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MAKERERE UNIVERSITY RESEARCH & INNOVATIONS FUND (Mak-RIF)

Capability Enhancement Project for Innovative Doctoral Education at Ugandan Universities (CEPIDE)

Research Dissemination on the State of Doctoral Education and Training in Uganda January 28, 2021



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Background to CEPIDE Project

CEPIDE is designed to build capacity for innovative doctoral education and training in Uganda.



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Broad Aim

- To build institutional capacity and individual capabilities of doctoral supervisors at Ugandan universities by trailblazing to engender a shift from traditional modalities to innovative approaches of doctoral education and training.



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Specific Objectives of CEPIDE

- To undertake a baseline study of the state of doctoral education and training in Uganda by 2020.
- To design and implement a specialized blended capacity building training course for supervisors of doctoral candidates at Ugandan universities by 2021.



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Specific Objectives of CEPIDE

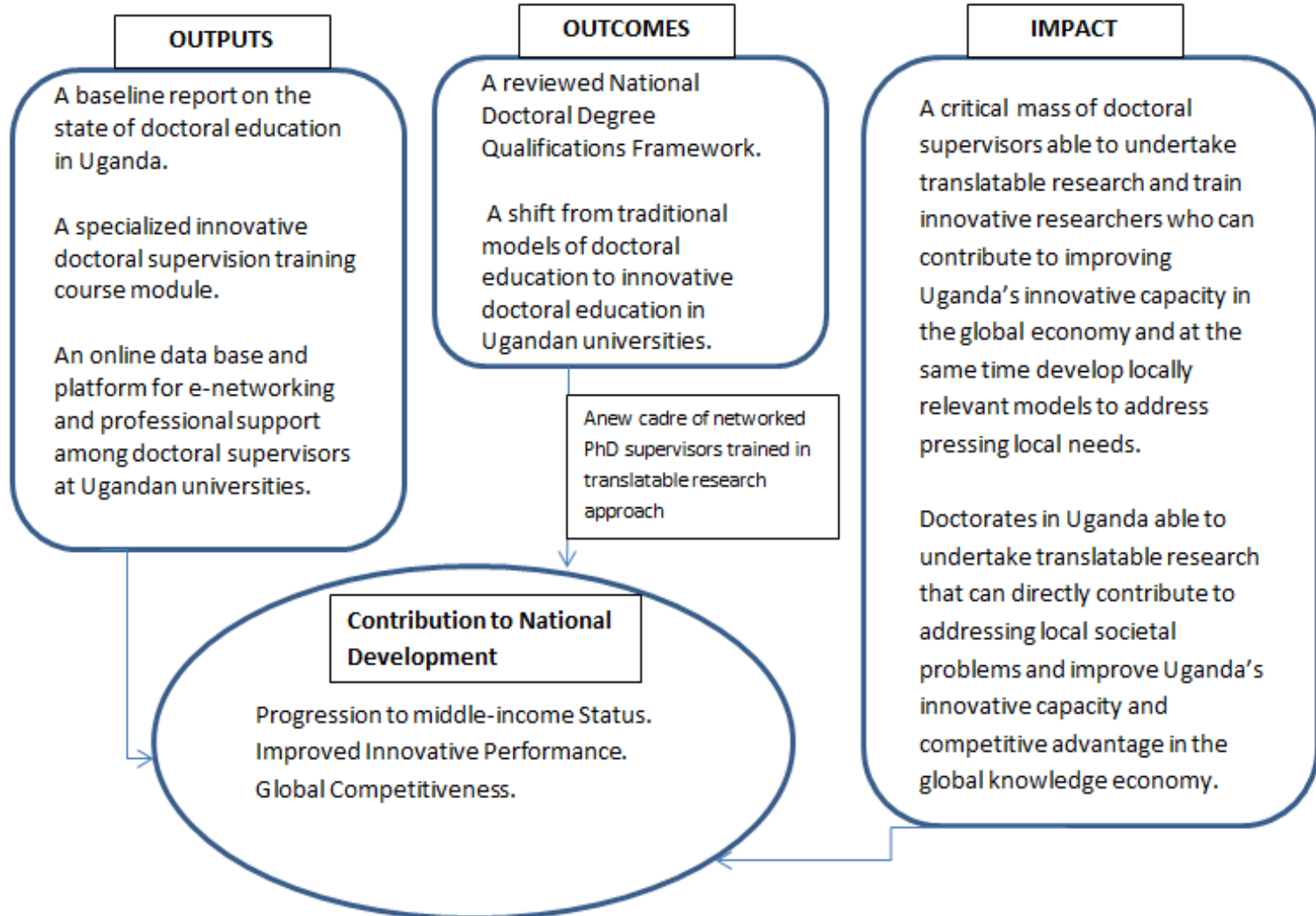
- To create a data base and platform for building a networked community of innovative doctoral supervisors to foster knowledge sharing and professional support among doctoral supervisors at Ugandan universities by 2021.



