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Assessment of Farm Year Programme of the University of Nigeria, Nsukka and Michael Okpara University of Agriculture, Umudike

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Abstract
In Nigeria, it is mandatory and indeed a policy of the National Universities Commission (NUC) that, agricultural undergraduates in the fourth year of the five-year degree be exposed to farm practical year. This study was undertaken to assess the farm year programme of the University of Nigeria, Nsukka (UNN) and Michael Okpara University of Agriculture, Umudike (MOUAU). Data were collected from the students of the two universities, using structured questionnaire. A total of 152 sampled students were selected through stratified sampling procedure from core agricultural departments. Data were analyzed using percentage and mean and t-test statistics. The results show that the students of both universities were satisfied in major areas of their involvement. The major constraints to FYP as indicated by the students were lack of proper orientation of students before the commencement of the FYP, lack of proper monitoring and evaluation by the field staff and lecturers, poor programme planning that resulted in programme clashes and inadequate funding of FYP. The students of both universities were of the view that there should be a monitoring and evaluation unit in their faculties to assess the progress of the programme. The findings further revealed that there were significant differences between the perception of UNN and MOUAU students on constraints to FYP (t=10.370) and ways of improving the FYP (t=7.62). It is recommended that there is the need to put in place adequate resources for field-based practical in order to achieve the desire objective of FYP.

Keywords: *Farm year programme, agriculture students, University of Nigeria and Michael Okpara University of Agriculture.*

Introduction
An attempt to improve the technical know-how of the nation's university graduates of agriculture necessitated the introduction of the farm practical year programme (Oloruntoba, 2008). According to Ogunbameru (1986), this process of gaining knowledge and practical skill through observation and by doing is called internship. In Nigeria, it is mandatory and indeed a policy of the National Universities Commission (NUC) that agricultural undergraduates in the fourth year of the five-year degree be exposed to farm practical activities. In 1974 the Faculty of Agriculture of the University of Nigeria, Nsukka pioneered a 5-year Bachelor of Agriculture (B. Agric) programme as a replacement for the erstwhile Bachelor of Science in Agriculture (B.Sc Agric) programme of only 4 years duration. The essential difference is that, the B. Agric programme allowed for one additional year of direct farm-internship designed to professionalize the graduate. Later, all faculties of Agriculture in Nigeria Universities

subsequently adopted the B. Agric option. The focus of the programme is to widen students' scope of knowledge to practical and mechanized agriculture. It was also designed to enable students pursue their chosen career/discipline in agriculture with courage competency and determination. If properly implemented, farm year programme of Nigeria universities will go a long in achieving sustainable agricultural development.

Undergraduate agricultural students must determine how to solve farm practical problems, gather and organise farm data or information, develop and formulate technical reports. These practices promote ownership of knowledge and translate into critical thinking skills they need to find out for themselves (Bransford et al., 2000; White and Fredericksen, 1998). Students participation in farm practicals can also be an effective means of experiential learning and associated skills development (Matter and Steidl, 2000; McCleery et al., 2005). To this end, the roles of Faculties of Agriculture in producing agricultural graduates for academic and professional leadership and management are critical to national social progress and economic growth (Amalu, 2006).

According to Oloruntoba (2008), the farm year programme presents the university a unique opportunity to reinforce the practical application of all the theoretical inputs that have gone into her products. Rather than being theoretical with theories about farming, level 400 agricultural students learn through farm year programme by actually participating in it. Such knowledge that students discover and build for themselves is also more meaningful and durable (Resnick and Chi, 1988). It could be assumed that the provision of farm practical would make undergraduate agricultural students favourably disposed to the farm year programme. The questions therefore are: What are the various activities presently embarked upon by agricultural students during the farm year programme? Are the students satisfied with the programme? What are the students' attitudes towards the programme? What are the perceptions of students to the severity of problems encountered during the farm practical year programme?

