

AFRICALICS

**THE AFRICAN NETWORK FOR ECONOMICS OF LEARNING, INNOVATION,
AND COMPETENCE BUILDING SYSTEMS**

**Encouraging post-graduate level innovation and development
training in African Universities
Progress and Feasibility Report**



April 2017

TABLE OF CONTENTS

Why set up an African PhD programme in Innovation and Development	Error! Bookmark not defined.
Setting up a PhD programme in Innovation and Development.....	Error! Bookmark not defined.
Running a PhD programme in Innovation and Development?	Error! Bookmark not defined.
Learning and modifying a PhD programme in Innovation and Development	Error! Bookmark not defined.
Further inspiration and reading	Error! Bookmark not defined.

BACKGROUND

The continent is currently witnessing two dichotomous situations. On the one hand, there are constant calls for businesses and economic sectors to innovate; innovation is seen as a catalyst of economic growth. On the other hand, knowledge of what innovation is and why it is important for economic, and social, development is lacking.

An AfricaLics survey¹ found that Africa has a dearth of university courses or programmes that include content from the field of innovation studies that focus on the introduction of new products, processes and business models into firms with a view to enhancing productivity and growth. There is also a crucial lack of expertise in ‘innovation and development’ studies (a multi-disciplinary field that teaches and researches how to maximise these innovations’ potential benefits for economic and social development). The survey found that there were PhD programmes available at 14 universities across six African countries which taught an ‘element’ of innovation and development studies. There appears to be no single PhD programme with both ‘innovation’ and ‘development’ in the title available at an African university. At Masters level, there is a wider set of offerings with 79 references to MSc courses that included teaching in the area of ‘innovation and development’. However, again there was no single course title given that included both ‘innovation’ and ‘development’ in the title.

The work of the AfricaLics network is to change this so that education systems in Africa build the next generation of researchers and practitioners who can ensure innovation activities are taken seriously in the productive sectors. This is particularly necessary because the relationship between innovation and economic and social development is now well recognised. The Sustainable Development Goals include innovation as a key component of Goal 9, while, countries in Africa are increasingly thinking not just about science and technology but also innovation when they write action plans and policy documents this area.

The AfricaLics network works to change the current situation, in part, by promoting the introduction of new or improved curricula into African universities. This short report outlines the efforts taken during Phase I of the AfricaLics research capacity building project funded by Sida between 2013-2016.

AFRICALICS RCB PHASE I PROJECT ACTIVITIES

AfricaLics during the first phase of its activities has actively promoted the development of new curricula that provides teaching and learning in the area of ‘innovation and development’. It has done this in four ways:

1. The creation and promotion of a model 16-17 week course unit for insertion into existing Masters programmes at African universities that provides students with an introduction of the interrelationship between innovative activity and economic and social development.
2. The development of additional materials that promote improved teaching at postgraduate level:

¹ AfricaLics (2016): Mapping Africa’s research and teaching capacity in the field of innovation and development – 2nd Survey Report 2016. AfricaLics Secretariat. Copenhagen, Denmark

- a. An Ideas paper for the development of a full two-year Masters programme entitled 'Innovation and Development'
 - b. An ideas paper for the development of a full PhD programme in the area of 'innovation and development'
 - c. A PhD supervision handbook for students and supervisors in the field of innovation and development
 - d. An online 'Knowledge Bank' providing an introduction to key innovation and development literature
3. The facilitation of a series of teaching and supervision experience sharing sessions, workshops and events for interested lecturers and researchers:
 - a. PhD supervisor exchange meetings at AfricaLics PhD academies and conferences
 - b. A series of teaching and learning track lunchtime seminars at the Second AfricaLics Research Conference in Kigali, Rwanda in November 2015
 - c. A workshop for lecturers promoting innovation and development training at their universities in December 2016

These activities took place between 2013 and 2016. All the materials were developed to be open access and are available on the AfricaLics website for download and use by any interested party. The teaching and learning materials were developed to be templates that could be adapted and modified to suit individual teaching environments and contextually situations of the countries in which the universities are situated. Further details of all the activities are outlined below.

Model masters course

Over a period of about a year (2013-2014) the AfricaLics Secretariat worked with staff at five African universities as well as members of the AfricaLics Scientific Board to develop a model Masters course. This consisted of a template skeleton for 16-17 weeks of teaching material that highlighted the interrelationship between innovative activity and developmental activities (both social and economic). It was specifically designed for inclusion into existing Masters programmes (such as in Faculties of Engineering, Agriculture etc.) which have an interest in teaching innovation but were also interested in students getting a sense of how to understand the impact innovation has on society and how to research that impact. The development of the module was a highly consultative process involving a variety of people and through a series of meetings and feedback activities including:

- Initial meeting with partner universities at Aalborg University to discuss collaboration and module development, 10th - 14th November 2013.
- Workshop with partner universities to discuss initial ideas for the content of the course and why such a course is relevant and necessary. The workshop was held at the University of Dar es Salaam, 20-22nd May 2014.
- Review and feedback from various AfricaLics Scientific Board members in 2014 of the draft materials
- A peer review exercise (2 external reviewers – one in Mexico and one in India – read and commented on the material in late 2016/ early 2017) to inform the revision of the materials in 2017 so that they include reference to the Sustainable Development Goals and further developments in the field of innovation and development.

