Effect of Cooperative Extension Education on the Performance of Members of Farmers Multipurpose Cooperative Societies in Enugu State

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Abstract
This study assessed the effect of cooperative extension education on the performance of farmers' multipurpose cooperative societies (FMCS) in Enugu State. The objectives of the study are: to evaluate the level of participation in cooperative extension education among FMCS, to identify the factors influencing participation in cooperative extension education programmes among FMCS, to identify the level of profitability of FMCS, to evaluate non-financial cooperative effects on members of FMCS and to examine the effects of cooperative extension on cooperative profitability in Enugu State. Exploratory and descriptive designs were used in the study. The sample size of 400 was determined using Taro Yamani formula and Bowler's proportional allocation formula used to distribute questionnaires to the selected cooperative societies from a total population of 325,142 cooperative members in 13,636 registered cooperatives societies in Enugu State. Data obtained were analyzed using descriptive statistical tools like frequency distribution, (percentages and tables), multiple regressions. Findings revealed that 47.5% of the respondents have not participated in cooperative extension education programme. Cooperative performance analysis indicated that majority of cooperative societies studied had an Extra value index (EVI) that is positive, meaning that cooperatives are generating value for their members. Among the non-financial value added to their members, shared risks, marketing functions, supply of input and increased accessibility to funds ranked highest. However, among the variables analyzed, cooperative extension training had no statistical significant effect on the performance of cooperative societies.

Keywords: Cooperative Extension, Cooperative Education, Performance, Farmers Multipurpose Cooperative Societies.

Introduction
Background of the Study
The term "Extension Education" when first expressed generally, usually points the average Nigerian to agriculture. This is however an erroneous perception. Extension education describes a particular system dedicated to the dissemination of knowledge to rural people where they live and work, Agbebi (2012). Therefore extension could encompass agriculture, cooperative, medicine, education, engineering, community development etc. International

Cooperative Alliance (ICA) defines Cooperative society as an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly and democratically controlled enterprise (ICA, 1995). Cooperatives are involved in extension education.

Lawal (2012) defines Cooperative Extension Education as a voluntary out of school educational programmes designed to help rural people or farmers learn new skills, knowledge and acquire favourable attitude as a basis for making changes in their ways of living. From the above understanding of cooperative extension education, it is clear that cooperative extension is a voluntary, out of school education directed at a particular group of persons to help them improve on their standard of living through the efficient utilization of production resources available to them. Essentially the term embraces all scientific activities aimed at helping the farmers and non-farmers solve their problems with their own resources not only on the farms and other business form but also in their families.

Education, be it formal or informal, adult or extension, is a major contributor to the development of any nation. Nigeria like other nations of the world is not an exception. Development brings about positive changes in both human beings and society. However, development is not affected only by formal education but adult and non-formal or out of school education.

In Nigeria Cooperative Extension trainings delivered through formal Cooperative Institutions are deemed as wasteful exercises, since majority of those in need of cooperative extension education operate in non-formal settings. Also there is the problem of gap between the cooperative theory taught in the classroom and real practice in cooperative business situations. Non-availability of cooperative literatures also pose a problem and in cases where they are available, the problem of illiteracy sets in.

Therefore, there is need for cooperative extension education to adapt and be delivered through adult learning programmes which occurs out-of-school or non-formally, using the principles and practices of adult and non-formal education in other to affect cooperative business outputs as well as cooperative members. It is on this background that this study investigates the effect of cooperative extension education on the performance of members of farmers' multipurpose cooperative societies (FMCS) in Enugu State. Specifically to evaluate the level of participation in cooperative extension education among members of FMCS, to identify the factors influencing participation in cooperative extension education programmes among members of FMCS, to evaluate the level of profitability of members of FMCS, to evaluate non-financial cooperative effects on members of FMCS and to evaluate the effect of extension education on the profitability of members of FMCS.

Review of Related Literature
Conceptual Framework
The Concept of Cooperative Extension Education
International Labour Organization (ILO) has defined a cooperative as: an association of persons who have voluntarily joined together to achieve a common end through the formation of a democratically controlled organization making equitable contributions to the capital required and accepting a fair share of the risks and benefit of the undertaking in which the members actively participate.
While Otokiti (2000) see cooperative as a voluntary association with unrestricted membership and collectively owned funds organized on democratic principles of equality by

persons of moderate means and income who come together to supply their needs and wants through mutual action in which motive of production is serve rather than profit.

