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Responsiveness of agricultural training curricula in African universities to labour market needs: the case of Gulu University in Uganda

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ABSTRACT

Agricultural universities in Africa have a core responsibility to develop and implement relevant curricula to produce well trained human resource to guide stakeholders in production, value addition and marketing to meet the expected quantity and quality requirements of modern agri-food supply chain systems. This paper presents innovations in agricultural training curricula at Gulu University in Uganda designed to produce the breed of graduates, blending in character, the attitudes, hands-on practical skills and knowledge to exploit and succeed in the commonly perceived "non- attractive" labour market of the agricultural sector in Sub-Saharan Africa. Key ingredient in curricula orientation, as a critical input in modelling that type of graduate, is the integration of community engagement and agri-enterprise development in student training. Making use of the Bachelor of Agriculture (BAG) degree programme, the pioneer programme that kick-started the new training orientation, we conducted a tracer study to document employment characteristics, transition to employment and the level of satisfaction with training approach among the first five graduate cohorts (2009-2013) in 2014. Results showed that 84 % of the graduates were employed within the first six months after graduation. The employment rate surpassed 90 % after one year. About 80% of the graduates were employed in rural and semi-urban localities. Employment was in diverse sectors including government extension advisory services, financial institutions, non-governmental organisations, the private sector, agricultural research and graduate-own agro-based enterprise. Only 1.7 % of the graduates had established businesses. Most graduates were satisfied with job placement while over 90 % of the employers were contented with competencies exhibited by the graduates. This paper illustrates that integrating community engagement and enterprise development in student training contributes greatly to building competencies of agricultural graduates for the labour market.

Keywords: Gulu University, labour market demands, tracer study, unemployment

RÉSUMÉ

Les universités agricoles en Afrique ont la responsabilité fondamentale d'élaborer et de mettre en œuvre des programmes d'études pertinents permettant de produire des ressources humaines bien formées et capable de guider les parties intéressées dans la production, la valeur ajoutée et la commercialisation afin de répondre aux exigences quantitatives et qualitatives des systèmes modernes de chaîne d'approvisionnement agroalimentaire. Cet article présente les innovations dans les programmes de formation agricole de l'Université de Gulu, en Ouganda, conçus pour produire la génération des diplômés ayant un mélange équilibré des caractères, les attitudes, les connaissances et les compétences pratiques pour exploiter et réussir dans le marché du travail du secteur agricole généralement perçu comme « pas attractif» en Afrique subsaharienne. L'ingrédient clé de l'orientation des programmes d'études, qui constitue une contribution essentielle à la modélisation de ce type de diplôme, est l'intégration de l'engagement communautaire et du développement de l'entreprise agricole dans la formation des étudiants. En utilisant les données des cinq promotions des diplômés (2009-2013) du programme de baccalauréat en agriculture (BAG), le programme pionnier qui a initié la nouvelle orientation de la formation, nous avons mené une étude de traçage en 2014 pour documenter les caractéristiques de l'emploi, la transition vers l'emploi et le niveau de satisfaction de leur formation universitaire. Les résultats ont montré que 84% des diplômés trouvaient un emploi dans les six premiers mois suivant l'obtention du diplôme. Le taux d'emploi a dépassé 90%

après un an. Environ 80% des diplômés travaillaient dans des localités rurales et semi-urbaines. L'emploi était dans divers secteurs, y compris les services consultatifs de vulgarisation gouvernementaux, les institutions financières, les organisations non gouvernementales, le secteur privé, la recherche agricole, et les entreprises agroalimentaires appartenant aux lauréats. Seulement 1,7% des diplômés avaient des entreprises établies. La plupart des diplômés étaient satisfaits du placement, alors que plus de 90% des employeurs étaient satisfaits des compétences présentées par les diplômés. Cet article montre que l'intégration de l'engagement communautaire et le développement d'entreprises dans la formation des étudiants contribue grandement à renforcer les compétences des diplômés agricoles pour le marché du travail.