Purpose of the study

The purpose of the study was to assess the farm year programme (FYP) of Faculty of Agriculture, University of Nigeria, Nsukka (UNN) and Michael Okpara, University of Agriculture, Umudike (MOUAU). The specific objectives were to:

1) rate the level of satisfaction of the activities involved in FYP;
2) determine the constraints to FYP; and
3) ascertain the perceived ways of improving FYP.

Hypotheses of the study

The following null hypotheses were tested

H_{o1} There is no significant difference between the perception of UNN and MOUAU students on constraints to FYP

H_{o2} There is no significant difference between UNN and MOUAU students on the perceived ways of improving farm year programme.

Methodology

The study was conducted in the University of Nigeria, Nsukka (UNN) in Enugu state, and Michael Okpara University of Agriculture, Umudike (MOUAU) in Abia state.

The target population consisted of all the 400 and 500 level students of the faculties of agriculture, UNN and MOUAU for 2009/2010 academic session. Systematic sampling procedures of a stratified sample were used for the study. The sample was stratified to ensure that all students in the core agricultural department of the faculties were included. In UNN, all the 48 students in 4th year class (500 level) were purposively selected because of their present involvement in the farm year programme while 52 out of 156 students in the 5th year class (500 level) were randomly selected using simple random sampling technique. Hence a total of 100 UNN students were involved in the study. In MOUAU, 52 students in 5th year class (500 level) were selected. None of the 4th year student (400 level) in MOUAU was sample, because the students were not in school as at the time of data collection. Hence a total of 152 students were sampled from both universities. Data for the study was collected from the respondents through the use of questionnaire. The data were validated by lecturers in the Department of Agricultural Extension, University of Nigeria, Nsukka before field administration.

To determine their satisfaction levels of the respondents with the different activities embarked on during the farm year programme, a 4-point satisfaction scale was developed. For each of the activities itemized in the questionnaire, the students were asked to indicate their satisfaction stage/level on the 4-point scale. Their response categories and corresponding weighed were as follows: not satisfied = 0; slightly satisfied = 1; satisfied = 2 and very satisfied = 3. The satisfaction index was calculated as follows: (i) the total satisfaction score for each of the activities was computed; (ii) the mean (M) satisfaction score was calculated by dividing the total score by the number of the respondents; (iii) the grand mean (M) satisfaction was calculated by adding together all the mean satisfaction scores which was divided by the number of the mean satisfaction scores or the number of the activities being considered and (iv) the satisfaction-index was computed by adding the grand mean satisfaction score by the number of points on the satisfaction scale.

To determine the constraints to FYP, possible constraining variables were listed for the respondents to tick from on a 4-point Likert type scale (to no extent = 0; to a little extent = 1; to a great extent = 2; to a very great extent = 3). The value were added to give 6 and divided by 4 to get a mean score or 1.5. Variable with a mean score of ≥1.5 was regarded as a constraint to farm practical year programme, while variable with a mean score of <1.5 was not regarded as a constraint to farm practical year programme.

To ascertain ways of improving the farm year programme, possible variables of improving farm year programme were listed for the respondents to tick from on a 3-point Likert type scale (disagree = 0; agree = 1 and strongly agree = 2). The values on the Likert scale were added to give 3 and divided by 3 to give 1.0. Variable with a mean score of ≥1.0 was considered as possible strategy of improving farm year programme, while mean score of <1.0 was not regarded as a strategy.

Percentage and mean statistic were used to analyze the data. The t-test statistic was used to test significant differences between two means at a priori 5.0% level of significant (hypotheses). Statistical Package for Social Science (SPSS), version 11, was the package used for the data analysis.

