INTEGRATING HIGH SCHOOL AGRICULTURE CURRICULA IN SWAZILAND

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Abstract
Two high school agriculture curricula operate in Swaziland schools, one is the Swaziland General Certificate in Secondary Education (SGCSE) Agriculture and the other is Prevocational Agriculture. Competency-based approaches are now recommended for teaching Agriculture. Parents and other stakeholders question the concurrent offering of these two, especially that SGCSE Agriculture is certificated and Prevocational Agriculture is not, and therefore, graduates of the former can enter the tertiary level while the latter cannot. The purpose of the study was to describe the possibility of integrating the high school SGCSE and Prevocational Agriculture curricula. A descriptive study employing content analysis, survey questionnaire and focus group discussion were used to investigate the possibility of integrating the two high school agriculture curricula. The two agriculture curricula syllabi were analysed inductively to come up with the similarities and differences. A census of 48 SGCSE and Prevocational Agriculture teachers in schools where these two curricula run concurrently were used with the survey questionnaire. Eight participants were used in the focus group discussion. Descriptive and inferential statistics were used in the study. Findings from content analysis and focus group discussion revealed that several parts of both curricula could easily be integrated as they were similar. Survey means score revealed that teachers possessed competency-based skills for teaching, assessing and managing an integrated curriculum. Therefore, SGCSE and Prevocational Agriculture integration could proceed. A study on determining the challenges of implementing an integrated SGCSE and Prevocational Agriculture competency-based approach is recommended.

Keywords: curriculum integration, general certificate in secondary education, vocational agriculture, competency-based approaches

1.0 Introduction

Agricultural Science was introduced in 1983, and was replaced by Ordinary Level (O' Level) Agriculture in 1985 until 2009, and was later localised to Swaziland General Certificate in Secondary Education (SGCSE) in 2010. The SGCSE first examination was conducted in 2012. The Prevocational Education (PVE) was introduced in 1988 and includes Agriculture, Business Studies, Home Economics and Technical Studies (Simelane, Mkhwanazi & Dlamini, 1999). SGCSE Agriculture was offered in 167 high schools in Swaziland while Prevocational Agriculture (PVA) operated in 16 high schools. PVE was introduced in an effort to make learning more relevant to the needs of Swazi society. The different curricula were to address the concern by the public that schools should provide skills allowing students to be employed within non-formal and formal sector on graduation. According to Simelane, Mkhwanazi and Dlamini (1999), PVE was also designed to respond to the many challenges of an evolving modern society.

Students in PVA were envisaged to develop competencies that are measurable in an objective and consistent manner. Competencies should be in the form of knowledge, skills and attitudes

(Simelane, Mkhwanazi, & Dlamini, 1999). The acquired competencies are to be applied at school and at home concurrently, and in the immediate future as students make smooth transition into adult roles in the family, community, workplace and further education. Though Agriculture as a subject is well established in the education system, it has been observed that the teaching and learning of this subject is not aligned with curriculum intentions (Ministry of Education, 1996).

Numerous studies on SGCSE Agriculture and PVA have been conducted in Swaziland and challenges were reported (Ministry of Education, 1998). The challenges included absence of accreditation and certification, stakeholders' negative attitudes and insufficient integration of the culture of self-reliance. On the one hand, PVA accreditation and certification up till today remain the main issue in Swaziland. Parents also question PVA education value in promoting student mobility to workplace.

SGCSE Agriculture, on the other hand, is under much criticism for providing curriculum that lacks participatory forms of learning and opportunities for students to connect learning to 'real world' events. Ndlangamandla (1990) identified the following challenges of SGCSE Agriculture: time allocated to practical was less, Agriculture classes were too large, theory lessons did not link with practical activities and materials and facilities were inadequate.