Outputs, Outcomes and Impact Envisaged



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Implementation of CEPIDE

Phase One: 2019/2020

- Baseline study of the state of doctoral education in Uganda
- Writing of course module for a specialized blended capacity building training for supervisors of doctoral candidates at Ugandan universities.



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Implementation of CEPIDE

Phase Two: 2020/2021

- Implementation of a specialized innovative blended capacity building training course for supervisors of doctoral candidates at Ugandan universities
- Creation of a data base and an online platform for e-networking, knowledge sharing and professional support among doctoral supervisors in Ugandan universities.



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Baseline Study of the State of Doctoral Education and Training in Uganda

This is made possible with funding from the Government of the Republic of Uganda through Makerere University Research and Innovation Fund



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Background to the Study

Knowledge is increasingly treated as a strategic resource and a productive asset in the 21st century Knowledge economy/society.



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Striking characteristics of the new knowledge society:

- Acceleration
- Glocalization
- Risk
- Complexity/non-linearity/circularity
- Reflexivity

(Carayannis & Campbell, 2012; Scott, 2006).



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The Knowledge Economy and Doctoral Education and Training

- Productivity and competitiveness for countries is dependent on high level knowledge and information, and therefore, the research system.
- No country can participate fully in the global knowledge economy without a well developed national research system composed of universities, the private sector and public research centres (Castells, 2017, p. 61).



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The Knowledge Economy and Doctoral Education and Training

- The apex training product of a university - the Doctorate, is uniquely placed in the knowledge eco-system / research system-the doctorate is a key qualification that defines the quality of a country's knowledge eco-system.



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The Need for the Doctorate: Global Context

Significant correlation has been proven to exist between doctoral education and:

- The innovative performance of a country
- The efficiency of higher education systems (Teferra, 2015).



The Need for the Doctorate: Global Context



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Unprecedented upsurge of interest in doctoral education:

- Globally as part of the competitiveness debate
- Within nations as a means of promoting industrial and social innovation
- Within universities as a key indicator of status and efficiency (Fillery-Davis, 2014; Teffer, 2015).

Initiatives are being launched to reform doctoral education at all levels-institutional, national, regional and supra-national.



Global Context Cont....



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Europe: with the notion of the “Europe of Knowledge”, policy changes were instituted through the Bologna process which lead to the harmonization of the higher education landscape in Europe. European Union (EU) countries decided to invest 3% of each country’s gross national product in R&D by 2010 (EU, 2010).

The US: Steady expansion since WW11. Doctoral education and training programs have become increasingly market-driven in the context of the knowledge economy (Balaban & Wright, 2014).

Asia: Dramatic increase in PhD production, addressing the quantitative imperative, though quality and international competitiveness of the doctorates remain a major challenge (Cyranski, Gilbert, Ledford, Nayar & Yahia, 2011).



Global Context Cont....



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Integration of doctoral education and training into national development planning in several countries. Striking examples are:

- Finland set a target of producing 1,600 doctorates a year by 2008
- India took a decision to increase its numbers of doctoral candidates fivefold by 2015 from a base of 65,491 in 2005
- Brazil aimed to award 15,000 doctorates a year by 2010, a huge rise from the figure of 5,000 in 2000

(Louw & Muller, 2014)

Within the context of policy objective of increasing spending on research and development(R&D), several countries have increased spending on doctoral education and training.