Results and discussion

Levels of satisfaction of the students with different activities of the farm year programme

Data in Table 1 show all the operations carried out during the farm year programme (FYP) and the students' level of their satisfaction. The mean satisfaction score for the pre-planting activities for UNN and MOUAU students were land clearing/preparation (M=2.01 and M=1.35) and nursery making/ bed moulding (M=2.09 and M=1.33), respectively. The grand satisfaction means score for UNN and MOUAU were 2.32 and 2.16 respectively, while the satisfaction indexes were 0.51 and 0.34, respectively; indicating that the UNN students were satisfied with pre-planting operations of the farm year programme while MOUAU students were not satisfied with the pre-planting operations of the pre-planting operation. These could be as a result of the variations in the management system of both universities.

The students in both UNN and MOUAU were satisfied with the following planting operations, planting of garden eggs (M=2.02 and M=1.59), planting of maize (M=2.02 and M=2.39), planting of leafy vegetables like telfaria (M=1.50), flutted pumpkin (M=1.50 and M=2.37), and cultivation of yam (M=2.92). Meanwhile the UNN students were not satisfied with planting of okra (M=1.25). This could be as a result of the preference they had for other crops than okra cultivation. The grand satisfaction means score for UNN and MOUAU students as regards planting operations were 1.87 and 2.18, respectively, while the satisfaction indexes were 0.47 and 0.55, respectively; indicating that the UNN students had a low satisfaction level with the planting operations while MOUAU students satisfaction level was above average in planting operations. The difference in their satisfaction level could be as a result of factors like management style and attitude of the students.

The students from both universities had the following mean satisfaction scores for post planting operations: weeding (M=2.98 and M=2.02), fertilizer and pesticide applications (M=2.98 and M=2.14), harvesting of crops (M=2.96 and M=2.49). The grand satisfaction means score for UNN and MOUAU were 2.98 and 2.31, respectively, while the satisfaction indexes were 0.74 and 0.58, respectively; indicating that the both UNN and MOUAU students were satisfied with the post-planting operations. The satisfaction level of UNN students was higher than that of MOUAU. The students in both universities were satisfied with agricultural economic practical. The mean satisfaction for farm records/accounting (M=2.98 and M=2.42) and marketing of harvested crops (M=2.96 and M=2.06) were above the cut off point. The grand satisfaction means score for UNN and MOUAU were 2.96 and 2.24, respectively, while the satisfaction indexes were 0.74 and 0.56, respectively; indicating that their satisfaction level were above average.

Data in Table 1 further revealed the mean satisfaction scores for the following livestock production and management embarked upon during their farm year programme. The activities were management of sheep (M=2.02 and M=2.08), management of goat (M=2.02 and M=2.00), management of pig (M=2.03 and M=2.44), management of poultry (M=2.03) and rabbit management (M=2.23). Other activities were; hay production (M=2.04 and 2.37), ration formulation for livestock (M=2.04 and M=2.31) and visit to abattoir for practical teaching during their farm year programme (M=2.18). The grand satisfaction means score were 2.03 and 2.24, respectively for UNN and MOUAU, while the satisfaction indexes were 0.51 and 0.56, respectively; indicating

that the students in both universities were satisfied with livestock production and management.

Students of both universities were also satisfied with the visit to ADP zonal offices for practical extension services (M=2.96 and M=2.41) and participation in FNT and BM of ADP (M=2.92 and M=2.11). The grand satisfaction means score were 2.94 and 2.26, respectively for UNN and MOUAU, while the satisfaction indexes were 0.74 and 0.57, respectively. This could be as a result of the practical experience the students needed to acquire. They were also satisfied with the practical training in farm machinery maintenance (M = 2.00 and 2.11). The grand satisfaction means score were 2.00 and 2.11, respectively, while the satisfaction indexes were 0.50 and 0.53, respectively. From the result in Table 1, the students of both UNN and MOUAU were satisfied in soil science. The activities they were exposed to were: farm design mapping and land survey (M=2.97 and M=2.51) and analysis of soil sample in the laboratory (M=2.95 and M=2.34). The grand satisfaction means score were 2.96 and 2.42, respectively, while the satisfaction indexes were 0.74 and 0.61, respectively; indicating that their satisfaction level was above average.

