Research Application Summary

An epistemological paradigm shift from adaptive to systemic approach to agricultural curricula review and development in Higher Education Institutes

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Abstract

The limited impacts on poverty, hunger and land degradation from past efforts in agricultural training, research and outreach have been partly blamed on the education philosophy in higher education that is teacher centered and based on rigid disciplinary curricula developed solely by professionals. Currently, African higher education is going through renewal phase to address the challenge using an adaptive approach of responding by creating new courses and programmes without necessarily rethinking their educational philosophy. In this paper we draw on experiences of a "Community of practitioners" working with multi-stakeholder Innovation Platforms (IPs) established under the Sub-Saharan Africa Challenge Programme (SSA-CP) in facilitating a process of epistemological change to link the academic world to the complex realities of communities in order to improve and extend the impacts of learning in society. A multi-stakeholder Participatory Action research learning cycle comprising of three phases (planning, implementation and evaluation) with the implementation phase consisting of four (4) workshops (multi-stakeholder partnerships, personal and team skills, organizational change and knowledge management) was used to foster transformative experiences of participation and learning. A survey of 20 stakeholders that participated in the learning cycle and 50 others interviewed in relation to the participatory development of the M.Sc. degree programme in Integrated Watershed Management (IWM) programme revealed that there is an urgent need for an epistemological paradigm change towards an integrated, systems-based perspective to learning that emphasizes, first, approaches that are student centered and foster experiential and lifelong learning; second, interconnections and interactions between different disciplines as well as recognizes and integrates indigenous or

local knowledge and case studies; and thirdly, stakeholder engagement in curriculum development and implementation processes. This calls for further institutional innovations improving the connectivity between IPs and Universities and within curriculum components themselves.

Key words: Challenge Programme, curriculum development, experiential learning, indigenous knowledge, innovation platforms

Résumé

Les impacts limités sur la pauvreté, la faim et la dégradation de terre à partir des efforts du passé dans la formation agricole, la recherche et les provisions des services communautaires ont été, en partie, blâmés sur la philosophie éducative dans l'enseignement supérieur qui est tel que l'enseignant est le centre d'intérêt et est basé sur des programmes d'études disciplinaires rigides développés seulement par des professionnels. Actuellement, l'enseignement supérieur Africain passe par la phase de renouvellement pour adresser le défi en utilisant une approche adaptative de réponse en créant de nouveaux cours et programmes sans repenser nécessairement leur philosophie éducative. En cet article, nous tirerons parti des expériences de la « Communauté de praticiens » fonctionnant avec les plateformes d'innovation de multi-actionnaires (IPS) établies dans le cadre du programme de défi en Afrique Sub-saharienne (SSA-CP) dans la facilitation d'un processus de changement épistémologique pour lier le monde universitaire aux réalités complexes des communautés afin d'améliorer et de prolonger les impacts de l'apprentissage dans la société. Un cycle d'apprentissage participatif de recherche-action des multi-actionnaires comportant trois phases (planification, exécution et évaluation) avec la phase d'exécution se composant de quatre (4) ateliers (associations de multi-actionnaires, qualifications personnelles et d'équipe, changement organisationnel et gestion de la connaissance) a été employé pour stimuler des expériences transformatives de participation et d'apprentissage. Un aperçu de 20 participants qui ont participé au cycle d'apprentissage et de 50 autres interviewés par rapport au développement participatif du programme de maitrise en programme intégré de gestion des bassins hydrographiques (IWM) a indiqué qu'il y a un besoin pressant de changement de paradigme épistémologique vers une perspective intégrée et basée sur les systèmes d'apprentissage qui insistent en premier lieu sur les approches qui sont telles que l'étudiant est le centre d'intérêt et la stimulation de l'apprentissage empirique et perpétuel; en second lieu, les interconnexions et les interactions entre

différentes disciplines comme l'identifie et l'intègre la connaissance indigène ou locale ainsi que les études de cas ; et en troisième lieu, l'engagement des participants dans le développement de programme d'études et le processus d'exécution. Ceci demande encore d'autres innovations institutionnelles améliorant la connectivité entre les IPS et les universités ainsi qu'au sein des composants de programme d'études eux-mêmes.

