation and entrepreneurship opportunities for students, innovators and talents are supported to create value for national growth and increased well-being of the people. It will nurture interactions and engagements amongst enterprises, universities, and research institutions. The hub will provide access to innovative actors in the communities, the informal sector, and other social partners to leverage on the opportunities provided by the hub in enhancing their respective research and innovation activities.

Training institutions will be linked to this hub towards the realization of business and productive ideas that can be developed in the form of prototypes which in turn will be commercialized to help address societal challenges of employability and local product development.

Based on these national development priorities, opportunities for partnerships will be exploited in institutionalizing this innovation hub, which will be relevant to the realization of multi-disciplinary sectors that will use and benefit from the services of the hub.

They will be used by students, researchers, innovators, and entrepreneurship in The Gambia includes support to business incubation, mentorship, intellectual property protection, and commercialization.

The sustainability and vibrance of the hub, will be done through the creation of a commercial charter that allows institutions to win contracts and per take in revenue generation. For the promotion of innovation, institutions must

develop and implement research and development policy. This will be supported by the adoption of institutional intellectual property policy as well as funding mechanisms for students as well as graduates in their innovation and entrepreneurial careers.

## Entrepreneurship Hubs

The MoHERST is the custodian of Gambia's National Science, Technology, and Innovation System Policy (NSTIP, 2015 -2024) that follows the widely adopted innovation systems approach (MoFEA, 2018). The Gambia Government recognizes STI's crucial role in socio-economic transformation. Thus, it makes great emphasis on developing and enhancing the nation's STI ecosystem.

Entrepreneurship hubs offers companies opportunities to build strong, enduring, and profitable market positions (Zahra, 2015), and they connect actors of the entrepreneurship ecosystem through the respective projects.

National innovation ecosystems should be anchored and aligned along the triple helix theory which promotes collaboration among universities, industries, and governments (Shuguang et al., Jan 18, 2021). This model allocates a privileged status to universities as the fount of new knowledge.

Another relevant parameter of the Quadruple Helix model is that it includes civil society and social entrepreneurs as a fourth strand (Hakeem et al., 2023). Overall, the model creates an interaction between science and society, within the context of technological and environmental challenges. Thus it can be concluded that each of the actors have a critical role to play in the effective functioning of entrepreneurial growth and development.

## Innovation and Entrepreneurship Education in National Curricula

In The Gambia, MoHERST is mandated to drive human capital and skills development programmes across innovation hubs, business

incubators, academia, and government sectors to increase opportunities for innovation. In promoting innovation, MoHERST is committed to pursuing academic programmes where government, academia, industry, and society plays critical role into the development of the curriculum contents. The purpose of enhancing these interlinkages is to spur demand-led innovation activities and further encourage collaboration among universities, the public and private sector actors, and civil society.

It is important to note that government agencies, corporations, funding bodies are required to work closely to contribute towards support mechanisms to venture creation, encouraging innovation within the academic walls, and involvement of students and teachers in the creation of new businesses (Ribeiro et al., 2018).

A typical case of such overlapping roles are situations in which industry actors are involved in curriculum development for their skills and competency needs to be included and be measurable as well as ensure the industry provides appropriate niche for student placements and internships relevant to their training and development.

The National Accreditation and Quality Assurance Authority (NAQAA) is mandated to provide technical supervisory on the development and delivery of educational curricula in The Gambia. This includes curriculum development, quality assurance and standard scene setting, relevance and impact of educational programmes, as well as ensuring international benchmarks.

Levels	Gambia National Qualifications Framework		Occupational Qualifications (Informal/Non-formal Sectors)
	General Education	Technical and Vocational Education and Training	
Level 10	Doctorate Degree	Doctorate Degree Professional	
Level 9	Master's Degree	Master's degree Professional	Occupational Certificate 6
Level 8	Postgraduate Diploma / Certificate	Postgraduate Diploma / Certificate Professional	Occupational Certificate 5
Level 7	Bachelor's Degree	Bachelor's Degree Professional	Occupational Certificate 4
Level 6	Higher Diploma / Higher National Diploma	TVET Higher Diploma / TVET Higher National Diploma	Occupational Certificate 3
Level 5	Diploma / National Diploma	TVET Diploma / TVET National Diploma	Occupational Certificate 2
Level 4	Certificate	TVET Certificate	Occupational Certificate 1
Level 3	Grade 12 (WASSCE or Equivalent)	Vocational Education and Training Certificate	
Level 2	Grade 9 (GABECE)	Vocational Education Certificate	
Level 1	Foundational Literacy and Numeracy (Primary School)	Foundation (Pre-vocational) Certificate	

## Figure 2. Gambia National Qualifications Framework

To support the work of NAQAA, the Gambia National Qualifications Framework (GNQF) has been developed to create career pathways and competencies for all the levels of education and training as well as created interphases for general education and technical education, in line with the UNSECO levels of education and training (NAQAA, 2022). The structure outlines the general and TVET strands as well as the corresponding occupational qualifications for the informal and non-formal Sectors.

Conscious, of the important role that entrepreneurship plays in supporting innovation, The Government of The Gambia has taken a policy decision that ensures the institutionalizing of innovation and entrepreneurship training in all institutions of higher learning in The Gambia in line with the MoHERST Strategic Plan (2021 – 2025). This will ensure that students get the skills necessary to support the factors of production, which consists of human, physical, and information resources and doing so in an efficient manner (Isenberg, 2010).

The pilot and entry point for the introduction of this new curriculum approach is at the USET, where already embedded entrepreneurship in science, technology and engineering education is being taught to students in civil, mechanical, electrical, and electronics engineering. The curriculum is supported by the innovation and entrepreneurship hubs as well as a mandatory four (4) weeks of internships for every student based on relevant industry experience in every academic year (GTTI, 2018). As earlier discussed, this programme is relying in concepts of the Demola framework in the development and enriching if the respective curricula and based on the entrepreneurial and innovative mindsets being developed amongst students, this model will be adopted in all levels of the tertiary and higher education sector of The Gambia as per the policy drive.

The USET is leveraging on the Kwame Nkrumah University of Science and Technology (KNUST) engineering curricula as well as the De'Montfort University (DMU)

innovation and entrepreneurship curriculum to develop a localised curriculum that meets national qualifications framework and international standards.

## Conclusion and Policy Recommendations

The new curriculum approach is being implemented as a means towards promoting the advancement and strengthening of the National Innovation Ecosystem, as an enabler for socio-economic development.

Within the prefix of the tertiary and higher education transformation agenda, innovation and entrepreneurship drive has been identified as a critical player and for this in the new USET, innovation and entrepreneurship hubs with state-of-the-art equipment have been established for use by students and innovators across the country. This has led to the replication of similar hubs in all TVET centres being established by the government as part of the national roll out.

This new curriculum approach brings stakeholders of the innovation and entrepreneurship ecosystem closer to academic programme development, and hence ensure there is no mismatch as well as that programmes are responsive to the demands of the labour market. For the first time, private sector players have been engaged and involved in the development of curricula and impact its relevance and responsiveness.

Additionally, the curricula provide conditions for the utilization of the knowledge and skills for enhance business development, employability, and industrial applicability.

For the purposes of relevance and appropriateness, this model will be reviewed after three years of its operations.

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