Mots-clés: L'Université de Gulu, la demande du marché du travail, l'étude de traçage, le chômage

INTRODUCTION

High population growth and changing food consumption trends have created increased demand for food globally and hence new challenges for agribusiness development. Confronting this challenge requires transformation of agricultural production approaches, markets, education and orientation of training institutions (Chakeredza *et al.,* 2008; Wickramasinghe and Perera, 2010; Mugisha and Nkwasibwe, 2014). Well trained and mentored agricultural professionals is a key input to achieving increased food production and marketing under modernized food systems (Chakeredza *et al.,* 2008; Green, 2012). Justifying the role of agricultural education, Ekwamu *et al.,* 2011), argued strongly in support of repositioning tertiary education institutions and university training approaches to catalyse agricultural and rural transformation processes. However, this transformation can only be realized if Higher Education Institutions (HEIs) use relevant and up-to-date curricula to produce proficient human resource (Banya, 2001). Consequently, agricultural universities have a big role to play in developing and running relevant curricula to produce well trained human resource to guide stakeholders in production, value addition and marketing in tandem with expected quantity and quality requirements of modern food supply systems. The target is to produce a new-type, "fit-for-purpose" graduate grounded with appropriate knowledge, skills-sets and mind-sets for guiding the agricultural sector.

In pursuit of the "fit-for-purpose" graduate - paradigm shift, there have been calls to review, redesign and realign Higher Education Institutions (HEIs) curricula to suit the current and future labour market demands (Kirumira and Bateganya, 2003; Wickramasinghe and Perera, 2010). These calls have been motivated by the high incidence of unemployment and/ or under-employment of graduates from African universities (Betcherman and Khan, 2015). As such, many stakeholders including governments, employers and scholars question the quality and relevance of curricula of training and learning offered at African HEIs (Filmer and Fox, 2014). In particular, African HEIs have been intensely criticized for producing manpower who exhibit skills that do not match the expectations of the labour market (Pauw *et al.,* 2008; Ssebuwufu *et al.,* 2012). Specifically, graduates from African Universities are always criticized for lacking the creativity, communication, analytical and problem-solving skills that are necessary for adapting to working conditions outside university gates upon graduation (Dabalen *et al., 2*001; Pitan and Adedeji, 2012; Finch *et al.,* 2013). This problem is well illustrated by the outcome of a survey conducted in 2014 by the Inter-University Council for East Africa (IUCEA) which revealed that half of the graduates from Universities in the East African Community countries lacked employability skills.

In response to the need for practical orientation and relevance of graduates, Gulu University as a nascent and early-adapter HEI in Uganda, right from the time of its establishment in 2003, distinguished itself as a community-oriented University and enshrined this unique orientation in its motto "for the community transformation". The philosophy underpinning the community-connectedness orientation of Gulu University is premised on two key foundation pillars: (i) the need for students to interact with outside stakeholders to enable them (students) understand and appreciate circumstances and challenges within the community that they (students) would be expected to face upon graduation; and (ii) the need for stakeholders to participate in producing graduates that are relevant to the labour market.

In line with the thinking of "fit-for-purpose" graduate in the agricultural domain, the Faculty of Agriculture and Environment (FAE) at Gulu University, as a matter of principle, sought to enhance practical orientation of all curricula of training and learning. Thus, the FAE provided for

community engagement and practical agri-enterprises development in the curriculum, and pioneered it with its flagship undergraduate programme-the Bachelor of Agriculture (BAG), in 2005. The two innovative approaches in the curriculum are code-named, the Student-Farmer (SF) attachment, and the Supervised Student Enterprise Project (SSEP). The Student-Farmer (SF) attachment has since been rebranded as the Student-Centred Outreach (SCO) model. ***(Kalule et al., 2017)*** The novelty of the SCO model lies in the placement of the undergraduate students to work with smallholder farmers and farmer groups within a 10 km radius of the university, for a period of up to one year.