Mots clés: Programme de défi, développement de programme d'études, apprentissage empirique, connaissance indigène, plateformes d'innovation

Background

Agricultural growth is a function of technology generation and use. The generation and diffusion of new technologies is critically dependent upon the coordinated cumulative performance of the agricultural education, research, and extension systems (IAC, 2004). Past models for integrating the three systems have not been very successful (Eicher, 1999). What is lacking is a systemic framework that provides for flexible institutional arrangements to organize efficient flows of knowledge between agricultural higher education, research, extension and the farmers for integrated rural development. Scholarly analysis of the evolutions of the agricultural research and development approaches has given birth to Innovation Systems Approach (ISA) represented by the Integrated Agricultural Research for Development-IAR4D concept and actualized through Agricultural Innovation Platforms (FARA, 2007). This study examined the issues and generates a number of institutional innovations for the development of a systemic framework for integration of agricultural higher education, research, extension and farmer knowledge pool while improving on their organizational core mandates.

Literature Summary

Literature on ISA in Africa is not explicit on models to inform organizational change necessary in integrating agricultural education, research, extension and business systems across Innovation System (IS) scale whilst growing more effective National Agricultural Research Systems (NARS). It is not clear how public agricultural research and extension organizations can work with higher agricultural education institutions and private sector to innovate and address outstanding challenges faced by smallholder farmers and analysis of their performance in terms of inputs, processes and outputs as well as the policy implication for NARS. According to IAC (2004), the failure of

the Land Grant and State Agricultural University of India models for African institutions engenders stronger inter-institutional linkages. All levels of approaches to integration (multidisciplinary, interdisciplinary and transdisciplinary) and tools for internal coherence are vital (Wals *et al.*, 2004).

Study Description

A multi-institutional, multi-disciplinary phased Participatory Action Research approach was used to pool knowledge to address outstanding and emerging challenges in Uganda. The integration involved nesting of programmes "research-Sub-Saharan Africa Challenge Programme (SSACP)-Proof of the Integrated Agricultural Research for Development (IAR4D) concept", "extension-Commonwealth of Learning (COL)-Lifelong Learning for farmers (L3F)", "education (epistemological)-EU/African Carribean Pacific/Edulink-Strengthening of University capacity in rural innovations" and "EU-Integrated Watershed Management and radical terracing". Two of the SSA CP Agricultural Innovation Platforms (AIPs) in the Lake Kivu Pilot Learning site (LKPLS) and one in Kiruhura District were used as tools for bringing together the multistakeholders from academia, private sector, farmers, extension, research and government in a learning cycle comprising of three phases (planning, implementation and evaluation) with the implementation phase consisting of four (4) workshops (multi-stakeholder partnerships, personal and team skills, organizational change and knowledge management) to foster transformative experiences of participation and learning. Thirty (30) staff and 10 students (PhD, MSc. and Bachelors) from five Universities (Makerere, University of Nairobi, Egerton, Kenyatta University and Jomo Kenyatta University of Agriculture and Technology) variably interacted with the AIPs.

Findings

Seventy (70) people of which 20 participated in the Multistakeholder learning cycle and another 50 were interviewed in relation to the participatory development of the M.Sc. degree programme in Integrated Watershed Management (IWM). Eighty (80) percent of stakeholders involved in the Multistakeholder learning cycle reported that their learning objectives had been met but felt that there is a disconnect between the knowledge of graduates and real life challenges. The most relevant course content for the IPs were; meaning and application of agricultural innovation systems (100%), team work and communication skills (>75), and conflicts management and stakeholder analysis (50%). This was also reflected by

improvements in the IPs, i.e., improved team work, communication, networking, leadership and conflict management. The most highly ranked approaches for learning were group work, brainstorming and question and answers because they draw on participants' experiences and encouraged critical thinking. Lecturing was ranked the least. Facilitators appreciated the wealth of experience and local knowledge of the participants and need for integrating local knowledge in the curricula. They further noted that facilitating multi-stakeholder processes was time consuming and slow hence difficult to fit it in current university structure. The respondents that did not participate in the Multistakeholder learning cycle were in agreement. The majority >80% concurred that the knowledge, attitude and practice of the graduates did not meet the expectations of the stakeholders. This calls for a radical epistemological paradigm shift to curricula review, development and implementation. To have impact more academic staff must be involved applying curricula activities with elaborate supervision mechanisms and feedback, case studies, learning materials, service/experiential learning etc. Individual learners-should engage in teamwork, problem identification, planning, action, reflection and documentation.

Research Application

Leveraging knowledge from the business, education, research, extension and farmers systems, retooling of staff with requisite skills for preparing graduates capable of working within the Innovation System (IS) context, development of a real world curricula, capturing and integrating indigenous knowledge in curricula, overcoming barriers in traditional agricultural extension systems.

Recommendation

An innovation systems facilitation/brokerage body should be formed to promote establishment of Multistakeholder AIPs and facilitate/brokerage of innovations amongst ARD organizations for social enterprise development. University staff and students to work with that body to sharpen tools for fostering more internal coherence in curricula.

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