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Original Research Paper

Competency Improvement Needs of Lecturers of Agricultural Education for Teaching Agricultural Mechanization in Colleges of Education in North Central Nigeria

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ABSTRACT: This study is on competency improvement needs of lecturers of Agricultural Education for teaching Agricultural Mechanization. Seven research questions and seven null hypotheses were formulated. A survey research design was adopted for the study. A total of 175 Lecturers of Agricultural Education in Public Colleges of Education were used. A structural questionnaire called Competency Improvement Needs Questionnaire (CINQ) was developed and used for data collection. Five (5) experts validated the instrument. The reliability coefficient of the instrument was 0.89 using Alpha – Cronbach Method. Seven research hypotheses were tested at 0.05 level of significance. Weighted mean and Improvement Needs Index (INI) was used to answer research questions while t-test statistics was used to test the hypotheses. It was found out that lecturers of Agricultural Education in Colleges of Education in North Central Nigeria did not posses competency improvement needs for teaching Agricultural Mechanization. It was also find out that Agricultural Education Lecturers in North Central Nigeria required Competency Improvement Needs in all the stages of teaching. It was therefore recommended that refresher training is required to help the lecturers acquired the needed competency improvement in teaching. This can be done through lecturers attending conferences and seminars organized for training lecturers for teaching in North Central Nigeria.

Keywords: Teaching, competency, improvement and agricultural mechanization

INTRODUCTION

Teaching in the opinion of Ekele (2015) is the interaction between a teacher and students under the teacher's responsibility in order to bring about the expected change in the students behavior. He further observed that teaching is a business of all those involved in the task of changing human behavior and transformation of society for better, particularly, when the actions render them perceptibly significant, respectable and recognizable to others because of the achievement they accomplish and the unique manner they do them. Teaching is a process that cause or help someone to learn about a subject by giving lessons about a particular subject to a student or learner. Kumar (2011) Viewed teaching to include all the activities of providing education to other, the person who teach education is called a lecturer and his is capable handling quality of instruction, teaching planning, classroom management, professional behavior, and interpersonal relations.

Competency is knowledge, skills and attitude one can develop in every aspect of live long occupation. It is the ability of an individual to do a job properly. Competency as described by Olaitan and Ali in Asogwa (2013), knowledge, skills, attitudes and judgment generally required for the successful performance of a task. Competency in the Opinion of Ekele (2019) is the knowledge and skill which an individual acquires in order to perform a given task. It is the use of psychomotor skills instead of cognitive domain alone. It involves psycho productive skills or acquired skills and abilities for performing tasks adequately with the muscle in response to sensor stimuli. The author further observed that competency is Knowledge + Skill + Attitude, which means that competency lays emphasis to what knowledge, skills, attitude are generally required for the performance of a task.

Improvement needs in the opinion of Abdullahi and Ajoku (2015), is a concept that is concerned with creating or enhancing the ability of a society to performed specific tasks and attain national development objectives. Furthermore, improvement needs is a process of developing and strengthening the skills, instructions, abilities, processes and resources that organization and community required to survive.

Agricultural mechanization; refers to the use of mechanization, and or is the art of using machineries to hasten or make production easy, to accomplish task and reduce fatigue and the use of human labour in order to produce better quality goods and services (Gabriel, 2014). Almasi et al. (2005) observed that Agricultural mechanization involves the selection, operation, utilization, and maintenance of mechanization devices and systems in agricultural operations, their management in crop production for the utmost benefits of man.

In North Central Nigeria, lecturers of agricultural education in colleges of education were employed to impart knowledge, skills and attitudes in the area of their subject to the students. These lecturers, who are university graduates, teach with the aim of achieving the general objectives of Agricultural Mechanization in college of Education.

The lecturers have the sole responsibility of teaching Agricultural Mechanization towards the achievement of the stated objectives. Despite the activities of lecturers of Agricultural Education in teaching the Agricultural Mechanization towards achieving the objectives of agricultural mechanization in Colleges of Education, it was observed that performance in Agricultural Mechanization was below average.

In North Central Nigeria it has been observed that Lecturers performance in teaching Agricultural Mechanization, both in theory and practical aspects is below standard. The low performance could be due to so many factors, but the lecturers of Agricultural Education have been a major factor implicated or blamed for this low level of performance. To improve the level of performance of Lecturers of Agricultural Education for teaching Agricultural Mechanization, there is the need to improve the level of competence of lecturers of Agricultural Education. It will reveal that the level of knowledge, skills and attitude lecturers possess for teaching the subject and what level they need to reach for an acceptable standard. This give the gap which is the dimension at which improvement needs is required.