When designing this activity the original plan was to develop a course template for update in African universities. Since the development of the module materials, the Masters module has been downloaded 922 times from the AfricaLics website (as at end December 2016). Awareness creation

on the module was conducted in 2015 and 2016 with at least 6 Universities sensitised on the module through face-to-face meetings.

Elements of the module have been used in at least two universities in Africa while, another three African universities are in the process of introducing parts or the whole module.

Following a strong demand to translate the material in the master module to French during the Innovation and Development training workshop in November 2016, the material was translated into French to assist those working in French speaking Africa.

Additional papers to promote improved teaching

Model Masters programme ideas paper

Following the results of the first baseline study, the AfricaLics Secretariat became aware that there was a lack of specific full Masters programmes that focused only on the study of the interrelationship between innovation and development. As a result, the AfricaLics Secretariat developed an Ideas Paper outlining key issues to consider when designing a full Masters programme focuses on the interrelationship between innovative activities and development. This was developed in November 2016 and feedback received on its content during the Innovation and Development training workshop in December 2016.

It is too early to tell how useful this document has been in the development of new MSc offerings at universities in Africa but follow up – especially with those who attended the November 2016 innovation and development teaching training workshop – will be conducted regularly throughout 2017 to gauge uptake.

Model PhD programme ideas paper

Following the interest in the MSc programme ideas paper, a follow up paper was also developed in late 2016 and completed in early 2017 that outlines issues to consider when thinking about designing a full PhD programme in innovation and development. This paper also follows on from initial work already done to promote more effective PhD supervision in the African innovation and development academic field (see below).

Again, it is too early to tell how useful this document has been in developing new PhD programmes but follow up will be made in 2017.

PhD supervision guide

Following discussions with various PhD supervisors working in African universities it was noted that a written set of advice – specifically for those supervising students in the field of innovation and development would be useful. The resulting Good Practice Supervision Guide was uploaded to the AfricaLics website in December 2015. Following the Innovation and Development training workshop in late 2016, the materials were also translated into French. Both the English and French versions are available for anyone to download on the AfricaLics website.

The need for a guidance document was highlighted during a series of PhD supervisor exchange meetings held alongside the AfricaLics PhD Academies and the Visiting Fellows Programme (formerly

known as the 'AfricaLics Sandwich programme') in 2015 and 2016. The resulting PhD supervision guide was also discussed during the 2016 PhD supervisor workshop held in Aalborg University in April 2016.

The PhD supervision guide (English version) has been downloaded a total of 324 times to end March 2017.

Facilitation of experience sharing sessions

PhD supervisors sessions

A series of PhD supervisor experience sharing sessions were arranged in 2015 and 2016. The first took place back-to-back with the AfricaLics PhD Academy held in Mombasa, Kenya in March 2015. A total of 20 supervisors participated in this event. The main agenda for this event were: (i) Experience sharing; (ii) Review of draft manual on PhD supervision and; (iii) Launch of the PhD supervisors' forum on website.

As part of the pilot program of the AfricaLics Visiting PhD Fellowship the main supervisors of the PhD-students were invited to come to Aalborg to meet their students and the Aalborg University mentors and to participate in a one day seminar on PhD supervision to provide possibilities for home supervisors and mentors at AAU together with PhD students to reflect on good practices and new ideas on how to improve PhD supervision. In 2015 five out of six supervisors participated and in 2016 four out of five supervisors participated. In 2016 the PhD supervisors also participated in a one day research seminar on "Innovation and Development in Africa" with AAU scholars from the IKE and IBC groups. The seminar focused on research relating to strategies for upgrading technological capabilities and innovation in relation to natural resources and renewable energy.

The evaluation responses from the PhD supervision seminar held in Aalborg show general satisfaction, especially as far as the home supervisors are concerned. One of the home supervisors from the first batch commented that: *"Beyond and above the objectives set by the programme, the discussions that we had with our students was a wake-up call for us supervisors to improve our way of supervising."*

Teaching and learning conference track

In 2015 during the Second AfricaLics Research Conference in Kigali, Rwanda, a series of lunchtime seminars were held over the three days to encourage lecturers and others teaching innovation and development related subjects to come together and share experiences and ideas. Three sessions were held that discussed: (i) the general environment for teaching innovation and development at African universities; (ii) the role of problem based learning and other interactive learning mechanisms and; (iii) the future of innovation and development teaching at African Universities.

Innovation and development training workshop

On 29th November – 2nd December 2016, 19 lecturers (10 female & 18 male) from 17 countries (five of them being low income countries) in Africa attended a workshop aimed at encouraging the teaching of innovation and development curricula in African universities. The participants were joined by six facilitators and three AfricaLics Secretariat staff who helped in logistics. The workshop focused on

content and methods for teaching of innovation and development through a series of lectures and practical sessions including rap battles, class discussions and project work.

At the end of the workshop, each participant had prepared their own individual action plans outlining short, medium and longer term efforts that they would make to encourage the uptake of innovation and development training and teaching at their home institutions.