In essence, cooperation represents the process of interaction between (i) cooperatively committed members, employees and leaders and their expectations for the future, (ii) cooperative values inherited from the past and expressed in principles, programmes, status, books, education material, etc, (iii) practical cooperative applications, structures, methods of activity, education, etc. also inherited from the past, and (iv) the environment of cooperatives, e.g. the government, the institutional structures of the society at large, the economic system, the values in the community, etc. (ICA; 1998)

According to the International Cooperative Alliance (ICA), a cooperative can be defined as a group of people who join together in a common undertaking in accord with the six principles that are as follows:
(i)   Membership is open and voluntary.
(ii)   There is democratic control, usually on the basis of one man, one vote.
(iii)   Interest on share capital is limited.
(iv)   Distribution of surplus proportionally, according to the level of transactions
(iv)   Cooperatives devote some part of their surpluses to education.
(v)   Cooperatives cooperate among themselves.
The purpose of the cooperative is to provide greater benefits to the members such as increasing individual income or enhancing a members' way of living by providing important needed services.

Concept of Education
The word education is derived from a latin word ''EDUCARE'' meaning 'to bring up', 'to elevate' or 'to raise' (Molagun et al 2000).
Lawal et al (2012) describes Education in its general sense to be the means through which the aims and habits of a group of people lives on from one generation to the next. Generally, it occurs through any experience that has a formative effect on the way one thinks, feels, or acts. In its narrow, technical sense, education is the formal process by which society deliberately transmits its accumulated knowledge, skills, customs and values from one generation to another, e.g., instruction in schools.
As such the main purpose of education in a society is to educate individuals within the society, to prepare and qualify them for work economically as well as to integrate people into the society and teach them values and morals of society. Education can be formal, informal and non-formal.

Concept of Extension
Extension originally was conceived as a service to "extend" research-based knowledge to the rural sector in other to improve the living conditions of the rural dwellers. It included components of management skills and non-formal education as well as technological transfer and so on.
Adedokun, Adedoyin, & Ayodele, (2003) posits that extension has been developed as the only logical scientific and successful way of bringing knowledge to farmers to help them perform their agricultural activities effectively.

Mai-Lafia and Goshit (2009) defines extension as a process or a service way of getting knowledge developed from one environment to the other.
- As a method of teaching rural people on the production and marketing system

- A system or service which provides rural people an opportunity to have access to improve teaching which under normal circumstances they would not have been able to avail themselves of them.

According to (Maunder, 1972:24) as cited in Akubuilo (2008), the scope of extension includes;
Agricultural production; Marketing, distribution and utilization of farm products; Conservation, wise use, and development of natural resources; Family living; Youth development; Leadership development; Community improvement and Public affairs.
Others may include health services, technical services, home-economics and so on.

Lawal et al (2012) concluded that extension is to assist farmers and non-farmers to apply scientific findings in a sustaining manner to improve their activities and way of life on their own. However, it should be noted that extension service is not restricted to agriculture alone. It permeates and applies to all areas of human endeavour, where knowledge is generated and used for the welfare of humanity (e.g. health, education, engineering, etc). In other words, extension services' overall objective is to plan, execute, and evaluate learning experience that will help people acquire the understanding and skills essential for solving farm, home and community problems.

Cooperative Extension Education
Cooperative extension education can simply be said to be the process by which deliberate transmission of cooperative and non-cooperative knowledge, skills, customs and values developed from one environment to the other in other to increase awareness, productivity and profitability.

Lawal (2012) defines cooperative extension education as a voluntary out of school educational programmes designed to help rural people or farmers learn new skills, knowledge and acquire favourable attitude as a basis for making changes in their ways of living. Cooperative extension education can be formal as well as informal.

Formal Cooperative Education: Formal Cooperative Education is given in classrooms. This includes training in Cooperative Colleges, Polytechnics, Universities and so on. The education is imparted through formal teaching, Lawal (2012).

Informal Cooperative Education: This is given to Cooperators in course of Cooperative meetings when members ask questions and the Cooperative staff/officer answers the questions. It also include the education Cooperators receive through workshops, conferences, radio and television programmes. Irrespective of the type of cooperative extension education, its form of delivery is absolutely important and key to its success.