The FAE realised that the "University farm model" of practical training would not be appropriate for training professionals who are expected to work with smallholder farmers. This is because smallholder farmers' farms, especially in Uganda and indeed in most of Sub Saharan Africa (SSA), barely mirror the University farm set up. In addition, the "University farm model" does not provide opportunity for students to access useful indigenous knowledge (resident in the farming community) to complement what is conventionally imparted to them (students) at the university. In contrast to the "University farm model," SCO model at Gulu University provides experiential learning to the students because it is linked to practical realities of smallholder farmers' conditions. In this model; i) students visit and identify farming problems together with farmers; ii) advise the farmers on their own farmsteads with technical backstopping from faculty staff; iii) develop joint work plans with farmers for their active participation in farm activities; iv) actively participate in the daily activities of the farm; and v) prepare reports for their academic assessment but also transmit any emerging issues from the community to the faculty.

The complimentary practical approach of SSEP is designed in such a way that students while still on the study programs at the University, develop and present well-researched business plans (BPs). The most innovative and economically feasible BPs are provided with a start-up capital so that the BPs are actualized. Upon implementation for one year, the students pay back the start-up capital with a modest interest for purpose of continuity. In all, the FAE and Gulu University at large envisioned a graduate that is grounded with the right mix of competencies namely; knowledge (both theoretical and practical), skills and attitudes for serving as a change agent contributing to rural transformation. In addition, such a graduate would be equipped with the requisite entrepreneurial skills to be able to start, own, manage and sustain an agribusiness enterprise.

The integration of community engagement and agri-enterprises development in the curriculum raised great anxiety as to whether such a training approach could produce the expected outcomes on the graduates. Empirical evidence was necessary to inform curricula design and review so as to adjust and adapt the training approaches accordingly. Therefore, a tracer study was conducted in 2014 with the first five graduate cohorts (2009-2013) of the BAG programme to gauge the relevance of the curriculum to labour market needs.

STUDY DESCRIPTION

With the understanding of the limitations of small sample sizes, the study obtained research information from multiple sources, which included, the alumni, employers, documents and records maintained in Gulu University's FAE. Therefore, the study relied on data collected on-line from five cohorts of alumni of BAG programme (graduates of 2009 – 2013) using a survey monkey and from employers of these graduates using a face-to-face interviews. The graduate questionnaire focused on the nature of employment and work, job location and satisfaction, and perceptions on the nature of training and its relevance to the nature of work they were doing. Perception on nature and relevance of training was measured on a five point Likert scale (1=unimportant; 2=slightly important; 3=important; 4=very important; and 5=critical). The questionnaire was sent out to 152 graduates, and after three reminders, 60 complete responses were received, representing 39% response rate. Though the response rates was low, this is typical for online surveys (Sax *et al.,* 2003). Much as this sample size has implications on generalisation of the findings, the study still went ahead because responses from alumni were well triangulated with information obtained from the employers. Data from a sample of 20 employers (consisting of public service, non-governmental organizations-NGOs, private organizations and financial institutions) were collected using interviewer administered questionnaire making use of the face-to-face interview process. This approach was considered advantageous for two reasons. First, it facilitated getting standardized

data from respondents of diverse educational backgrounds. Secondly, it ensured data quality because of immediate recording and checking for completeness. The employer questionnaire focused on the level of skills possessed by the graduates, relevance of skills and knowledge exhibited by the graduates, and satisfaction with the job performance of the graduates.

The study triangulated methods of data analysis and interpretation in order to enhance internal validity. The methods included: 1) desk research involving review of documents (faculty handbook, field attachment guidelines, curricula documents, community attachment reports from students and staff, and other records maintained in the faculty); and 2) Interpretive Phenomenological Approach (IPA). Callary *et al.* (2015) explained that IPA attempts to make sense of study participants' lived experiences by developing an interpretative analysis of the description in relation to social, cultural, and theoretical contexts. A key criticism of such a qualitative method is reflexivity because of the problem that the researcher is deeply immersed in the research process which can compromise the reactions of the study participants. However, IPA was applied in this study because it provides for continuous reflective process of one's own values, perceptions and behaviours, alongside those of the respondents which enhances the study validity (Parahoo, 2006).

