

An Overview of Development, Delivery and Challenges of Agriculture Teaching and Learning Pedagogy through Open and Distance Learning (ODL) in Papua New Guinea

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20TH TO 21ST OCTOBER, 2022***

Presentation Outline

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Editorial

Agricultural studies must be promoted



THE agriculture sector is Papua New Guinea's economic backbone.

And the appointment of four ministries to the agriculture sector is a paradigm shift to get agriculture moving again, Prime Minister James Marape says.

The ministerial leadership must be supported by the workforce.

While we have the farmers ploughing the land, it is disappointing that not many students in Papua New Guinea are taking agricultural studies despite having the opportunity to be an agricultural nation.

Not only is this happening here, there is growing concern worldwide that young people have become disenchanted with agriculture.

And to think more than 80 per cent of Papua New Guinea's population live in rural areas and practice subsistence agriculture.

The majority of people are highly dependent on the country's forests

and rivers for their food security and to meet basic needs.

The agriculture sector has always been the backbone of PNG's economy and successful partnership programmes were needed in addressing impediments in growth.

At independence the country had among its chief exports coffee, copra, cocoa and tea.

These cash crops were one of the first means for the people to make their own revenue and take part in the local economy.

Strengthening agriculture can produce positive ripple effects in a country's economy. Investments in agricultural development can help at reducing poverty.

Agriculture has been at the centre of recent economic progress for many developing nations.

Most governments are taking concrete actions to address the problem and there is a clear recognition of strengthening agriculture and food systems in a manner that

brings more affordable, healthier and diverse food options within everyone's reach.

Revenue from agriculture could cater for the increasing expenditure the Government had to take care of given the increasing population over the years.

And so, in the coming years, there will be a growing need for farmers, horticulturists, agronomists and other related careers where many people can settle.

Seems to be a common misconception about why students did not take up studies in the agricultural field was that it was only limited to farming and animal husbandry.

What many do not realise is that, agriculture provides a wide range

of career opportunities for students so studying agriculture could also be a way for many to find success.

While agricultural programmes are widely available at the tertiary level, they're even less common at the primary and secondary level of education.

Many young people especially in developing countries world tend to shy away from agriculture.

One way to get them interested in taking up agricultural studies is to engage them in agriculture in their early schooling years.

The one advantage we have, is PNG is an agricultural nation.

While we know agriculture based on knowledge passed on from our fathers, we must now adapt to the changing practice in the world.

At the same time, concerns over climate change and its adverse effects on food security and environmental degradation are rising. For instance, extreme weather chang-

es, such as heat waves and water scarcity, are negatively affecting crop production. The United Nations (UN) has warned that climate change is driving global hunger.

The trend is changing. The trend is growing.

Support for the agriculture sector is increasing.

Attitudes toward agriculture are already changing. Young people are now speaking up for themselves on why they choose agriculture and they must be encouraged and supported especially at an early age.

There's no denying the importance of general education as it lays the foundation for a child's future, but the agriculture curriculum can also equip students with practical life skills that can help them in both their future personal and professional lives.

The ball is now thrown to guidance officers in the Education Department.

Abstract from the National News Paper Editorial

Wednesday, 7th September, 2022.

- The agriculture sector has always been the backbone of PNG's economy and successful partnership programmes were needed in addressing impediments in growth.
- While we have the farmers ploughing the land. It is disappointing that not many students in Papua New Guinea are taking up agricultural studies despite having the opportunity to be an agriculture nation.
- Seems to be a common misconception about why students did not take up studies in the agriculture field was that it was only limited to farming and animal husbandry

- And so in the coming years, there will be a growing need farmers, horticulturalists, agronomists and other related careers where many people can settle.
- What many people do not realise is that, agriculture provides a wide range of career opportunities for students, so studying agriculture could also, be a way for many to find success.
- While agriculture programmes are widely available at the tertiary level, they're even less common at primary and secondary levels of education.
- At the same time, concerns over climate change and its adverse effects on food security and environmental degradation rising.
- Support for the agriculture sector is increasing. Attitudes towards agriculture is changing. Young people are now speaking up for themselves on why they choose agriculture and they must be encouraged and supported especially at an early age.

Objectives

This presentation gives an overview of the approaches taken to deliver agriculture education through the ODL mode and its impacts on the livelihood of the rural communities in PNG.