The overall grand satisfaction means score for UNN and MOUAU were 2.32 and 2.16 respectively, while the overall satisfaction indexes were 0.59 and 0.54, respectively; indicating that the satisfaction level of the students from both universities were above average. Meanwhile, UNN students were more satisfied with the activities of the farm year programme than MOUAU students. This could be as a result of the management style and the students' attitude towards the programme. It is important for the students to become problem-solvers and to obtain hands-on experience within their profession before graduation as observed by previous researchers (Beer, 1995; McLean, 1999; Boersma *et al*, 2000 and Oloruntoba, 2008). Such experience positions students to be more marketable upon graduation.

Table 1: Level of satisfaction of the students with farm year programme

Activity	UNN			MOUAU		
	Mean	GM satisfaction level	Satisfaction index	Mean	GM satisfaction level	Satisfaction index
Crop production - Pre-planting operations:						
Land clearing/preparation	2.01*	2.05	0.51	1.35	1.34	0.34
Nursery making / bed moulding	2.09*			1.33		
Planting operations:						
Garden eggs	2.02*			1.59*		
Maize	2.02*			2.39*		
Telfaria	1.50*	1.87	0.47	-	2.18	0.55
Okra	1.25			2.37*		
Flutted pumpkin	1.50*			2.37*		
Yam	2.92*			-		
Post planting operations:						
Fertilizer applications / manuring	2.98*			-		
Weeding	2.98*	2.98	0.74	2.02*	2.31	0.58
Pesticide applications	2.98*			2.14*		
Harvesting of crops	2.96*			2.49*		
Agricultural Economics:						
Farm records/accounting	2.98*	2.96	0.74	2.42*	2.24	0.56
Marketing of harvested crop	2.96*			2.06*		
Livestock production and management:						
Sheep	2.02*			2.08*		
Goat	2.02*			2.00*		
Rabbit	-			2.23*		
Pig	2.03*	2.03	0.51	2.44*	2.24	0.56
Poultry	2.03*			-		
Visit to abattoir for practical teaching	-			2.18*		
Hay production	2.04*			2.37*		
Ration formulation	2.04*			2.31*		
Extension practices						
Visit to ADP zonal office for practical teaching	2.96*	2.94	0.74	2.41*	2.26	0.57

Participation in FNT and BM of ADP	2.92*			2.11		
Engineering						
Practical exposure to farm machinery maintenance	2.00*	2.00	0.50	2.11*	2.11	0.53
Soil science						
Farm design mapping and land survey	2.97*	2.96	0.74	2.51*	2.42	0.61
Analysis of soil sample and classification	2.95*			2.34*		
Overall		**2.32**	**0.74**		**2.24**	**0.56**

**Satisfied*

Perceived Constraints to Farm Year Programme

As indicated in Table 3, the major constraints of the FYP as expressed by the UNN students were lack of proper orientation of students before the commencement of the FYP (M=2.99), lack of proper monitoring and evaluation by the field staff and lecturers (M=2.97) and poor programme planning that resulted in programme clashes (M=2.97). On the other hand, the major constraints to FYP as perceived by students of MOUAU were lack of proper monitoring and evaluation by the field staff and lecturers (M=2.58), inadequate funding of FYP (M=2.48) and poor programme planning that resulted in programme clashes (M=2.97). There is need for proper orientation of the students before the commencement of the programme so as to achieve the desire objective of the programme. When this is lacking it could lead to programme failure. According to Horton *et al.,* (1993) monitoring ensures that inputs, work schedules, and outputs are proceeding according to plan (implementation is on course) and also warn of deviations from initial goals and expected outcomes. When is lacking in FYP, the programme may not achieve its goal.