Previous studies point toward a competency-based education as a new direction in education (Gonczi, 1996; Hargraves, 1995). Educational experience in many countries shows that one way of updating the content of education is the orientation of training programmes toward competency-based approach. Scientist in European countries considered that knowledge, skills and work habits acquired by young people would enable intellectual development of individuals and the formation of the ability to quickly respond to the demand of time if transformed into competencies.

At present, Swaziland education is in a period of transition, from subject-focused and subject matter-focused learning approaches to competency-based learning approaches which had already begun at the primary level. According to Tremaine (1992), vocational and academic curricula must integrate in order to meet students' educational needs and make education more meaningful and relevant. In the last two decades, developed countries such as Great Britain, Canada, Germany, France and New Zealand began discussions on how to equip a person with necessary knowledge, skills, attitudes, and competencies in order to ensure harmonious interaction with the quickly developing technological society (Saliha & Warda, 2012).

According to Chernus and Fowler (2010), curriculum integration takes a variety of forms, but in general, it is an attempt to connect academic, career, and technical instruction in ways that prepares students for further training, employment and careers without segregation and under equal opportunities. Chernus and Fowler (2010) defined curriculum integration as a series of conscious and informed strategies used to connect academic and vocational content so that one becomes a platform for instruction on the other over an extended period of time. Vocational content is introduced into the academic curriculum and academic content into the vocational curriculum. Thus, each curriculum becomes a platform for some instruction in the subject matter of the other curriculum. A more detailed definition comes from Chernus and Fowler (2003) who characterize curriculum integration as an instructional approach that incorporates key content from two or more disciplines, has well-defined educational objectives such as academic, industry and workforce-readiness standards, and uses authentic applied problems/problem-based learning to engage and challenge students. Carrim (2012)

also found that pursuing the integration of academic and vocational forms of education and training is something that is worthwhile.

Integration can occur in many different forms: within a single discipline, across the disciplines and within and across learners (Fogarty, 1991). In the integration across the disciplines, Fogarty (1991 recommends that the disciplines must be first sequenced, then shared contents identified and lastly webbed and threaded.

Research findings support the claim that the integration of Science into the Agriculture curriculum is a more effective way to teach Science. Students taught by integrating Agriculture and scientific principles demonstrated higher achievement than those taught by traditional approaches (Enderlin, Petrea, & Osborne, 1993). Teachers believe that integrating Science assisted students in better understanding Science concepts in and application to Agriculture (Thompson & Balschweid, 1999). Research has also shown that without knowledge of biotechnological concepts, teachers cannot incorporate the concepts into their biology curriculum (Matton, 1998; Conner, 2000).

According to Madondo (2013), the youth leave school and enters the workplace or workforce without much tangible knowledge and skills or competencies necessary to adapt to a competitive and increasingly global economy. The high school SGCSE Agriculture and PVA curricula had little promise for wage employment opportunities for school leavers (Dlamini, 2002). About 53% of the youth between 15 and 24 years, which is about % of the 1.33 million total population of Swaziland, are unemployed (Brixiova, Fakudze, Imai & Kanongoye, 2012).

Competency-based education addresses what learners are expected to do rather than what they are expected to learn about (Serdenciuc, 2013). In theory, competency-based education better meets individual learning needs. Despite the fact that competency-based curriculum is at its inception at primary level in Swaziland, competency-based approaches had not been a topic of discussion by high school teachers.

Sukati (2000) conducted a study on ‘Implication of integrating the PVA and junior secondary modern Agriculture programmes in Swaziland’s high school’ but did not investigate the competency-based approaches in the PVA and SGCSE curricula that could be incorporated. The high school Agriculture curricula running concurrently face the question ‘Is there a possibility of providing the youth with agricultural technological skills crucial for employment, self-employment, or post-secondary education in a global economy upon graduation by integrating high school PVA and SGCSE Agriculture curricula into one competency-based syllabus?’