Non-Formal Cooperative Education: This kind of training does not take place in a class room and does not have a define syllabus or curriculum like the formal education give to cooperative members.

Forms of Cooperative Education, Members can participate
According to Bee (2011) Cooperative education can be offered through various forms of training conducted by designated training institutions or individual experts. These forms may include a combination or one of the following:
(i)   Self-directed learning guided by organized tutoring,

(ii)   Networking especially through peer learning,
(iii)   Workshops, seminars or Tailor Made Programmes,
(iv)   Training of Trainers and Members;
(v)   Open and Distance Learning (ODL), and
(vi)   Long-term training programmes leading to award of accredited certificates

He further explained them thus;
Cooperative members, leaders, and interested individuals can acquire cooperative education through self-guided training, which can be conducted through listening to radio programmes, reading available literature, access online resources, and learn from one other. This kind of learning is more effective if learners can exercise high discipline and dedication.
Learning through peers or networking is another form of cooperative training that is very effective. This is practiced through group learning where people gather together in their local cooperative organization or any place of their preference and learn together issues related to cooperatives.

Workshops, seminars and conferences are another form of cooperative training that is common in most countries. These are usually organized based on specific themes that address pre-determined needs or at times tailor made to meet the needs of an organization or related organizations. Sometimes they are conducted regularly or once. In most cases such programmes are conducted based on participatory techniques and democratic education.
The training of trainers (ToT) is a training that creates a pool of cooperative trainers who are expected to train their colleagues. It aims at creating a pool of facilitators who are knowledgeable and capable of conducting cooperative training. The process builds trust and confidence among members and leaders because trainers are drawn from within and among the localities and from cooperative movements, who are able to speak local vernacular and demonstrate issues in simple and understandable examples.

Open and Distance Learning (ODL) is a method of learning that releases learners from constraints of time and place whilst offering flexible learning opportunities. The method helps to relieve learners from multiple roles as employees and mothers. It is mostly conducted online and as such it has its own challenges that learners can face. This method mostly relies on computer referencing, computer aided instructions using internet, television – aided learning, and audio/video tape materials. Most critical is access to electronic online contact through internet and telephone that presupposes availability of stable electricity and computer literacy among the learners. In recent times Virtual Learning or e-learning or education via computer-mediated communication is becoming popular. Virtual learning was developed in order to improve ODL, but it is now often used to supplement traditional face-to-face classroom training creating what is known as Blended Learning (http:/en.wikipedia.org/wiki/Virtual_learning_environment visited on 3 July, 2011). The system usually runs on servers, to serve the course to learners through multimedia and or web pages. There are situations where virtual learning allows face-to-face classroom interactions while keeping their distances apart by allowing direct communication with trainers, showing emotions, asking questions through telephone, and skype, among others. Trainers and students are able to use "virtual classroom chalkboard" to train and learn. Sharing of multimedia resources such as video and audio files and transfer of documents as PDF or word is possible among trainers and students.

Long-term or residential training programme is another form of cooperative education and training conducted for a certain duration that is based on accredited programmes leading to

specific awards. Such awards are not different from what traditional training institutions offer. These include certificates, diploma, a degree, and postgraduate degree. A slight improvement though, is where cooperative education is mainstreamed or blended in institution-wide programmes where students on graduating will have some knowledge on cooperative studies.

Objectives of Cooperative Extension Education

Lawal et al (2012) highlighted the main objective of cooperative extension in Nigeria as to assist the members and non-members of cooperatives increase their production capacity and improved standard of living. This however, cannot be achieved in isolation; it has to be done in conjunction with other programme. The broad objectives of cooperative extension service therefore are as follows:

a.   Link between researchers and farmers and non-farmers
b.   Adoption of new innovation.
c.   Identification of available resources
d.   Living Standard of the Family.
e.   Development of Local Leaders.
f.   Development of Rural Youth.
g.   The dissemination of useful & practical information
h.   The practical application of useful knowledge.