Other constraints to FYP as perceived by UNN and MOUAU students were inadequate government subvention is lowering the quality of the FYP (M=2.94; M=2.22), use of local farm implements including hoes and cutlasses on the allotted plots (M=2.96; M=2.00), lack of vehicles for transporting students for extension activities (M=2.61; M=2.27), poor attitude of staff towards the FYP (M=2.10; M=2.22), lack of safety wares (e.g. rain booth) exposes students to danger during FYP (M=2.97; M=1.98), lack of storage facilities (M=2.35; M=2.18), paucity of resources such as agricultural inputs (M=2.53; M=2.14) and poor marketing strategies use for sales of farm produce (M=2.48; M=1.76). Most of the machines and equipment used for FYP like ranging poles, tractors are in short supply while some necessary tools are lacking due to inadequate government subvention which could lover the quality of the FYP. Students also claimed that, apart from doing mundane tasks, the programme was laborious and led to drudgery. They were subjected to the use of local farm implements including hoes and cutlasses on the allotted plots which could influence their performance and affect the output negatively.

The students of both UNN and MOUAU also claimed that among the constraints to FYP were short period of exposing students to practical work outside the university

during excursion (M=2.61; M=1.76), poor implementation of the programme by the university authority (M=2.74; M=2.22), lack of commitment on the side of both the students and staff (M=2.70; M=2.06), difficulties in combining the farm work with lecture (M=2.70; M=2.06), uncertainty in weather condition (M=2.38; M=1.84). The duration of excursion visit to farms and institute outside the university is often short. Excursion visit afford the students the opportunity of exposing them to practical training and for them to appreciate agriculture. Short training visit often limit them to few opportunities in agriculture.

The results in Table 3 further revealed that, students of both universities agreed strongly with fifteen out of seventeen constraint statements to FYP, implying that, there were significant differences between the problems encountered by UNN and MOUAU students during the farm year programme. The opinions of the students in both universities on constraints to FYP differ only on poor attitude of staff towards the FYP (t=-0.70) and lack of storage facilities (t=1.04). The overall t-value (10.370) of perceived constraints to farm year programme was statistically significant at 5% level thus leading us to reject the null hypothesis H_{o1}, meaning that, the mean score of perceptions regarding constraints to FYP generally was not statistically significant. Therefore, the opinion of the students in both universities varies as regards to the constraint to FYP. It implies that, the kind of constraints faced by FYP in UNN was not the same as that of MOUAU. This could be as a result of the different management practices involved by both universities.

Table 3: Mean score of respondents by perceived constraints to farm year programme

Constraint	UNN		MOUAU		t-value
	M	S.D	M	S.D	
Lack of proper orientation of the students before the commencement of the FYP	2.99	0.10	2.10	0.94	9.02*
Paucity of resources such as agricultural inputs	2.53	0.70	2.14	0.74	3.12*
Poor programme planning that resulted in programme clashes	2.97	0.22	2.31	0.87	7.14*
Use of local farm implements including hoes and cutlasses on the allotted plots	2.96	0.28	2.00	1.03	8.61*
Inadequate funding of the programme	2.89	0.44	2.48	0.76	4.11*
Poor attitude of staff towards the FYP	2.10	0.93	2.22	0.96	-0.70
Lack of vehicles for transporting students for extension activities	2.61	0.78	2.27	0.89	2.33*
Lack of safety wares exposes students to danger during FYP	2.97	0.23	1.98	0.98	9.23*
Lack of storage facilities	2.35	0.94	2.18	0.98	1.04
Uncertainty in weather condition	2.38	0.85	1.84	0.88	3.62*
Poor marketing strategies use for sales of farm produce	2.48	0.82	1.76	1.03	4.64*

Short period of exposing students to practical work outside the university during excursion	2.61	0.76	1.76	0.90	5.97*
Poor implementation of the programme by the university authority	2.74	0.64	2.22	0.77	4.25*
Lack of commitment on the side of both the students and staff	2.70	0.72	2.06	0.89	4.69*
Inadequate government subvention is lowering the quality of the FYP	2.94	0.34	2.22	0.76	7.88*
Lack of proper monitoring and evaluation by the field staff and lecturers	2.97	0.24	2.58	0.66	5.13*
Difficulties in combining the farm work with lecture	2.70	0.61	2.06	0.75	5.62*