African Context



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- Doctoral education has been viewed as a lower priority (African Network for Internationalization of Education (ANIE) (2019).
- Notable upsurge of interest in the 1990s- notion of the knowledge economy.

Formal declarations which are part of the political agenda:

- Kigali Communique of March 13, 2014- governments of Ethiopia, Mozambique, Rwanda, Senegal, and Uganda acknowledged the need for a critical mass of well-trained scientists, engineers, technologists and innovators:

“it is fundamental for Africa to increase the PhD programs in the continent and to continue to engage in partnerships that increase the number of PhD holders in Africa”



African Context Cont...



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- The Dakar Declaration of March, 2015- African governments made a commitment to build capacity in research, science, technology and innovation
- Major action plan- to increase PhD production on the continent
- Strategy to expand PhD enrolments to average levels for emerging economies within fifteen years-PhD graduates and publications proportional to Africa's share of global population demographics-projected to be 40% by 2063 (ANIE, 2019).



Current Policy Discourse in Africa



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Current policy discourse in Africa highlight the need for:

- Increased volumes of PhD output (quantity imperative)
- Transformation in doctoral education (relevance, efficiency and quality imperative)
- Internationalization of doctoral education (competitiveness imperative)

(ANIE, 2019; Cross & Backhouse, 2014)

NB: Doctoral education is still heavily dependent on external assistance (Sloan, 2015, p. 257)



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Major Drivers of Upsurge of Interest in Doctoral Education and Training

Concerns about:

- Sustaining the supply chain of researchers
- Preparation for employment of graduates
- Internationalisation



Common Responses due to Upsurge of Interest



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International Frameworks and Declarations guiding Doctoral Education and Training

- Sorbonne Declaration (1998)
- Bologna Declaration (1999)
- Prague Declaration (2001)
- Berlin Communique (2003)
- Salzburg Recommendations (Bergen Communique, 2005; Christensen, 2005)
- Salzburg II Recommendations (European Universities Association [EUA], 2010)
- The Seven Principles of Innovative Doctoral Training (European Commission, 2011)



Common Responses Cont...



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Increasing diversity of models of doctoral education

- The traditional PhD
- PhD by publication
- The taught doctorate / New Route PhD
- Professional and work-based doctorates
- Practice-based doctorates



Common Responses Cont...



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Increased formalisation

- New institutional regulations
- Development of national frameworks and expectations (such as a Quality Assurance Agency, National Degree Qualification Frameworks)
- Development of Graduate Schools
- Formalisation of supervision

Increasing emphasis on skills development and training

- Integration of research training and skills development into the overall student experience



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State of Research on Doctoral Education and Training

Major preoccupations of research into doctoral education have been:

- Augmenting the production of doctoral graduates(Quantity imperative)
- Apprehension about the consequences of augmentation, particularly fears about a drop in quality(Quality imperative)



State of Research Cont...



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- Relevance to national development and international competitiveness
- The production of reports on doctoral education is largely donor-funded
- Research mainly done in the context of the developed world (Europe, U.S.A, Australia)
- Research in Africa concentrated in South Africa
- Very little research in the Ugandan Context



State of Research Cont...



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- Very little research-based literature/reports on doctoral education and training-most of it is *practitioner advocacy*-based, to a larger extent on common sense
- Absence of intervention-based research into doctoral education and training in Uganda



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Statement of the Problem

- There is acute shortage of a critical mass of doctorates in Uganda (Kasozi, 2019, 2016; UNCST, 2012).
- Deficiency in the number of researchers per million inhabitants e.g. only about, 37 by 2010, 26 by 2014, well below the world average of 1,083. (UNESCO, 2015)
- Doctoral education is still largely traditional, essentially theoretical and academically oriented.



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Statement of the Problem Cont...

- The 21st century demands transferable high level knowledge and skills
- Need to build capacity for innovative doctoral education in Ugandan universities to address the quantity, quality and relevance imperatives is apparent.