2.0 Purpose and objectives of the study

The purpose of the study is to determine the possibility of integrating high school SGCSE Agriculture and PVA Agriculture curricula in Swaziland in a competency-based approach. The objectives of the study are to:

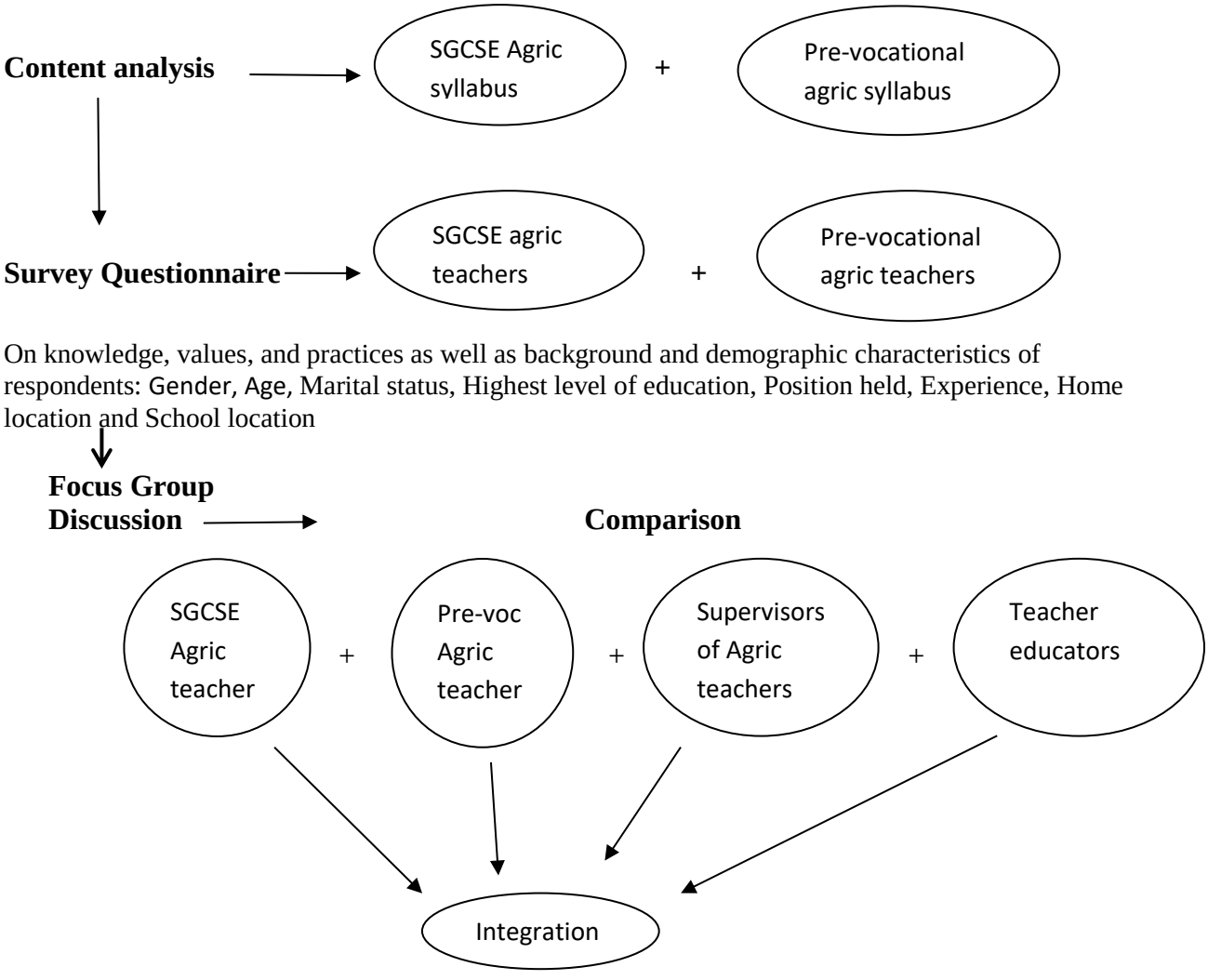
a) compare and contrast high school Swaziland General Certificate in Secondary Education and Prevocational Agriculture curricula.
b) describe high school Agriculture teachers’ extent of knowledge, valuing and practising of competency-based approaches.

c) describe the views held by different groups of stakeholders regarding possible integration of Swaziland General Certificate Secondary Education Agriculture and Prevocational Agriculture.
d) describe the characteristics of respondents and differences or relationship, if any, between teachers' survey responses and focus group discussion views on competency-based approaches in general, teaching, learning, assessment and management.