*Overall t-value of perceived constraints to FYP = 10.370**
**Significant (P≤ 0.05); M=Mean; S.D = Standard deviation*

Ways of Improving Farm Year Programme

The students of both universities (UNN and MOUAU) were of the view that there should be a monitoring and evaluation unit in their faculties to ensure the FYP is going on as planned (M=1.99 and M=1.77) as indicated in Table 4. According to Groot, Stuijt and Boon (1995), monitoring is continuous or periodic surveillance over the implementation of a project to ensure that input deliveries, work schedules, target outputs and other required actions are proceeding according to what has been planned. Evaluation can be a tool to help planners and managers assess to what extent the projects have achieved the objectives set forth in the project documents. Monitoring assesses whether project inputs are being delivered, and are be used as intended. It is an internal project activity, an essential part of good management practice and therefore, an integral part of day-to-day management. When there is good monitoring and evaluation in FYP, it alerts project management and policy-makers about the potential problems that are likely to occur which may require urgent and timely corrective actions.

There should be a proper orientation of the students before the commencement of the FYP (M=1.98 and M=1.79). When students are properly briefed about the FYP before commencement, they will have a better frame of mind for the programme. Other perceived ways of improving the FYP as indicated in Table 4 were provision of necessary input at the right time and in the right places (M=2.0 and M=1.84), improving the welfare of students and staff (M=2.0 and M=1.76) and exposure of students to private farms outside the university as a way of strengthening knowledge and skills in modern agriculture (M=2.00 and M=1.76). In most cases, students are allowed for a week excursion visit to farms and institutes outside their universities. This could be improve upon by allowing them to spend better time in farms outside their institution to enhance their knowledge, skill, attitude and aspiration.

Others ways of improving the FYP include provision adequate equipment and farm machines (M=1.98 and M=1.69), proper funding to enhance the effectiveness of the programme (M=1.99), early and late planting should be adopted to maximize profit on sale of agricultural products (M=1.98 and M=1.70), motivation of students through sharing formula of the proceeds for effective dedication (M=1.99 and M=1.62) and management/stakeholders should be committed to implementation of the recommendation from the assessment committee (M=1.97 and M=1.77). When the FYP is properly funded, there will be more farm machines and other necessary equipment for the students to practise with.

The results in Table 4 further revealed that the overall t-value (7.62) of possible ways of improving FYP was statistically significant at 5% level thus leading us to reject the null hypothesis H_{o2}, meaning that, the mean score of perceptions regarding ways of improving FYP generally was not statistically significant. Therefore, there was a significant difference between the mean score of UNN and MOUAU students on the perceived ways of improving farm year programme. This could also be as a result of the differences in the university system. This therefore calls for programme uniformity among the universities.

Table 4: Mean score of respondent according to the perceived ways of improving the farm year programme

Variable	UNN		MOUAU		t-value
	Mean	S.D.	Mean	S.D.	
Proper orientation of the students before the commencement of the FYP	1.98	0.14	1.79	0.41	3.87*
Provision of necessary input at the right time and in the right places	2.00	0.00	1.84	0.42	3.72*
University should show more concern with the welfare of students and staff at large	2.00	0.00	1.76	0.48	5.00*
Exposed to private farms outside the university	2.00	0.00	1.76	0.48	5.00*
Provision adequate equipment and farm machines	1.98	0.20	1.69	0.54	4.52*
Proper funding to enhance the effectiveness of the programme	1.99	0.10	1.70	0.58	4.66*
Early and late planting should be adopted to maximize profit on sale of agricultural products	1.98	0.14	1.49	0.74	6.17*
There should be a monitoring and evaluation unit in the faculty	1.99	0.14	1.77	0.43	4.65*