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Study Purpose and Specific Objectives

The purpose of the study was to assess the state of doctoral education and training in Uganda.

The specific objectives were:

- To examine national structures, policies and frameworks guiding doctoral education and training in Uganda.
- To examine institutional structures, policies, processes and practices of doctoral education and training at Ugandan universities.

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Research Questions



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The following are the research questions we sought to answer:

- What is the extent to which national structures, policies and frameworks provide for innovative doctoral education and training in Uganda?
- Do institutional structures, policies, processes and practices support innovative doctoral education and training at Ugandan universities?



Research Design



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- We executed the baseline study of the state of doctoral education and training in Uganda through Participatory Action Research (PAR)-a subset of action research which entails systematic collection and analysis of data for the purpose of taking action and making change by generating practical knowledge.
- By using PAR, we envision capacity building for innovative doctoral education at Ugandan universities by working together with policy makers at the national and institutional level, policy and program implementers at the institutional level and the supervisors of doctoral candidates.



Analytical Framework



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We derived our analytical framework from the Seven Principles of Innovative Doctoral Training (European Commission [EC], 2011)

The Seven Principles of Innovative Doctoral Education are:

- Research excellence
- Attractive institutional environment
- Interdisciplinary research options (cross-disciplinarity)
- Exposure to industry and other relevant employment sectors
- International networking
- Transferable skills training
- Quality assurance

Our Unit of Analysis (UoA) was a given doctoral program offered in an institution providing doctoral education and training in Uganda.



Our Constructs



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Research Excellence

Academic standards for the program and its curriculum

Critical mass of academic staff

Creativity among doctoral students

Critical thinking among doctoral students

Autonomy of doctoral students

Academic risk taking by doctoral students

Attractive Institutional Environment

The infrastructure

Adequacy of academic staffing

Instructional facilities

Financial health

Facilities for People with Disabilities (PwDs)

Organizational issues(ethics, morals)



Constructs Cont...



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Interdisciplinary Research Options

Multi-displinary in doctoral education and training

Inter-displinary in doctoral education and training

Trans-displinary in doctoral education and training

(Cross-displinary in doctoral education and training)

Exposure to Industry and other Relevant Employment Sectors

Industry placements

Co-funding with industry

Co-teaching with industry partners

Co-supervision with industry partners

Alumni/Alumnae networks

Knowledge sharing with industry



Constructs Cont...



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International Networking

Internationalization at home: exposure to international literature, short courses, financing home international events

International partnership programs: joint research projects, funding academic trips, visiting international scholars, long term placements abroad

International students

Diversity management: multi-culturalism

Transferable Skills Training

Soft skills for self management: entrepreneurship, self-awareness, time management, ethics

Soft skills for relating with others: communication, stress management, emotional intelligence, empathy, interpersonal relations, conflict management, team work, project management, strategic planning, resource mobilization



Constructs Cont...



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Quality Assurance (QA)

QA of the inputs: the program and its curriculum, academic staff, financing

QA of processes: selection, admissions, doctoral pedagogy, assessment and examinations, supervision, mentorship

QA of outputs: the doctorate/graduands, research outputs

Feedback: evaluation/assessment/continuous improvement



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Data Collection and Management

- We collected data through documents review, interviewing and Focus Group Discussions (FDG).
- At systems level, we reviewed laws, plans, policies and reports, and held FDGs with NCHE. At institutional level, we collected data from 14 institutions offering doctoral education and training in Uganda. We reviewed institutional plans, policies and reports and held in-depth interviews with a total of 49 participants



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Data Collection and Management Cont...

- We analyzed the qualitative data that we obtained from documents review and interviews using thematic framework analysis. We summarized our data into cells: rows for cases and columns for codes. The Seven Principles of Innovative Doctoral Training provided the pre-determined themes for our analysis. We looked for repeated patterns of meaning (similarities and differences).

We thus generated typologies, interrogated theoretical concepts and mapped connections between categories to explore relationships and causality. This enabled us to give descriptions of particular cases and to explain reasons for the themes that emerged.