RESULTS

Graduates' Employment and work. Results indicate that majority (96%) of BAG graduates got their first jobs within one year following graduation. A critical look show that 58% of graduates got their first jobs between completion and graduation; while 84% got jobs within 6 months after graduation. It was observed that 88% of the graduates were formally employed by the government departments, private sectors, non-governmental organization and financial institutions while less than 2% established own business (Table 1).

Table 1: Graduate employment status

Employment status	Time of study	Time of graduation
Employed	88.33	58.3
Self employed	1.7	10.0
Post graduate studies	6.7	0.00
Not Employed	3.3	31.7
Time to get a job		
Before graduation	58%	
< 6 months after graduation	84%	
≤12 months after Graduation	96%	

Regarding the sources on employment, majority of graduates got their first jobs through personal contacts (47%), public job adverts (36%), and private employment agencies (Figure 1).

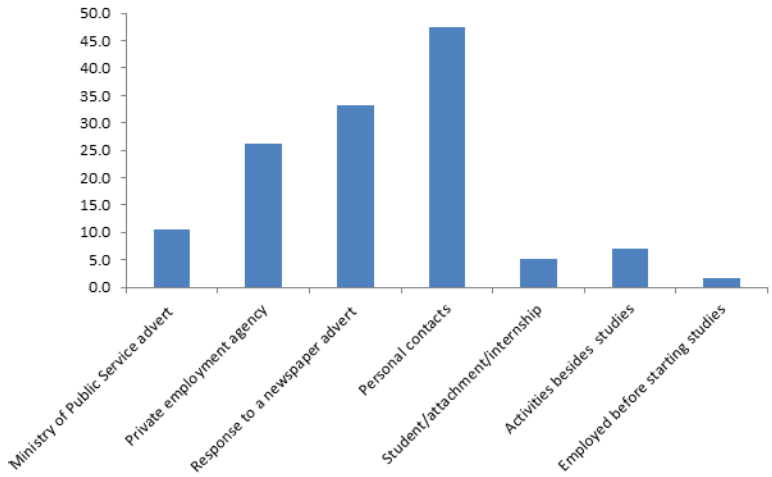

Figure 1: Sources of first jobs

Nature of work

It was in the interest of the study to gain insight into the nature of employment that graduates sought and get engaged in. Majority (52%) of graduates were doing extension work, either as field extension workers or as extension coordinators (Figure 2). Other key areas of engagement included employment in business organisations (13%) and research (14%). For those employed in business organisations, 1.7% were self-employed (owned businesses), while those who were self-employed, 43% were involved in farming, 29% were involved in consultancies and 28% were doing other forms of businesses.

Job satisfaction

Majority of graduates (42%) were employed and working in rural areas; 36% were working in semi-urban areas and 22% were working in urban areas. Most graduates were satisfied with the remuneration, working conditions and social conditions of their job placements (Figure 3).