3.0 Methodology

The study used descriptive research employing qualitative and quantitative approaches. Triangulation in data collection procedures of content analysis, survey questionnaire and Focus Group Discussion (FGD) was employed, as shown in Figure 1.

Figure 1: Procedural framework for the study



The target population of the survey questionnaire consisted of all high school SGCSE Agriculture and PVA teachers (N= 48) who were at high schools where both programmes were offered concurrently. These high schools are in the four regions of Swaziland as follows. Hhohho region: (1)

Ntfonjeni High School, (2) Somjalose High School, (3) Motshane High School and (4) Lobamba National High School in the Hhohho region; Manzini region: (5) Ekukhanyeni High School, (6) Cana High School, (7) Swazi National High, and (8) Emvimbeko High School. In the Shiselweni region there is (9) Ngwane High School, (10) Evelyn Baring High School, (11) Franson Christian High School and (12) Salem High School. Lastly, in the Lubombo region there is (13) Lavundlamanti High School, (14) St. Phillips High School, (15) Vuvulane High School and (16) Sikhunyana High School. The sampling frame of the study was obtained from each school's administration. The study was a census because the population was small.

The content analysis was used in coding similarities and differences of the high school SGCSE Agriculture and PVA curricula found in the two syllabi documents. Content analysis is a useful tool for examining trends and patterns in documents (Hsieh & Shannon, 2005). Data from content analysis were analysed through inductive analysis. The analysis of content was organized according to similarities and differences on high school SGCSE Agriculture and PVA curricula in Swaziland. Content analysis for the two curricula were on general aims, learning aims (knowledge, skills, and affective), assessment objectives as well as schemes of assessments and weighting of examination papers, assessment tools, teaching techniques and the curricula content.

The survey questionnaire was developed based on information gathered from related literature to elicit SGCSE Agriculture and PVA teachers' responses regarding their extent of knowledge and valuing and practising of competency-based approaches. Professionals knowledgeable in the competency-based approaches education were identified to validate the survey questionnaire. The experts were (1) PVA Curriculum Designer from National Curriculum Centre, (2) William Pitcher College Vice Principal, (3) a former PVA Teacher, (4) a high school principal. (5) a deputy head teacher, (6) a SGCSE Agriculture teacher and (7) a former SGCSE Agriculture teacher. The instrument included five dimensions with items for which they have to rate their knowledge, valuing and the extent of practicing competency-based approaches. The five dimensions were (1) the competency-based approach in general, (2) the competency-based teaching approach, (3) the competency-based learning approach, (4) the competency-based assessment approach and (5) the competency-based management approach. The rating scale used for the five dimensions was from 1= Very little, 2= Just little, 3= Little, 4= Moderate, 5= Much, and 6= Very much. A section on background and demographic characteristics of respondents was also included. The suggestions for improvement by the validators were included.

A pilot test was conducted with 30 selected SGCSE Agriculture teachers in the schools who were not participating in the study to establish reliability of the survey questionnaire content rating scale responses. Cronbach alpha reliability procedure was used to compute the reliability coefficients for the dimensions, and the results ranged from 0.83 to 0.96. Items found lowering the reliability coefficient for the section were deleted.