Co-Operative Performance Measurement

Generally, Co-operative performance can be measured against five key measures as suggested by Yang, Kai-Fu, Chung-Hsin, & Chih-Yang (2010). These measures include procurement strategy and performance, marketing strategy and performance, distribution strategy and performance and finally information systems strategy and performance. Performance indicators can be categorized further, into quantitative and qualitative indicators. The quantitative performance can be analysed basing on the financial and statistical reports.

However, cooperative's financial performance measurement for agricultural cooperatives is different. According to Liebrand (2007), the Extra value approach is best for measuring agricultural cooperatives' performance.

Extra Value Approach- Extra value defined - the new tool uses an "extra value" approach. It accounts for the total cost of operations – including cost on equity - and measures performance in terms of earnings generated, net of this total cost. Extra value can be calculated using the information commonly found on any firm's financial statements (except for the interest rate on equity which has to be imputed) Ling (2006).

This extra value method was developed because the conventional measures of financial performance—return on equity, return on assets, return on operating capital, net margins on sales, net margins per unit, and so forth—do not yield unequivocal results, Liebrand (2007). In addition, whereas the value of a company's stock may be used as a proxy for the company's performance and market value, cooperatives do not have stock exchange prices for an evaluation tool. Previous reports calculated extra value indexes for dairy cooperatives and showed that this measure is an objective and definitive tool for comparing cooperative performance in creating value for member-producers.

Most of the commonly used financial measures give an incomplete picture of a cooperative's performance. However, the extra value approach enables a cooperative's use of member-

supplied funds to be fully measured—whether member capital is earning more, or less, than it could in alternative investments. The value a cooperative generates over and above its expenses, including an opportunity cost for its equity capital, is termed "extra value." A positive extra value indicates that a cooperative has created value by its operations, while a negative extra value means that a cooperative has actually diminished the value of members' investment. Extra value is measured by subtracting an interest charge on equity capital from net savings.

Extra value $\qquad$ = Net savings – Interest on Equity
Interest on equity $\qquad$ = Member equity x Interest rate for equity
Extra value index $\qquad$ = Extra value/ Operating Capital x 100
Operating capital $\qquad$ = fixed assets + net working capital
Fixed assets $\qquad$ = non-current assets
Net working capital $\qquad$ = current assets – current liabilities

Performance was categorized into 5 groups according to the cooperatives' return on equity and extra value generated at three different interest rates:

I—Negative returns: Cooperatives in this group had a negative average return on equity for the period calculated.

II—Positive return on equity, but no extra value generated: These cooperatives averaged positive return on equity for the period calculated, but showed a negative extra value when the basic rate was charged for equity capital.

III—Extra value generated at a basic interest charge for equity: These cooperatives were adding sufficient value through their operations to cover the opportunity cost of member-supplied capital at a rate similar to what they would have had to pay for debt capital.

IV—Extra value generated with a moderate risk premium on equity capital: Cooperatives in this group showed positive average extra value when interest on equity was charged at a 5-percent premium over the basic rate.

V—Extra value generated with a higher risk premium charge for equity: Cooperatives in this category were able to average positive extra value for the 5-year period when applying a 10-percent risk premium (over the basic rate) to reflect the historic risk premium for equity investment.

The rankings allow cooperative performance to be judged relative to each other's performance. While all the cooperatives operated in the same general economic conditions of each time period, some saw their performance improve, while others' worsened between the two periods. Several factors (such as a cooperative's pricing policies or the value of intangible cooperative benefits) are elusive to quantify and thus are not reflected in the various financial performance measures, including the extra value measure.

The exercise of measuring cooperative performance by the extra value method tells us that cooperatives of all types can be very able performers but that some cooperatives may not be fully rewarding members for the use of their equity.

Return on Equity vs. Extra-Value Index

Ling (2006) explained that while return on equity highlights a firm's financial performance, extra-value index measures a firm's efficiency in adding value for the stakeholders (member-producers in a cooperative). The two measures have different emphasis. Depending on a cooperative's particular situation, the measures may result in a different performance ranking when comparing one cooperative with another. In other cases, the ranking may converge. The relative performance of the cooperatives also depends upon what cost is assigned to equity capital for the extra-value calculation.