Data Analysis



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Study Findings



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- Low through-put rates in doctoral education and training
- Doctoral education and training capacity concentrated in Makerere University
- Doctoral education and training biased in favor of males
- Doctoral education and training biased in favor of STEM disciplines



Findings Cont...



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Research Excellence

- Explicit commitment to attain research excellence expressed at both systems and institutional levels. However, practices differed among institutions.
- The Taught PhD is seen as a better option to PhD research in instilling research excellence
- Some PhD programs offered without written curricula, particularly PhDs by research.
- Curricular for some taught PhDs are too loaded while some have curricula with less load-below NCHE guidelines.
- Inadequacy of critical mass of academic staff translates into constrained supervisory capacity. This varied according to areas of specialization/by field.



Findings Cont...



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Attractiveness of the Institutional Environment

- Commitment to ensure attractive institutional environment was explicit at both systems and institutional levels but biased in favor of STEM disciplines.
- In practice, inadequacies in the physical infrastructure, instructional facilities, staffing and financing of PhD programs was evident.
- Low quality postgraduate environment



Findings Cont...



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Interdisciplinary Research Options

- The need for Interdisciplinary Research Options was recognized at both systems and institutional levels. However, interdisciplinarity was not embedded in the curricula of the PhD programs.

Exposure to Industry

- Poor exposure to industry in doctoral education and training was acknowledged at both systems and institutional levels.
- Fostering networks of alumni/alumnae, co-funding with industry, co-teaching with industry, co-supervision with industry and knowledge sharing with industry were not apparent.



Findings Cont. . .



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International Networking

- There is limited international networking in doctoral programs offered although commitment to foster international networking is explicit at both systems and institutional levels.

Transferrable Skills Training

- The need for transferrable skills training is recognized at both systems and institutional levels. However, in practice transferable skills training was not explicitly embedded in doctoral education and training.

Quality Assurance

- The need for Quality Assurance and commitment to Quality Assurance in doctoral education and training is apparent at both systems and institutional levels.
- Practice of Quality Assurance varied among the institutions.
- Challenges of financing PhDs, staffing and staff motivation affected quality assurance.



Conclusions



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- Ugandan universities / institutions, in their current state, have inadequate staff and infrastructural capacity necessary to enhance innovative Doctoral Education and Training. This breeds low output of PhDs, compromises on research and innovations in Uganda, especially where priority of Government and Institutions is only on STEM disciplines and with majority of candidates being males.
- Doctoral education and training in Uganda has largely remained traditional. Although, Government has made commitments it has not adequately and uniformly regulated doctoral education and training to enhance its commitments and those of Institutions in order to promote innovative doctoral training.



Conclusions Cont...



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- Inadequacy of the critical mass of academic staff with PhDs in Ugandan universities / institutions compromises on numbers admitted for doctoral education and training, doctoral supervision and leads to low through-put rates.
- There is a wide gap between universities /institutions and the industry. International networking is very limited for the PhD candidates to gain international outlook. This limits knowledge sharing with relevant industry and partners.



Recommendations



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- Government of Uganda should integrate doctoral education and training in national development planning within the context of the policy objective of increasing the percentage of the GDP spending on research and development (R&D).
- National targets should be set and resources should be committed to achieve the set targets in order to address concerns about the inadequacy of the critical mass of researchers in the country.
- Government of Uganda should introduce a sufficient and well-structured legal framework necessary to regulate doctoral education and training. The legal framework should regulate the structure of doctoral programs and curriculum issues, support systems and staffing to improve the quality of the postgraduate training environment in HEIs in Uganda.



Recommendations Cont...



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- Government of Uganda and institutions offering doctoral education and training should work out mechanisms which will enable them to work with the industry and other research institutions in promoting research and innovations.
- Institutions should transit from offering PhD by research to the taught PhD
- The scope of doctoral education and training should be broadened to incorporate other models of the doctorate such as PhD by coursework (taught PhD), Professional doctorates, Work-based doctorates.
- The role and funding of Doctoral Schools in Universities should be underscored to create enhanced postgraduate environment (EPE)
- More research and interventions into doctoral education and training in Uganda.