Motivation of students through sharing formula of the proceeds for effective dedication	1.99	0.10	1.62	0.57	6.07*
Management/Stakeholders should be committed to implementation of the recommendation from the assessment committee	1.97	0.17	1.77	0.42	4.00*

*Overall t-value of perceived ways of improving FYP = 7.62**
**Significant (P≤ 0.05); M=Mean; S.D = Standard deviation*

Conclusion and recommendation

It is a known fact that, demonstration conducted by students of agriculture will add practical value to the academic training received by the students. Thus, what students hear during the teaching – learning process may be doubted, but what they do cannot be doubted. The FYP provided the students with hands-on experience and opportunity to apply theory learnt in classroom to real-life field situation in which students had to adapt and solve problems on daily basis. The students of both universities were satisfied in quite a number of farm activities ranges from pre-planting, planting and post planting operations.

The major constraint to FYP as indicated by the students include lack of proper orientation of students before the commencement of the FYP, lack of proper monitoring and evaluation by the field staff and lecturers, poor programme planning that resulted in programme clashes and inadequate funding of FYP. In other to improve the FYP, there should be a monitoring and evaluation unit to ensure that FYP is going on as planned. Also, the students should be exposed to private farms outside the university as a way of strengthening knowledge and skills in modern agriculture. The findings further revealed that there were significant differences between the perception of UNN and MOUAU students on constraints to FYP and ways of improving the FYP. There is also need to put in place adequate resources and learning environment for field-based practical in order to achieved the desire objective of FYP and for uniformity in the system.

References

Amalu, U.C (2006). Finding solutions to the problem of low academic and professional standards of graduates of agriculture in Nigeria. Invited paper at the Roundtable of Deans of Agriculture of Nigerian Universities on Practical Training held at the Senate Chamber, University of Agriculture, Abeokuta 13-16 June, 2006, 8pp.

Beer, R.H. (1995). Guidelines for the supervision of undergraduate research. *Journal Chem. Educ* 72: 721-722

Boersma, S.M, M. Hluchy, G. Godshalk, J. Crane, D.DeGraff, and J. Blauth (2000). Student-designed interdisciplinary science projects. Journal of College Science Teachers, 30: 397-402

Bransford, J.D, Brown, A.L and R. Cocking (2000). *How people learn: Brain, mind experience and school*. National Academy Press, Washington, D.C.

Horton, D., Ballantyne, P., Perterson, W., Uribe, B., Gapasin, D. and Sherikda, K. (1993). *Monitoring and evaluating agricultural research: A source book*. Wallingford: CABI and ISNAR

Matter, W.J., and R.J.Steidl (2000). University undergraduate curricula in wildlife: Beyong 2000. *Wildlife Society Bulletin* 28: 503-507.

McCleery, R.A., R. R. Lopez, L.A. Harveson, N.J.Silvy, and R.D.Slack (20005). Integrating on-campus wildlife research projects into the wildlife curriculum. *Wildlife Society Bulletin* 33: 802-809.

McLean, R.J.C. (1999). Original research projects: a major component of an undergraduate microbiology course. *Journal of College Science Teachers* 29: 38-40.

Ogunbameru OB (1986). Extension internship: A pre-requisite forstudents degree. *Journal of Extension Systems*, June, 2: 69-71.http:/www.jesonline.org/1986jun.htm.

Oloruntoba A (2008) Agricultural Students' Perceptions of Farm Practical Year Programme at University of Abeokuta, Nigeria. *Agricultural Conspectus Scientificus*, 73(4): 245-252.

Resnick, L.B and M.T Chi (1988). Cognitive psychology and science learning. In M. Druger (ed) Science for the fun of it: A guide to informal education. National Science Teachers Association, Washington, D.C.

White, B.Y and J.R Fredericksen (1998). Inquiry, modeling, and metacognition: Making science accessible to all students. *Cognition and Instruction* 16: 3-118.