In pursuit to develop and deliver these teaching and learning pedagogies, different approaches are being made to effectively make learning accessible by applying various methodologies which includes print and audio-visual modes and more recently on - line learning using the Moodle Platform.

Introduction

- Papua New Guinea (PNG) is an agrarian nation with 85 percent of its population living in the rural areas who sustain their livelihood through subsistence agriculture production and smallholder cash crop farming.
- Unfortunately the current trend in agriculture education is basically face to face resulting in a minority of the farming population been educated in agriculture production and management.
- Therefore, agriculture education is pivotal in developing the human capacity to improve cash economy and food security.

- Given our socio - cultural and geographical diversity, innovation is needed in PNG for an effective learning outcome to be delivered to our students.
- The University of Papua New Guinea is the first institution in the country and the South Pacific region to actually develop and deliver agriculture courses externally.
- However due to the uniqueness of the country there are disparities in development and delivery of agriculture teaching and learning pedagogies which poses constraints and challenges.

Current Pedagogical Developments

The Blended Learning Approach which entices;

- 1. Print Mode**
- 2. On- line Learning – Through Moodle Platform**
- 3. E- Facilitators/Tutors (Through Forums)**
- 4. Audio – Visual (Videos)**
- 5. On Farm Practicum**
- 6. Industrial Attachments**
- 7. Face to face (F2F) Tutoring**

Agriculture teaching and learning pedagogies

On Line Learners – MBUC Students



Esa'ala University Centre (Isolated on – line Learners)



On Farm Practicum Students- AROB



Industrial Attachment Students – Urban Youths



Proposed Agriculture Curriculum under Open and Distance Learning (ODL)

Certificate Level 4 in Agri Business Management

Sciences - Introduction to Chemistry, Physics and Biology

Crop Sciences- Principles of Crop Production, Perennial Crop Production, Crop Protection, Food and Water Security and Food Safety

Animal Production – Poultry Production, Pig Production, Cattle and Small Animals (Sheep and Goat, Bee Keeping, Ducks, etc.)

Management – Agriculture Management, Smallholder Plantation Management, Introduction to Business Skills, Nutrition Management

Climate Change- Impacts and Resilience and Mitigation

COURSE DEVELOPMENT

Certificate Level 4 Course Structure in Agri Business Management

| No. | Course Name | Course No. |
|-----|--|------------|
| 1 | Agriculture Management | 6.00541 |
| 2 | Animal Production | 6.00542 |
| 3 | Principles of Crop Production | 6.00543 |
| 4 | Perennial Crop Production | 6.00544 |
| 5 | Food Security and Climate Change | 6.00545 |
| 6 | Sustainable Natural Resource Management | 6.00546 |

Assessment

*Continuous - 50%

* Final Examination - 50%

Continuous assessment

Assignments - 2 (25 % each)

- Assignment -1 due wk. 5

- Assignment - 2 due wk.10

Diploma in Agri- Business Management

- Sciences - Chemistry, Physics and Biology

- Crop Sciences- Crop Agronomy, Perennial Crop Production, Plant Protection including Plants Quarantine, Food and Water Security and Food Safety- HACCP
- Animal Production – Poultry Production, Pig Production, Cattle and Small Animals, Meat Inspection, Animal Quarantine,
- Fisheries Management- Coastal Fisheries and Inland Fishery
- Management – Agriculture Management, Smallholder Plantation Management, Introduction to Business Skills, Nutrition Management
- Climate Change- Impacts, Resilience and Mitigation.
- Downstream processing – Crop and Animal Products

Assessment

*Continuous - 40%

* Final Examination - 60%

Continuous assessment

Assignments - (2) (20 %) - Assignment -1 due wk. 5, Assignment 2 due wk. 10

.Practicum - (10%) - Mainly field visit to a farm or own project

Bachelor's Degree – Horticultural Management

Course content:

This subject covers the husbandry of main field crops: grains, roots and stem tubers, vegetable fruits, pineapples, bananas (*musae* species), legumes and leafy vegetables grown in PNG. The course covers socio – economic contribution in terms of food security; botanical features; soils and climate requirements, choice of cultivars, sowing planting time, land, soil, seedbed preparation; sowing/planting, plant cultivation, pruning, major pests and diseases, fertilizer application, irrigation, time and method of harvest, intercropping benefits (LER calculations); crop auditing, handling, yields. Product uses and nutritional values.