Data were collected using the revised, already validated and pilot-tested questionnaire. All the questionnaires were returned and the nonresponse error was controlled. An *a priori* probability of ≤ 0.05 was set in order to determine the level of statistical significant difference. The survey data were coded and analysed using Statistical Packages for Social Science (SPSS) version 20.0. The interpretation of the survey ratings used the following mean ranges for each point of the rating scale: 1.00 – 1.44 = 1 for Very little; 1.45 – 2.44 = 2 for Just little; 2.45 – 3.44 = 3 for Little; 3.45 – 4.44 = 4 for Moderate; 4.45 – 5.54 = 5 for Much; and, 5.45 – 6.00 = 6 for Very Much.

During the FGD, participants were presented with the results of the content analysis, coded similarities and differences of the high school SGCSE Agriculture and PVA curricula. The FGD instrument comprised of four (4) questions, three main open-ended questions and one question on background and demographic characteristics. The three questions were (1) What could be retained from the high school SGCSE Agriculture or PVA to strengthen the integrated competency-based curriculum to be developed? (2) Why do you think it is important to integrate the high school SGCSE Agriculture and PVA curricula in Swaziland? and (3) When considering the integration of Agriculture curricula, what do you think could be added?

The FGD data collection was conducted at the Faculty of Agriculture University of Swaziland Conference Room and lasted for two hours. The participants of the FGD consisted of the two (2) high school SGCSE Agriculture, three (3) PVA teachers, two (2) school Agriculture programme coordinators and one (1) teacher educator from the Department of Agricultural Education and Extension at the University of Swaziland. Purposive sampling was used, with few participants sampled according to a list of specific criteria. All the participants were selected on the basis of knowledge and experience of the two high school Agriculture curricula and their homogeneity. Data collected using the FGD were analysed using induction and constant comparative method (Patton, 2002). Data analysis consists of examining, categorizing, tabulating and recombining the evidence collected (Hancock, 2002).

4.0 Findings and Discussions

4.1 *Comparison of SGCSE Agriculture and PVA syllabi*

The following aims were equivalent in SGCSE Agriculture and PVA: (i) Stimulate development of entrepreneurial skills necessary to initiate and manage agribusiness; (ii) Encourage the development of an agricultural department farm or small holding that ensure learners actively participate in farming events; (iii) Demonstrate the value of agriculture to the family and community, and show how agriculture can contribute to the world-wide campaign for poverty alleviation and food security; and (iv) Develop initiative and self-education so as to encourage resourceful and self-reliance. This finding confirms duplication of these aims.

Contrasting the two syllabi also revealed a major difference in terms of the number of knowledge aims found to be completely lacking (0) in PVA aims, whilst SGCSE Agriculture knowledge aims were three (3) in total. PVA syllabus skill aims were higher (3) than SGCSE Agriculture skill aims (2). SGCSE Agriculture syllabus had seven (7) personal attribute or attitudes aims while PVA had two (2). The conclusion drawn was that PVA does not aim at knowledge, but aimed at practical skills and more so in personal attributes or attitudes aims. The lack of knowledge aims could be attributed to the fact that PVA was an initiative to provide hands-on experiences and improved personal and agriculture valuing.

The assessment objectives at recall level were found in both SGCSE Agriculture and PVA (15%). Handling information objective was a little more for SGCSE Agriculture (40%) than in PVA (35%). Application objectives were found only in PVA (40%-55%). The higher level knowledge objectives (application, synthesis, and evaluation) were found only in PVA, while the practical and investigation skills objectives were found in both. The findings show that SGCSE Agriculture and PVA tested at all levels of knowledge objectives and handling of information and on practical and investigation skills. However, PVA also assess on application.

Comparison of the schemes of assessment and weighting of papers for SGCSE Agriculture and PVA revealed that Paper 1 was similar. Paper 1 is a multiple choice and compulsory paper. The external moderation and internal moderation were found similar for SGCSE Agriculture and PVA. For the external moderation only, the candidate record card and coursework assessment summary form handed to Examinations Council of Swaziland (ECOS) by the end of October was similar. Both SGCSE Agriculture and PVA assessment formats were similar in the Cover Page, Table of Content, Introduction, and Conclusion. In conclusion, schemes of assessment were similar for both SGCSE Agriculture and PVA.