Non-Financial Cooperative Effect

Ogbodo (2012) describes cooperative effects as the degree of extra satisfaction which a member derives as a result of participating or being a member of the Co-operative compared to when working outside cooperative or being a non-member. It is, therefore, a comparison between the level of satisfaction derived before joining the Co-operative and the level of satisfaction derived after becoming a member. These benefits can be financial or non-financial. Non-financial effect according to Ogbodo are; increased marketing functions, increased supply functions, capacity building, increased sense of belonging, sharing of risks, increased accessibility to funds, increased possibility of investments and technical advice.

Theoretical Framework

This study is anchored on the Theory of Andragogy by Malcolm S. Knowles, due to its relevance to cooperative extension education. The fact that cooperative covers persons from different ethnic, cultural and social backgrounds that are predominantly adult also makes it relevant. If applied and understood by both cooperative extension workers and members of cooperative societies, qualitative and quantitative learning would take place.

According Malcolm Knowles, andragogy is the art and science of adult learning, thus andragogy refers to any form of adult learning. (Kearsley, 2010).

Andragogy in Greek means the man-leading in comparison to pedagogy, which in Greek means child-leading.

Knowles' 5 Assumptions of Andragogy (Adult Learners)

Knowles made 4 assumptions about the characteristics of adult learners (andragogy) that are different from the assumptions about child learners (pedagogy) and later Knowles added the 5th assumption. These assumptions are;

1. Self-concept - As a person matures his/her self-concept moves from one of being a dependent personality toward one of being a self-directed human being

2. Adult Learner Experience - As a person matures he/she accumulates a growing reservoir of experience that becomes an increasing resource for learning.

3. Readiness to Learn - As a person matures his/her readiness to learn becomes oriented increasingly to the developmental tasks of his/her social roles.

4. Orientation to Learning - As a person matures his/her time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his/her orientation toward learning shifts from one of subject- centeredness to one of problem centeredness.

5. Motivation to Learn - As a person matures the motivation to learn is internal.

Knowles' 4 Principles of Andragogy, Knowles suggested 4 principles that are applied to adult learning:

1. Adults need to be involved in the planning and evaluation of their instruction.

2. Experience (including mistakes) provides the basis for the learning activities.

3. Adults are most interested in learning subjects that have immediate relevance and impact to their job or personal life.

4. Adult learning is problem-centered rather than content-oriented. (Kearsley, 2010)

Since adults are self-directed, instruction should allow learners to discover things and knowledge for themselves without depending people will be provided guidance and help when mistakes are made.

Applying this theory to this study would mean that cooperative extension educational programmes would be tailored to meet the need of the adult members of the society in a functional way and productive way.

Research Methodology
Research Design
The descriptive survey design was adopted for the study, which sought to collect data on the opinions of participants with a view to examining the effect of cooperative extension education on the performance of members of farmers' multipurpose cooperative societies (FMCS) in Enugu State, Nigeria.

Area of the Study
The area of study was Enugu State. The average temperature in this city is cooler to mild (60 degrees Fahrenheit) in its cooler months and gets warmer to hot in its warmer months (upper 80 degrees Fahrenheit) and very good for outdoor activities with family and friends or just for personal leisure. Enugu has good soil-land and climatic conditions all year round, sitting at about 223 metres (732 ft) above sea level, and the soil is well drained during its rainy seasons. The state consists of 17 local government areas. The local government areas covered was categorized for geo- political purposes under three senatorial zones: Enugu East, Enugu West and Enugu North. According to 2005 census, the population of the state was 3, 257, 298. About 40% of the areas are cosmopolitan in outlook while 60% are in rural area. The major occupations of the inhabitants were civil service, trading and farming. Government presence in the area is clearly visible and literacy level of the inhabitants is also favourable when compared to other areas.

Population of the Study
The population of the study consists of the entire registered Farmers' Multipurpose Cooperatives Society (FMCS) in Enugu State. There are 13,636 registered FMCS with total membership strength of 325,142 from all the seventeen local government areas that make up the study area as at 31/12/15. These cooperatives are engaged in several functions- farming, trading, credit delivery, production, market, input supplies, savings mobilization, housing etc.

Sample Size
The population of this study is 13,636 registered FMCS with total membership strength of 325,142.
To determine the sample size Taro Yamani (1964) formula was applied to the population size and Bowler's proportional allocation formula to distribute questionnaires to the selected cooperative societies. The formula is stated as follows.