During a feedback survey in early 2017, four participants of the course responded as follows with regards progress against their individual action plans developed during the workshop:

- “I have been working with a committee developing masters curriculum for technology management. The program has been approved by ASTU's senate. Though I am behind the time I set in my plan during the workshop, thinks are in order to commence the program in the begging of the next academic year.”
- “[I] did a presentation for all academic staff in our Institute on the I&D [workshop]... I have not been able to integrate the masters module into our curriculum because the course (Technical Entrepreneurship and Venture Management) where I can do that is a second semester course so as soon as I start teaching the course (in May), I will begin to use it.”“I have been trying to exercise the tools/methods I learnt at the I&D training during last November. I used the methods mainly in my classes....One of my action plans was to include I&D as a course in the upcoming graduate programme, Technology and Innovation Management. It is still under the University curriculum approval process... I had also reported about the I&D training workshop to the deans and directors of my institute. My brief report about PBL as a methodology for our engineering and technology courses was warmly welcomed by many of the professors here at Addis Ababa Institute of Technology.”
- “I have managed to develop a 45 hour unit for the bachelor of education students (ODEL Campus students) which will be integrated as one of the Units in the programme. Secondly,I have also integrated the Unit again in the Bachelor of Education Arts programme at UMMA university (A private University in Kajiado,Kenya).These two curriculum were going through review hence used the opportunity to introduce the Innovation component... I also realized that there is need for certificate course or short training on Innovation and Development which can benefit more members of staff especially in academic settings like mine.”

CHALLENGES AND OPPORTUNITIES

During the various events held over the past three years that have been outlined above, we have garnered an understanding of some of the issues affecting the development of new curricula in African universities and specifically courses in the area of innovation and development. We have alluded to some of these in other documents such as the Ideas Papers on developing MSc and PhD programmes in this field. Others have been highlighted through the meeting reports for events held. Below is a list of the key issues raised to date in these other reports as a single consolidated list:

1. The situation in many African universities

African universities are in a period of transition. There are not only increasing numbers of them but they are increasingly high quality, research driven universities providing education and employment opportunities as good as, if not better, than universities in other parts of the world. That said, there are still universities where resources are lacking, the morale of

teaching staff is low and a desire to gain as much revenue as possible means high student numbers, crowded facilities and little value for money. As such, two students attending different universities could have markedly different experiences.

2. Demands on students and staff

Following on from above, many staff at african universities struggle with impossible workloads, a focus on teaching at the expense of research (due to the difficulties in finding research funding) and low pay and incentives resulting in an understandable focus on consultancy work over university work.

Similarly, many students juggle full time work and education due to the cost of the courses they are taking and/ or the lack of flexibility given by employers to training and capacity building of staff members.

3. The young age of the field and the dominance of traditional disciplines

The field of innovation studies is young; it has only become established in the last 20-30 years in Global North and the field of innovation and development is even younger still. In Africa most universities are focused around traditional, very established scientific disciplines both in the natural and the social sciences. This makes it difficult for this area of study to get recognized as the field is inherently multidisciplinary in focus and still relatively young and unestablished.

LESSONS LEARNT

Despite the challenges we have gained much more knowledge on what courses and programmes are available (through the two surveys conducted by AfricaLics in 2013-2014 and 2016), that there is interest in developing these courses (as evidenced by the high level of participation we received at the November 2016 workshop for instance) and there is a growing number of faculty able to teach in this area (as students graduate from universities having engaged in AfricaLics activities). However to fully ensure that innovation and development training is taken up in universities we have realized that:

4. Senior management at universities and education authorities must be engaged

Despite significant effort by individuals to push the creation of new curriculum forward in this area in their universities, these efforts are often hampered by the lack of understanding of the specific requirements of a multidisciplinary subject such as innovation and development. As a result, we have come to understand that efforts to garner support from senior administrators on the importance of research active faculty through to the importance of innovation and development as a subject area is necessary.

In addition, often it is also necessary to work with others within the national or regional education and qualifications system as well, especially where courses such as the MSc module in innovation and development focus heavily on project based learning which isn't recognized in many existing curriculum systems.

5. Promotion of credit transfer and/ or joint degrees across universities should be encouraged

Many universities have some of the courses necessary to run a full Masters in innovation and development but they don't have the full spectrum. Working together with other universities

to create joint degrees or to make credit transfer more flexible between universities within and between countries will provide a quicker way of getting curricula into the education system as well as work towards the next point as well.

6. More work should be done to support student and staff mobility to learn from others

Students who have participated on our activities have benefited immensely, as have faculty, in meeting others from different countries and situations during AfricaLics activities. The sharing of experiences that occurs – often without prompting – has led to strong friendships as well as new collaborations on research projects. Opportunities to share experiences and see other environments through promoting student and faculty mobility is important for ensuring a variety of real life examples are included into curricula and generally enhance the postgraduate experience more generally.

7. Developing research hubs

To reduce student isolation and ensure teaching is continued it is important to ensure that there is a strong community of researchers working on similar topics. Increasingly this is possible through virtual communities as much as through the development of physically located research groups.