Lecturers of Agricultural Education in North Central Nigeria are graduates from the universities like their counterparts lecturers in the North-central Nigeria. Hence, lecturers of Agricultural Education in North Central Nigeria are not exonerated from the researchers observations and comments, therefore, there is the need for competency improvement needs of lecturers of Agricultural Education in Colleges of Education in North Central Nigeria. Specifically, the study seeks to identify:

1. The improvement needs of lecturers of Agricultural Education in planning for teaching Agricultural Mechanization in Colleges of Education in North Central Nigeria.
2. The improvement needs of lecturers of Agricultural Education in practical components for teaching Agricultural Mechanization in Colleges of Education in North Central Nigeria.

Research questions

1. What are the competency improvement needs of lecturers of Agricultural Education in planning the teaching of Agricultural Mechanization in North Central, Nigeria?
2. What are the competency improvement needs of lecturers of Agricultural Education in practical components of Agriculture for teaching Agricultural Mechanization in North Central, Nigeria?

Hypotheses

1. There is no significant difference in the mean rating of competency improvement needs of lecturers' planning and their performance in the teaching of Agricultural Mechanization in Colleges of Education in North Central Nigeria.
2. There is no significant difference in the mean rating of competency improvement needs of lecturers' practical farm component and their performance in the teaching of Agricultural Mechanization in Colleges of Education in North Central Nigeria.

METHODOLOGY

The study adopt survey research design, survey research

design according to Emaikwu (2015) is a plan or blue print which specifies how data relating to a given problem should be collected and analyzed. A survey research design is one which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. Survey research design is suitable for the study, because the study gather information from respondent on competency improvement needs of lecturers of agricultural education for teaching of students in Colleges of Education in North central Nigeria.

The sample size for this study was 175 respondents. This is all Agricultural Education lecturers in both Federal and State Colleges of Education in North Central Nigeria. There was no sampling because the population could be effectively managed by the researcher.

The instrument used for data collection was a 100-items structured questionnaire which was developed by the researcher from literature review known as Competency Improvement Needs Questionnaire (CINQ). The instrument had two categories of response of needs and performance rating. The need category had a four point response scale of Highly Needed (HN) 4, Averagely Needed (AN) 3, Slightly Needed (SN) 2, and Not Needed (NN) 1. While the performance category rating had a four point response scale of High performance (HP) 4, Average performance (AP) 3, Low performance (LP) 2, Non performance (NP) 1. The instrument is divided into seven clusters on the bases of the research questions for the study. They include: Planning for teaching, Organizing for teaching, Implementing for teaching, farm practical component for teaching, communicating for teaching, expert knowledge for teaching and Evaluating for teaching.

Weighted mean and improvement need index (INI) was used to answer research questions. To determine the mean needed, the real limit of numbers were utilized as follows: 3.5-4 (Highly Needed), 2.5-3.44 (Averagely Needed), 1.5-2.49 (Slightly Needed) 1-1.49 (Not Needed) any item whose weighted mean is 1.5 or above is regarded as needed while any item whose weighted mean is less than 1.5 is regarded as not needed.

The null hypotheses were tested using t-test at 0.05 level of significance. The result of the data analysis was used for production of competency improvement needs of lecturers which shall be used as a training package for lectures of Agricultural Education for teaching agricultural mechanization in Colleges of Education in North Central Nigeria.

RESULTS

Data in Table 1 reveals that all the13competency items have need-performance index that range from 1.01 to 1.67, with a grandindex of 1.25 and were positive. This result indicates that Agricultural Education lecturers needed competency improvement in all the 13 items in planning the teaching of Agricultural Mechanization in North Central, Nigeria. Table 2 presents t-test analysis of the mean ratings of respondents on the competency improvement needs of lecturers in Federal and State Colleges of Education in planning the teaching of Agricultural Mechanization in North Central, Nigeria at p >.05. The Table shows a p-value of 0.661 which is greater than the alpha value .05 at 172 degrees of freedom (0.661 >.05). This implies that the test is not significant hence; there is no statistical significant difference in the mean ratings of the responses of Agricultural Education lecturers in federal and state colleges of Education on the competency improvement needs of lecturers in planning the teaching of Agricultural Mechanization in North Central, Nigeria. Therefore, the null hypothesis was not rejected. Data in Table 3 reveals that all the 29 competency items have need-performance index that range from 0.39 to 1.49, with a grandindex of 1.01 and were positive. This result indicates that Agricultural Education lecturers needed competency improvement in all the 29 items in practical components of agriculture for the teaching of Agricultural mechanization in Colleges of Education in North Central, Nigeria.