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size; N = Population of the study; Error estimate at 5% (0.05); 1 = Constant.

$$n = \frac{325,142}{1 + 325,142 (0.05)^2}$$

$$n = \frac{325,142}{1 + 325,142 (0.0025)}$$

$$n = \frac{325,142}{1 + 812.855}$$

$$n = \frac{325,142}{813.855}$$

= 399.5
= 400 approximately

Bowler's Proportional Allocation formula

n1 = $\underline{n(n1)}$

     N

Where n = Overall sample size; n1 = Population of each LGA; N = The Total Population

Method of Data Analysis

Descriptive statistical tools such as means, tables, etc. were used to present and discuss the data. Also used were financial ratios derived from the financial statements. Also inferential statistics such Pearson correlation analysis and regression analysis were used to address the hypotheses respectively.

The multiple regression analysis was used to analyse the factors influencing members' participation in cooperative extension education programmes.

The regression model that was used was employed to examine the relationship between cooperative extension and performance of cooperative business.

Model specification

The models postulated are clearly specified below.

Equations (1)

Participation = f (Gender, Previous Education, Age, Ext training, Area of learning, Learning for certificate, ε) …….1

Where;

Participation = Members' participation in extension programmes;

Gender = Gender of members (Dummy: 1 if male, 0 if female);

Previous Education = Members' previous educational qualifications (Yes: 1, 0 if No)

AGE = Members' age;

Ext training = Number of Extension training per annum;

Area of learning = Area of learning of the training programme (dummies);

Learning for certificate = Learning for certificate (Yes:1, 0 if No);

ε = Error term

Equations (2)

Cooperative performance = f(size, Extension training, current ratio, education, length of existence of society, qualification, gender, ε).

Where

Cooperative performance = Cooperatives' return on equity & extra value generated (year);

Size = Size of the society;

Extension training = number of Extension training per annum;

Current ratio = current asset/current liabilities;

Education = number of years of formal education;

Length of existence = Length of existence of society (years);

Qualification = qualification of extension workers

Gender = gender of members (Dummy: 1 if male, 0 if female).

ε = Error term

Cooperative performance = $\alpha + \beta_1$ Size+ β_2 Extension training+ β_3 Current ratio+ β_4 Education+ β_5Lenght of existence+ β_6 Qualification+ β_6Gender ε……….2

The αs are the intercepts and the β s are the regression coefficients to be estimated while the ε s are the error terms designed to capture other variables not included in the models. F and t statistics are employed to test the significance of estimates of the multiple regression models.

Computation of Cooperative performance
This study measures the performance of cooperatives based on the U.S. Department of Agriculture (USDA) Rural Development Cooperative Programs, research report 213 by cooperatives' Extra Value method for measuring the performance of agricultural cooperatives, Liebrand (2007).

The Extra Value approach measures how cooperatives can be evaluated in their use of member-supplied funds – whether their capital is earning more or less, than it could in alternative investments.
Formula:
Extra value   = Net savings – Interest on Equity
Net savings   = Operating margin –Interest on debt
Interest on equity   = Member equity x Interest rate for equity
Extra value index   = Extra value/ Operating Capital x 100
Operating capital   = fixed assets + net working capital
Fixed assets   = non-current assets
Net working capital = current assets – current liabilities

A positive extra value indicates that a cooperative has created value by its operations, while a negative extra value means that a cooperative has actually diminished the value of members' investment.

To make the extra value scale-neutral, an "extra-value index" (EVI) is developed by expressing extra value as a percentage of operating capital. Because EVI is common sized by operating capital and is thus scale-neutral, it allows cooperatives and firms of different sizes and/or types of operations to be compared fairly (Liebrand 2007; Ling and Liebrand 1998).
However, the value of intangible cooperative benefits are not captured by the extra value measure because they are hard to quantify; hence the use of questionnaires and interviews to get them.

Results and Discussion
Level of Participation in Cooperative Extension Programmes among FMCS

Table 4.1: Level of Participation in Cooperative Extension Programmes

	Frequency	Percent	Valid Percent	Cumulative Percent
Participated	210	52.5	52.5	52.5
Not Participated	190	47.5	47.5	100.0
Total	400	100.0	100.0	

Source: *Field survey, 2016.*

The table above shows that, 210 respondents representing 52.5 percent of the entire respondents have participated in one form of cooperative extension education programme or the other while 190 respondents representing 47.5 percent have not participated in any cooperative extension education programme at all.