Assessment:

*Continuous - 40%

* Final Examination - 60%

Continuous assessment

Assignments - (2) (20 %) - Assignment -1 due wk. 5, Assignment 2 due wk 10

.Practicum - (10%) - Mainly field report

There is a Need for Pedagogical Approach to Agricultural Education

- ❑ Many new generation students have been grown up in cities rather than in villages, unlike our generation. Because of too much electronic engagements in their life such as computers, tablets and mobile phones, they have not been aware of the concept of agriculture with respect to their environments such as soil, plants, animals, forest etc. They continue their life in their virtual World rather than the real World.
- ❑ There has been a lack of sensation of soil, animal, plants and growing or manufacturing of specific agricultural products, causing deficiency of analytical thinking in learning.
- ❑ The analytical thinking ability of students needed to be improved in problem solving in agricultural practice. Besides, due emphasis should be given on the teaching in agriculture starting from childhood to the age of 17-20 years old by the means of analytical approach towards agricultural practices and produce by including location -specific and relevant study modules in the curriculum.
- ❑ At this time, pedagogical approaches are needed to be considered in agriculture education from educational materials to getting agricultural products with obtaining the real product of human resource as agriculture engineers and specialist.

What are the Constraints and Challenges?

- In fact, agricultural sector is undergoing rapid changes as a consequence of both technological progress and financial forces which demand an increased market-orientation, competitiveness and higher productivity.
- With increasing involvement of private players in agriculture, there is a paradigm shift in demand and employment pattern of agricultural graduates to agriculture and allied sectors warranting an urgent need for a revision of existing curricula to better address market as well as educational thrust addressing national priorities/need (Boyer Commission 1998; Osborne 2007; NAS 2009).
- This reorientation should incorporate twin objectives of (i) market-oriented agriculture, and (ii) direct relevance to the improvement of subsistence agriculture and poverty in rural areas.

Thus, a great challenge facing many agricultural universities over the next decade will be to introduce radical changes in pedagogy of agriculture so as to meet these challenges by transforming themselves:

- ❑ from agricultural universities to universities for rural development,
- ❑ from hierarchical organizations to participatory ones,
- ❑ from immediate needs to short- and long-term sustainability, and
- ❑ from reactive to pro-active organizations.

(A. Kumar and Vandana 2014)

Undoubtedly, universities are better equipped to greatly influence this cause through the technology and trained human resource that they are capable of generating.

In this space more effective and meaningful teaching and learning pedagogies in agricultural higher education, an attempt is made in this presentation to suggest ways and means for reorienting higher education in agriculture with due emphasis on:

- promotion and adoption of a systems approach in teaching programmes enabling graduates to comprehend agriculture as a system comprised of technical, economic, social and cultural elements,
- enhancement in understanding of students for key management principles such as decision-making skills,
- participatory teaching methods using case studies, problem-solving approaches, group working and interdisciplinary approaches
- design and development of on –line courses using blended learning strategies

Way Forward



- Development of School curriculum based on Climate Change mitigation, resilience and coping mechanisms of food and water security
- The teaching approaches employed in secondary school agriculture should be able to develop skills of students on the aspects of food production, its accessibility, food safety, and nutrition as well as production economics.
- At the higher education level more emphasis on managerial skills and analytical thinking on aspects of soil, animal, enterphreunual skills on manufacturing of specific agricultural products.
- Accessibility of on – learning pedagogies

Conclusion

- There should be due emphasis on agricultural education right from primary and secondary level of education with focus on promoting research, experimentation and implementation in rural education systems which makes use of the experiences and the natural and social environments of rural youth, and examining current modules where elementary and secondary schools have successfully included agriculture in the curriculum
- Higher agricultural education In view of globalization and development of new technologies, it becomes imperative to make higher education in agriculture relevant to address present needs of the society. Similarly, regional issues also need be addressed.
- Thus, agricultural graduates should be equipped with sound technical knowledge and entrepreneurial skills in a flexible manner to undertake profitable farming and become effective contributors for sustainability in agriculture rather than job seekers

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THE END



Thank You For Listening

ANY QUESTIONS?