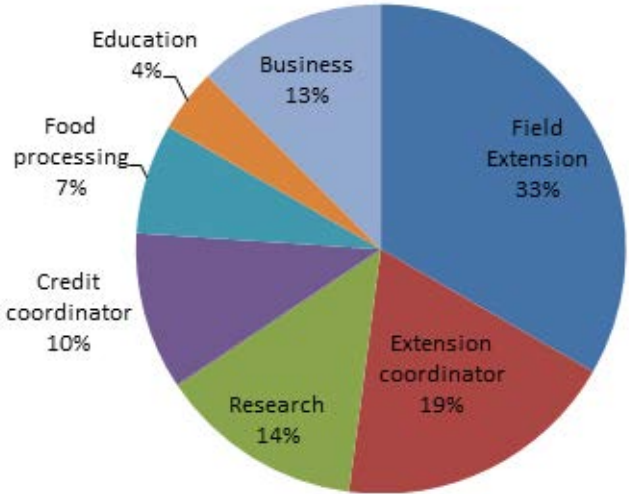

Figure 2: Nature of Work

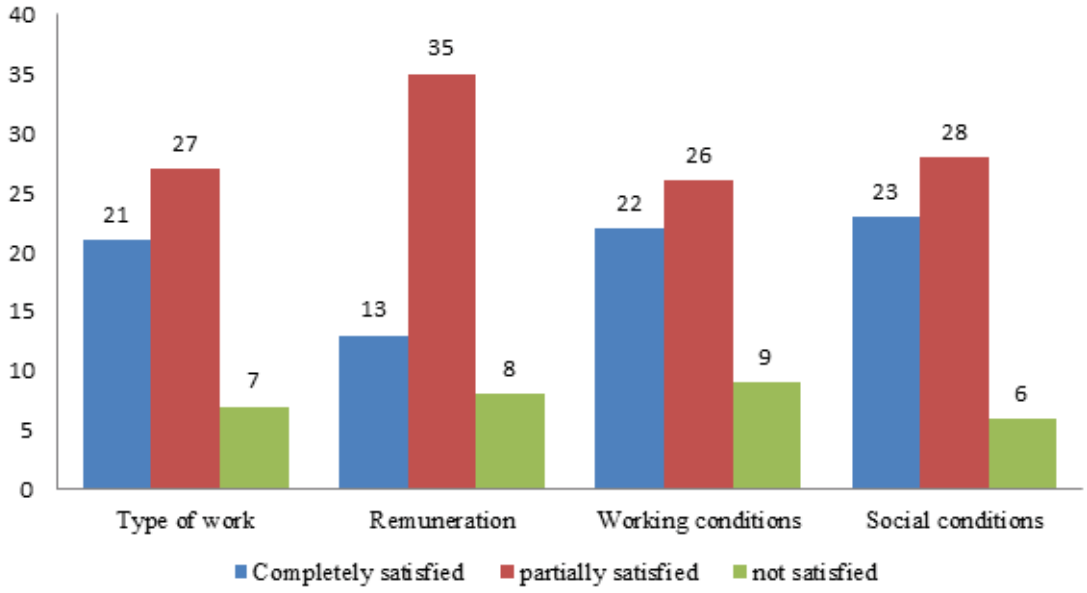

Figure 3: Satisfaction with current working conditions

Graduates perception towards the training in FAE. Graduates perceived the nature of training and preparation offered at FAE to be adequate and relevant to the job market demands (Table 2). Similarly, graduates indicated that the competencies that they acquired at Gulu University were all relevant to their jobs requirements. As can be observed from Table 3, graduates rated all the parameters for preparation and relevance of training above the average score of 3. Scores for coaching and advising on crops and animal husbandry, and designing and implementing training and the use of ICT and communication skills were rated above 4, indicating the importance put on both technical and soft skills while preparing graduates. This result suggests that there is a match between the nature and content of training offered at FAE at Gulu University and the job market needs for graduates of agriculture in Uganda.

Employers' perceptions

Ninety five percent (95%) of employers perceived the bachelor of agriculture graduates to possess the requisite competencies to perform their jobs. Moreover, this perception is held on graduates who are mostly (60%) in their first jobs following graduation. In comparison to agricultural graduates from other universities, over 70% percent of employers perceived BAG graduates to be comparable or better. This shows that the training received by the graduates at the university is relevant to the job market needs.

In relation to the competencies that BAG graduates possess, employers generally believed that graduates were equipped with the relevant competency skills to enable them perform in the different work conditions (Table 3). On the job performance of graduates, employers perceived graduates to be performing well on most of the competency areas relevant to the job requirements.