Analysis of factors influencing member's participation in cooperative extension education programmes

Table 4.2: Results of Multiple Regression on factors determines member's participation.

Variables	Coefficient	t- statistic	Sig level
Constant	2.020		
Member's gender or Sex (GEN)	0.033	0.703	*0.482
members' age (AGE)	-0.072	-3.663	*0.000
members' previous educational qualifications (PRE_EDU)	-0.118	-7.662	*0.000
Duration of Extension training programme (DOE)	0.104	8.802	*0.000
Area of learning of the training programme (AOL)	0.084	1.935	0.054
Learning for certificate (LFC)	-0.248	-4.854	*0.000

Source: *Regression Analysis Field Data, 2016.*
R   =   0.705
R^2 =   0.497
Adjusted R^2 =0.489
Note * means significant of 5% level.

Interpretation
From the regression analysis table 4, the multiple correlation coefficient R^2 = 0.497, described the extent to which the dependent variable (participation) is being explained by independent variable. This implied that 49% of variations in participation are caused by the variables analyzed above. Also, the adjusted R^2 was 0.489; showing 49% of variation in participation was explained by changes in the variables analyzed above.
A close look at the regression results indicates that five variables were statistically significant in determining participation in cooperative extension programmes because their p-value is less than 0.05. This variable include Member's gender or Sex, members' age, members' previous educational qualifications, Duration of Extension training programme and Learning for certificate. That means that these were major determinants to participation in cooperative extension programmes.

The regression coefficient for Member's gender was positive. This result means that increasing a particular gender increases the likelihood of participating in the extension education programme. The regression coefficient for members' age is negative; this signifies that as the age of member's increases there is a decreased likelihood of participating in cooperative extension programmes. Members' previous educational qualifications has a negative regression coefficient, meaning that the more previous educational qualification a member had, the higher the likelihood of not participating in cooperative extension education.

Level of Profitability of FMCS
Table 4.3 Cooperative financial characteristics

Financial characteristics	Range	2013		2014	
		Freq	%	Freq	%
Cooperatives' current assets	Less than N 1,000,000	51	12.8	39	9.8
	N 1,000,001 – 2,000,000	76	19.0	70	17.5
	N 2,000,001 – 3,000,000	50	12.5	53	13.3
	N 3,000,001 – 4,000,000	47	11.8	50	12.5
	N 4,000,000 – 5,000,000	41	10.3	46	11.5
	Over N 5,000,000	135	33.8	142	35.5
	Total	400	100.00	400	100.00
Cooperatives current liabilities	Less than N 1,000,000	28	7.0	24	6
	N 1,000,001 – 2,000,000	116	29.0	114	28.5
	N 2,000,001 – 3,000,000	34	8.5	35	8.8
	N 3,000,001 – 4,000,000	55	13.8	55	13.8
	N 4,000,000 – 5,000,000	28	7.0	30	7.5
	Over N 5,000,000	139	34.8	142	35.5
	Total	400	100.00	400	100.00
Cash and account receivable by the cooperatives	Less than N 1,000,000	80	20.0	75	18.8
	N 1,000,001 – 2,000,000	72	18.0	70	17.5
	N 2,000,001 – 3,000,000	48	12.0	47	11.8
	N 3,000,001 – 4,000,000	30	7.5	32	8.0
	N 4,000,000 – 5,000,000	38	9.5	42	10.5
	Over N 5,000,000	132	33.0	134	33.5
	Total	400	100.00	400	100.00
Owners' equity	Less than N 1,000,000	84	21.0	59	14.8
	N 1,000,001 – 2,000,000	67	16.8	56	14
	N 2,000,001 – 3,000,000	41	10.3	51	12.8
	N 3,000,001 – 4,000,000	45	11.3	42	10.5
	N 4,000,000 – 5,000,000	44	11.0	48	12
	Over N 5,000,000	119	29.8	144	36
	Total	400	100.00	400	100.00

Source: *Cooperative societies record book.*

Results from Table 6 show that 12.8% had current assets less than N1, 000,000; 19% had it between N1,000,000 – 2,000,000. 12.5% had between N 2,000,001 – 3,000,000 and 11.8% had it between N 3,000,000 – 4,000,000.   0   while 10.3 % had current assets between N 4,000,000 – 5,000,000. 33.8% of cooperatives had current assets above N5,000,00. Current assets are those assets used within a year, therefore majority of cooperative societies used above N5,000,000 in running the business for 2013. In 2014, current asset for cooperative generally improved slightly.