Table 4 presents t-test analysis of the mean ratings of respondents on the competency improvement needs of lecturers in Federal and State College of Education in practical components of agriculture for the teaching of agricultural mechanization in Colleges of Education in North Central, Nigeria at p >.05. Table 4 shows a p-value of 0.762 which is greater than the alpha value .05 at 172 degrees of freedom (0.762 >.05). This implies that the test is not significant hence, there is no statistical significant difference in the mean ratings of the responses of Agricultural Education lecturers in federal and state colleges of Education on the competency improvement needs of lecturers in practical components of agriculture for the teaching of agricultural mechanization in Colleges of Education in North Central, Nigeria. Therefore, the null hypothesis was not rejected.

DISCUSSION

The findings from (Tables 1 and 2) indicate that the lecturers of Agricultural Education needs improvement in planning for teaching Agricultural Mechanization was supported by Olaitan (2009), that in planning instruction, the following steps are involved: determine a need for the content which may be part of a cause of topic, this is the reason for teaching the topic. In the other hand, this finding agree with the opinion of Abiodun and Babatola (2010), that the processes involved in instructional planning to include the following: set the goal/objectives,

Table 1: Competency Improvement Needs of Agricultural Education Lecturers in Planning the Teaching of Agricultural Mechanization in Colleges of Education in North Central, Nigeria (n= 174).

S/N	Competencies in Planning Instruction	$\bar{X}n$	$\bar{X}_p$	NPI $(\bar{X}n - \bar{X}_p)$	Remarks
1	Understanding students' needs.	3.60	2.29	1.31	IN
2	Understanding students' interest	3.33	1.89	1.44	IN
3	Understanding students' abilities	3.34	1.67	1.67	IN
4	Arousing students' interest	3.32	1.90	1.42	IN
5	Understanding students' attitudes	3.29	2.02	1.27	IN
6	Understanding students' aptitude	3.28	2.12	1.16	IN
7	Structure a course content for varied lessons in Agricultural Education	3.26	2.02	1.24	IN
8	Structure farm Planning activities in Agricultural Education	3.24	2.11	1.13	IN
9	Developing objectives of instruction	3.20	2.02	1.18	IN
10	Identifying goals of instructions	3.26	2.09	1.17	IN
11	Selecting methods of instructions in Agricultural Education	3.28	2.04	1.24	IN
12	Allocate time to instructions	3.11	2.06	1.05	IN
13	Determine the evaluation techniques in Agricultural Education	3.14	2.13	1.01	IN
	Grand NPI	3.28	2.03	1.25	IN

$\bar{X}_n$ = Mean of Needed Category, $\bar{X}_p$ = Mean of Performance Category, n = number of respondents, NPI = Needed-Performance Index, CIN = Competency Improvement Needed

Table 2: t-test Analysis of Mean Ratings of Respondents on Competency Improvement Needs of Agricultural Education Lecturers in Federal and State College of Education in Planning the Teaching of Agricultural Mechanization in Colleges of Education in North Central, Nigeria

Status	N	Mean	Std.	Std. Error Mean	df	Sig.	t-cal	Alpha Value	Remark
Federal COE Lecturers	47	2.0573	1.09416	0.15960					
State COE Lecturers	127	1.9685	1.21403	0.10772	172	0.661	0.439	0.05	NS, NR

N= Number of respondents, COE: College of Education, Std = Standard deviation, df = degree of freedom, Sig. = P-value; t-cal = t-calculated value; P >.05, NS = Not significant, NR =Not rejected.

Table 3: Competency Improvement Needs of Agricultural Education Lecturers in Practical Components of Agriculture for the Teaching of Agricultural Mechanization in Colleges of Education in North Central, Nigeria (n= 174).