Table 2: Graduates perception on the nature of training (Likert scale 1-5)

Competencies	Average scores	
	Preparation	Relevance
Coach and advise in Crop and animal production technologies	4.07	3.72
Coach and advise in relation to farm management	3.89	3.62
Coach and advise in relation to business opportunities	3.95	3.51
Plan, budget, implement, evaluate, and report on extension programs	3.76	3.61
Develop proposals for agricultural development	3.74	3.58
Organize and facilitate multi-stakeholder processes	3.65	3.60
Develop proposals and conduct research in agricultural development	3.90	3.52
Coordinate and control credit system programs	3.17	3.19
Design and implement training in agriculture, using appropriate content and teaching methodologies	4.02	3.88
Identify business opportunities, develop business plans, manage businesses	3.84	3.27
Use of ICT and communication skills	4.16	4.20

1: Strongly disagree; 2: disagree; 3: Neither agree nor disagree; 4: agree; and 5: strongly agree

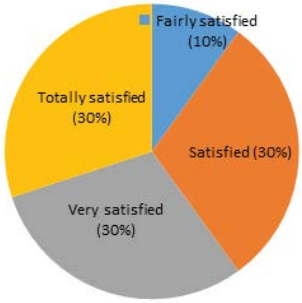

Figure 4: Employers satisfaction with performance of graduates

Table 3: Employers perception on the nature of training and performance of graduates

Competencies	Average rating	
	Relevance	Performance
Coach and advise in crop and animal production technologies	4.29	3.65
Coach and advise on farm management	4.11	4.00
Coach and advise in relation to business opportunities	3.88	3.58
Plan, budget, implement, evaluate, and report on extension programs	3.82	3.35
Develop proposals that focus on enhancing opportunities for agricultural development	3.47	3.11
Organize and facilitate multi-stakeholder processes	3.58	3.0
Develop proposals and conduct research in agricultural development	3.17	2.64
Coordinate and control credit system programs	3.18	2.5
Design and implement training in agriculture, using appropriate content and teaching methodologies	3.41	3.11
Identify business opportunities, develop business plans, and manage businesses	3.25	2.95
Use of ICT and communication skills	4.07	3.92

1: Strongly disagree; 2: disagree; 3: Neither agree nor disagree; 4: agree; and 5: strongly agree

DISCUSSIONS

Alignment of curricula to labour market needs is a key requirement that should be met by higher education institutions (Banya, 2001; Wickramasinghe and Perera, 2010; Ssebuwufu *et al*., 2012). Therefore, feedback obtained through a tracer study as is the case in the current study is necessary to determine the impact of the curricula program, and provide information needed to reform existing curriculum and bring about appropriate fit to match requirements of the world of work (Millington, 2008). Being a young university with limited reputation in agricultural training, Gulu University identified community engagement and agri-enterprise development as peculiar niches and integrated them in the BAG curriculum. Our main aim was to experiment with the BAG programme whether integration of the two niches in agricultural training would enable production of labour market responsive and competitive agricultural graduates.

This study showed that a high proportion of the BAG graduates got job placements within one year after graduation (Table 1). One of the key criteria that depict the relevance of the curricula in higher institutions of learning is the competitiveness of the graduates in the labour market (Mugisha and Nkwasibwe, 2014). The fact that most of the BAG graduates got job placements through public job advertisement indicates that the BAG graduates are indeed competitive in the job market. Additionally, BAG graduates were mostly employed in agricultural extension activities in rural areas. These findings suggest that the experience students acquired while working with smallholder farmers based on the SCO model could have influenced the graduates to fit well into the real life situations of the smallholder farmers.

Therefore, it is plausible that BAG graduates find it easy to work with rural communities as agricultural change agents. Given the fact that agriculture employs about 70% of the rural population in Uganda, there is great need to train relevant change agents that can work with these rural communities to transform their farming systems. The rural orientation of the BAG students could have contributed to the mind-sets change among the graduates to accept rural and agricultural work. This implies that the training of BAG at Gulu University is responsive to the calls for academic that promote rural and agricultural development. Because of the rural development needs in Uganda, there are always more jobs available in the rural areas. However, a number of graduate always turn down these opportunities because they are not used to the life in the rural areas. The usefulness of the community engagement in student training is further illustrated by the fact that personal contacts were a key source of employment for BAG graduates.