The assessment tool for student portfolio and personal information of proprietors, conducting SWOT analysis, and developing a market plan was found only in PVA. The findings point to PVA entrepreneurial assessments offered more due to the requirement of market plan, SWOT analysis and portfolio.

Group teaching techniques such as lecture, discussion, demonstration, field trips, role playing, problem-solving, assignment and questions and answers were recommended higher than individual teaching techniques such as supervised study, case study, experiments and student notebooks for both SGCSE Agriculture and PVA. Findings tell that group teaching techniques were recommended more for both due to the fact that students learn better as groups.

Similar curriculum contents were in the crop production, livestock husbandry, agricultural engineering and agricultural economics. However, curricula structure and the curricula goals were found to be totally different for SGCSE Agriculture and PVA. The main topic areas in SGCSE Agriculture are considered as modules in PVA. PVA provides learning opportunities and SGCSE Agriculture provides learning experiences. Findings show that the philosophy of the SGCSE Agriculture and PVA differs.

4.2 *SGCSE Agriculture and PVA teachers' knowledge, valuing and practising of competency-based approaches*

Table 1 reveals that in all dimensions, SGCSE and PVA teachers separately, both have much (4.45–5.54) knowledge of competency-based approaches. No significant difference in their ratings was found on knowledge of competency-based approaches.

Table 1:Self-reported total dimension rating on knowledge by SGCSE and PVA agriculture teachers

Dimension	**SGCSE**			**PVA**				
	N	μ	σ	N	μ	σ	t	*p*
General	31	4.70	0.60	17	4.82	0.79	-0.63	0.156
Teaching	31	4.92	0.77	17	4.73	0.87	0.83	0.065
Learning	31	4.87	0.64	17	4.77	0.81	0.45	0.217
Assessment	31	5.06	0.60	17	4.86	0.92	0.90	0.051
Management	31	5.01	0.72	17	4.97	0.84	0.17	0.546

The means, t values and probability levels in Table 2 reveal that SGCSE and PVA teachers also do not differ in their valuing of competency-based approaches (much = 4.45 – 5.54), except in one dimension—assessment. SGCSE teachers rated their valuing of competency-based assessment

higher than PVA teachers (μ = 5.06 > 4.86; t =.90; p = .05). Although these findings seem odd, these show that SGCSE teachers are already 'sold' to competency-based approaches, which PVA teachers should already be following by the nature of their curriculum, and therefore, integration is possible.

Table 2:Self-reported total dimension rating on valuing by SGCSE and PVA agriculture teachers

Dimension	SGCSE			PVA				
	N	μ	σ	N	μ	σ	t	*p*
General	31	4.80	0.61	17	4.91	0.74	-0.55	0.59
Teaching	31	4.84	0.70	17	4.71	0.76	0.55	0.24
Learning	31	4.72	0.60	17	4.78	0.77	-0.32	0.29
Assessment	31	5.06	0.60	17	4.86	0.92	0.90	0.05
Management	31	5.02	0.66	17	5.06	0.81	-0.19	0.48

Table 3 shows, however, that the practicing of competency-based approaches was rated much (4.45 – 5.54) by both, except in the teaching dimension, where both had little (2.45 – 3.44). No significant difference in the two groups' ratings of the dimensions was found. The findings intimate that in the integration process, practicing of competency-based approaches in teaching needs to be more emphasised.