S/N	Competencies in Practical Components of Mechanization	$\bar{X}n$	$\bar{X}_p$	NPI $(\bar{X}n - \bar{X}_p)$	Remarks
1	Formulate specific objectives for the farm activity	3.02	1.94	1.08	IN
2	Draw up programme plan for farm activities	2.72	1.94	0.78	IN
3	Decide on farming system to be adopted in the school farm	2.37	1.83	0.54	IN
4	Budget for items needed for farm operations	3.16	1.67	1.49	IN
5	Specify types of system of farming to be adopted	2.98	1.90	1.08	IN
6	Identify the type of records to keep	2.92	1.94	0.98	IN
7	Organize farm activities through the use of farm calendar	3.26	1.89	1.37	IN
8	Get adequate materials for practical activities	2.92	1.99	0.93	IN
9	Guide the students in the use of materials and machines in the school farm	3.16	1.94	1.22	IN
10	Monitor the activities of individual students in the school farm	2.77	1.97	0.80	IN
11	Layout the school farm	2.54	1.89	0.65	IN
12	Assign task in the farm to students	2.52	1.76	0.76	IN
13	Adhere strictly to the programme of farm activities for the school	2.75	1.69	1.06	IN
14	Review the programme of farm periodically	2.62	1.78	0.84	IN
15	Indicate teaching methods to use on farm activities for skills transfer.	2.61	1.76	0.85	IN
16	Indicate methods of evaluating students' farm activities and feedback.	2.62	1.76	0.86	IN
17	Prepare farm land for planting	2.74	1.76	0.98	IN
18	Grow specific crops on the farm	3.18	1.80	1.38	IN
19	Manage the crop very well in the field	3.23	1.94	1.29	IN
20	Rear specific animals on the farm and manage them well	3.16	2.01	1.15	IN
21	Set up committees for the purpose of integrating different activities performed by the student in the school farm	2.40	2.01	0.39	IN
22	Follow approved procedures in the school farm	3.15	1.75	1.40	IN
23	Follow approved practice in the school farm	3.15	1.87	1.28	IN
24	Identify the key points to be evaluated	2.92	1.99	0.93	IN
25	State the objectives of the school farm	2.99	1.93	1.06	IN
26	Assess students through practical examination	2.66	1.92	0.74	IN
27	Evaluate students demonstration through rating	3.00	1.80	1.20	IN
28	Provide feedback to know whether the objectives of practical lesson have been achieved	3.15	1.89	1.26	IN
29	Keep records of student performances	2.98	1.97	1.01	IN
	Grand NPI	**2.88**	**1.87**	**1.01**	IN

$\bar{X}_n$ = Mean of Needed Category, $\bar{X}_p$ = Mean of Performance Category, n = number of respondents, NPI = Needed-Performance Index, CIN = Competency Improvement Needed

determine the content of the course lesson or topic, analyze the environment, select alternative course of action, implement what the cause is planned and provide knowledge of achievement.

Table 4: t-test Analysis of Mean Ratings of Respondents on Competency Improvement Needs of Agricultural Education Lecturers in Federal and State College of Education in Practical Components of Agriculture for the Teaching of Agricultural Mechanization in Colleges of Education in North Central, Nigeria

Status	N	Mean	Std.	Std. Error Mean	df	Sig.	t-cal	Alpha Value	Remark
Federal COE Lecturers	47	1.9141	1.14160	.16652					
State COE Lecturers	127	1.8558	1.11820	.099225	172	0.762	0.304	0.05	NS, NR

N= Number of respondents, COE: College of Education, Std = Standard deviation, df = degree of freedom, Sig. = P-value; t-cal = t-calculated value; P >.05, NS = Not significant, NR =Not rejected.

The finding from (Tables 3 and 4) indicate that lecturers of Agricultural Education needs competency improvement in practical components for teaching Agricultural Mechanization as supported by Aguolu (2007), that lecturers needs competency in the school farm to ensure that all the activities of individual students are monitored and ensure that only approved procedures and practices are followed.

Conclusion

Based on the study results, the following conclusions were made;

Lecturers of Agricultural Education in public Colleges of Education in North Central Nigeria do not possess competency in planning for teaching which the foundation for competency needs for teaching is. Their level of inputs remains low.

The teaching methods of lecturers in Colleges of Education in North Central Nigeria is generally poor due to lack of competency improvement, which has affected the educational standard of the students

Recommendations

1. Lecturers are required to attends seminars and workshops to improve their knowledge.
2. Lecturers should attends conferences to update their knowledge to improve their competency in teaching.
3. Government/Management of Colleges of Education should encourage their lecturers through motivation.
4. Managements of various Colleges of Education in North Central Nigeria should provide modern teaching facilities to lecturers in order to improve their competency in teaching.

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