Investment in business start-up is one of the strategic approaches that have been mooted to tackle unemployment. The fact that some of the BAG graduates started own businesses and engaged in farming as a business indicates that emphasis on agribusiness and business plan development that was instilled onto the students while at the University is changing the mind-set of graduates to business initiation. This illustrates that changing the mind-set of graduates to create own employment as opposed to seeking employment will go a long way in addressing the high level of unemployment amongst the youth being experienced in Uganda and other countries in Africa. A critical look at Table 1 reveals that only a small fraction of the graduates (1.7 %) were engaged in own enterprises and yet BAG training put a lot of emphasis on practical enterprise development. This is not surprising, because in many developing countries such as Uganda, access to credit is a key bottleneck to small scale business start-ups. In most cases, financial institutions demand for assets such as land titles, building, and cash in the bank as security, which fresh graduates in most cases do not have. This scenario underscore the need for national policies to provide for youth friendly financial services. Indeed the Government of Uganda through its Ministry of Gender, Labour and Social Development as of 2015, put in place youth empowerment policy that enables them to access financial services for entrepreneurship. Thus, it would be important to link student enterprise scheme of the BAG program with the youth enterprise financial services to enhance transition of sizable number of the BAG graduates into enterprises development.

A significant number of youthful school drop-outs do linger jobless in rural areas and town centres in Uganda and in other countries in developing parts of the world (Pitan and Adedeji, 2012). Whereas agriculture provides opportunity for gainful employment of such youth members of the community, it is important to appreciate that most of them do not find agriculture attractive. In addition, it is also important to appreciate that for school drop-outs and uneducated youth members to engage in profitable agri-enterprises would require that they are mentored on agribusiness development and management (Ajayi *et al.,* 2008). In the case of Uganda, the BAG graduates, because of their rural orientation, agri-enterprise development skills and youthful nature would be suitable candidates to mentor school drop-out youths in agri-entrepreneurship through peer-peer learning. This would in the long run spread the impact of enterprise development training of the BAG programme beyond the graduates to the wider rural communities. This aspect needs to be integrated in the BAG training and outreach activities of Gulu University, and indeed other universities.

Based on the results of this study, the FAE has been able to integrate community engagement and practical entrepreneurship in both undergraduate and graduate programmes that were developed later. These include, the Bachelor of Science in Food and Agribusiness, and the Bachelor of Science in Agri-entrepreneurship and Communication Management at undergraduate level, and the Master of Science in Agri-enterprises Development and Master of Science in Animal Production and Marketing at graduate level. This further suggests that when universities apply field based and other practical approaches, learning does not stop at students alone. Indeed, they also offer opportunities of learning to the academicians and the higher education institutions at large.

CONCLUSION AND RECOMMENDATIONS

This study has illustrated how two novel practical approaches of training agricultural graduates at Gulu University contribute to their (graduates') relevance to the labour market. These approaches are: 1) the Student- Centred Outreach model, and 2) the Supervised Student Enterprise Project also commonly referred to the Student Enterprise Scheme. This results demonstrated a match between the nature and content of training offered at FAE, Gulu University and the job market needs for graduates of agriculture in Uganda. The fact that there are more graduates engaged in extension service delivery in rural areas underpins the relevance of the current training to the community development needs. The study underscored the importance of SCO model as an alternative approach to the "University-Farm model", especially in situations where real farmer situations do not reflect the university farm set-up. Consequently, other universities and HEIs could adopt this approach in the training of agricultural professionals. The SSEP seemed to enhance the business mentality and acumen of graduates.

There are a number of key recommendations that can be drawn from this study: i) HEIs and policy decision makers should consider strengthening and supporting the integration of field-based practical

approaches of training; ii) HEIs needs to start integrating entrepreneurial practical approaches in their curricula to develop young people's creative thinking and innovation capacity to be able to build small scale businesses that enhance job creation; and iii) more studies, lessons and experience sharing are still needed to increase cross-learning amongst African universities.

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STATEMENT OF NO CONFLICT OF INTEREST

We the authors of this paper hereby declare that there are no competing interests in this publication.

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