Table 3:Self-reported total dimension rating on practising by combined SGCSE and PVA agriculture teachers

Dimension	SGCSE			PVA				
	N	μ	σ	N	μ	σ	t	*p*
General	31	4.39	0.59	17	4.75	0.77	-1.78	0.41
Teaching	31	3.32	0.57	17	3.32	0.63	-0.00	0.91
Learning	31	4.16	0.78	17	4.55	0.56	-1.80	0.54
Assessment	31	4.58	0.65	17	4.65	0.87	-0.30	0.34
Management	31	4.39	0.74	17	4.51	0.83	-0.56	0.68

Findings in Table 4 show that, overall, combined SGCSE and PVA teachers average ratings reveal that they have much (4.45–5.54) knowledge and valuing of competency-based approaches. However, ratings of practicing reveal lower values, especially in teaching wherein they have little (2.45–3.44). Knowledge and valuing do not readily translate into practice. This is an area that needs to be given much attention if competency-based approaches are to be promoted.

Table 4: Self-Reported total dimension ratings on knowledge, valuing, and practicing competency-based approaches by combined SGCSE and PVA agriculture teachers (N=48)

Dimension	Extent of knowledge		Extent of valuing		Extent of practising	
	μ	σ	μ	σ	μ	σ
General	4.74	0.66	4.84	0.65	4.52	0.67
Teaching	4.85	0.72	4.79	0.71	3.32	0.67
Learning	4.84	0.70	4.74	0.66	4.38	0.58
Assessment	4.99	0.73	4.61	0.73	4.61	0.73
Management	4.99	0.73	5.04	0.71	4.43	0.77

4.3 ***Possible integration of SGCSE Agriculture and PVA curricula according to FGD***

Regarding the aims, the FGD recommended nine aims to be retained in the integrated curriculum; namely: 1) Create awareness of existing problems so as to stimulate problem-solving abilities, 2) Stimulate development of entrepreneurial skills necessary to initiate and manage agribusiness, 3) Gain and practice agricultural skills needed to enhance ability to make persons and career choices (gainful employment, self-employment and further education), 4) Develop scientific methods such as accuracy and precision, objectivity, integrity, enquiry and inventiveness, 5) Develop initiative and self-education so as to encourage resourceful and self-reliance, 6) Develop desirable values and attitudes toward country's natural resource for sustainable agriculture development, 7) Provide a background, together with basic sciences, Mathematics and other relevant subject for more advanced studies in Agriculture, 8) Promote awareness of HIV/ AIDS impact on agricultural production and 9) Ensure that the learning of Agriculture integrates with development agencies. The emerging picture is that objectives were focused on needs of society, needs of students and requisites of an integrated curriculum.

Recommended curriculum content included animal production and health, land use and mechanisation, and general Agriculture. These were closely followed by crop husbandry and agricultural economics. Environmental influences as a content was found only in SGCSE Agriculture, and was recommended to be included as well. Recommendations are toward the integrated curriculum taking into consideration animal production and health, land use mechanisation, general Agriculture and environmental influences with some foundation of crop husbandry and agricultural economics.

The assessment of the integrated curriculum recommended were: Paper 1:-Multiple Choice and short structure questions assessing knowledge, Paper 2:- short questions and essay questions assessing knowledge, and for the module which is found only in PVA curriculum:- assessing general information, competencies, earning incomes activities, dealing with resources, assessment instruments. The recommended goals were to develop essential skills such as communication and language, numeracy, mathematics ideas, techniques and applications, problem-solving, technological skills, critical thinking, work and study skills, independent learning and working with others and skills of becoming self-supporting within the non-formal wage sector. Findings on assessment show that students were to be grounded on knowledge as well as apply scientific principles to farming and demonstrate their appreciation of the industry as profitable enterprise.

Group teaching strategies recommended to be included were lecture, discussion, field trips, role play problem-solving, assignment and question and answers. Individual teaching strategies recommended were supervised study, case study, tutorials, seminar, workshop, clinic, experiment and

student note book. The group teaching methods were perceived as better than individual teaching methods.

The top assessment criteria recommended were assessment criteria for practical exercises such as responsibility, initiative, technique, perseverance and quality. This was followed by the mode of awarding of marks through practical investigation: handling of evidence, ability to make deductions from evidence, ability to recognize limitation, and improved data collection and description of practical investigation, presentation, layout and originality.

Assessment objectives recommended were application, synthesis and investigation, together with knowledge and understanding, recall, handling of information and comprehension which are currently assessed through Paper 2 and Paper 3. PVA write-up of investigatory practical exercise and the enterprise project format recommended include*:* Cover Page, Table of Contents, and the other aspects of the report are also recommended to be included. Student portfolio was recommended, except for the following requirements: research work done, project presentations, report of educational trips, future projects plans, achievement and awards, acknowledgements and assessment sheets. The external moderation was also recommended. Findings point to the assessment objectives focusing more on higher cognition and practical activities should do away with redundant requirements.

4.4 *Demographic characteristics of respondents and differences in, or relationships with, their survey responses and views on competency-based approaches in general, teaching, learning, assessment and management*

The survey reached 31 SGCSE Agriculture and 17 PVA teachers. Majority of the respondents were male, married, aged 31-35SGCSE Agriculture teachers with degrees, and experienced in SGCSE Agriculture. Respondents' home and school were located in rural areas, and they had projects such as poultry, vegetable crops, and field crops, and were inexperienced in integration. The inexperience in integration is a finding that needs attention. If integration of the two curricula is worth venturing into, education in this sphere is needed.

The respondents of FGD comprised of two SGCSE Agriculture teachers, three PVA teachers, two schools Agriculture coordinators, and one teacher-educator. Majority of the respondents were inexperienced in integration of curriculum, aged 35-45, residing in rural areas, married, SGCSE Agriculture teachers and were masters and degree holders. Again, the inexperience in integration of the two curricula is highlighted here, which cements previous observation on the need for education of Agriculture teachers on this.

From survey questionnaire responses on average extent of having knowledge, extent of valuing and extent of practising in competency-based approaches, t-tests revealed that there were no significant differences that existed on competency-based approaches ratings between females and males, married and single, by region location, by location of residence and by home agricultural projects of respondents. These show that generalisation of findings to the studied group is tenable.

The relationships observed were that increase in age, teaching experience in PVA and experience in integrating curriculum increased with ratings of all areas of competency-based approaches. However, increase in SGCSE Agriculture teaching experience decreased mean ratings of having knowledge, extent of valuing and extent of practising competency-based approaches. These findings show that as teachers of PVA get older, taught more years, and more exposed to integration result to more positive perceptions of competency-based approaches. Conversely, as SGCSE

Agriculture teachers taught more years, more negative perceptions of competency-based approaches develop. The source of this particular variation could be further looked into.

5.0 Conclusion

The conclusion drawn from the study was that the notable minimum practising on competency based approaches could be attributed to insufficient training of teachers. Another conclusion drawn was that the SGCSE teachers were more exposed to knowledge and value of competency-based assessment, teaching and management approaches in their day to day activities and Pre-vocational teacher exposure is greater in practising competency-based assessment approaches. This variation could be the source of collaboration in an attempt for integration.

In the light of the findings and discussions of the study, the following recommendations are made. PVA should be integrated with SGCSE Agriculture since many aspects were similar. SGCSE Agriculture and PVA teachers should collaborate for the integration of the curriculum. Tertiary institution should provide in-service to SGCSE Agriculture and PVA teachers on practising competency-based teaching approaches. SGCSE Agriculture teachers should workshop PVA teachers on knowledge and valuing of competency-based assessment, teaching and management approaches, whereas PVA Agriculture teachers should workshop SGCSE Agriculture teachers on practising of competency-based assessment approaches. The Ministry of Education and Training should facilitate the formulation of policy for an integrated curriculum. A study is needed to investigate the complexity of developing and sustaining an integrated Agriculture curriculum, including means of implementing, sustaining the infrastructure, instruction methods and materials and the timing of activities.

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