The current liabilities are above 5,000,000 for about 34.8% of cooperatives and was between N4,000,000-5,000,000 for 7% of cooperatives and 29% N 1,000,001 – 2,000,000. This means that cooperatives seem to have more liabilities than assets for 2013. In 2014, the difference in current liabilities for cooperatives was not significant though fewer cooperatives incurred more liabilities, comparably.

The cash and account receivable was less than N1 million for 20% of cooperative, between 1-2 million for 18%; 3-4 million for 7.5% also and 33% had above 5 million Naira. This means that quite a number of cooperatives have huge amount of cash to be recovered for operation. The owner's equity was above 5 million Naira for 29.8% of cooperatives; between 4-5 million for 11% of cooperatives; 2-3 million for about 10.3% of cooperative societies, 1-2million for about 16.8 and less than 1million is 21%. This indicates a fairly good financial stand of most cooperatives for smooth operation.

Cooperative Return on Equity (2013-2014)
Table 4.4 Distribution of average cooperative return on equity (2013-2014)

Cooperatives performance – Return on Equity 2013 -2014		
Range	**Frequency**	**Percentage**
0 – 10%	192	48
11 – 20%	74	18.5
21 – 30%	29	7.2
31 – 40%	20	5.0
41 – 50%	13	3.3
51 – 60%	10	2.5
61 – 70%	3	0.8
71 – 80%	10	2.5
81 – 90%	10	2.5
91 – 100%	8	2.0
101 – Above %	31	7.8
Total	400	100

Source: *Field survey, 2016.*

Return on equity measures the return members' equity earns by being employed by cooperatives, from the table above all the cooperatives samples had a positive return of equity (ROE), indicating that their members' equity earned above N1, as the table indicates some earned 101% and above. Meaning they did well financially in the time period under evaluation. However, to evaluate cooperative performance comparatively extra value index (EVI) must be established. EVI measures the earning ability after covering the cost of equity; a cooperative could show positive returns to equity but actually be losing value as a going concern (Liebrand 2007; Ling and Liebrand 1998).

Distribution of cooperative Extra Value index
Table 4.5 Distribution of average cooperative Extra ValueIndex (EVI) (2013-2014)

Cooperatives performance – Extra Value index 2013 -2014		
Range	**Frequency**	**Percentage**
Negative EVI%	29	7.2
0.1 – 10%	25	6.3
10.1 – 20%	11	2.8
20.1 – 30%	4	1.0
30.1 – 40%	44	11.0
40.1 – 50%	70	17.5
60.1 – 70%	217	54.3
Total	400	100

Source: *Field survey, 2016.*

Table 8 shows that 29 Cooperative societies representing 7.2% of all cooperative societies sampled had a negative average return on equity for the 2-year period. This means that these cooperatives are not fully recovering their total costs and is losing value as a business. However, the table shows that 92.9% of the entire cooperatives sampled had a positive average return on equity for the 2 year period. This means that these cooperatives are generating value for their members, attesting to the cooperative's comparative advantage in the marketplace.

According to Ling as cited by Liebrand (2007), to make the extra value scale-neutral, an "extra-value index" (EVI) is developed by expressing extra value as a percentage of operating capital. Because EVI is common sized by operating capital and is thus scale-neutral, it allows cooperatives and firms of different sizes and/or types of operations to be compared fairly.

Table 4.6 Non-Financial Cooperative Effects (benefits) on Members

Variables	Frequency	Percentage	Ranking
Marketing functions	84	21.0	2nd
Supply functions	68	17.0	3rd
Capacity utilization	14	3.5	7th
Increased sense of belonging	28	7.0	5th
Sharing of risks	118	29.5	1st
Increased accessibility to fund	40	10.0	4th
Increased possibility of investment	20	5.0	6th
Technical advice	28	7.0	5th
	400	100.0	

Source: *Field Data, 2016.*

From table 4.7, respondents have enjoyed non-financial benefits like shared risks, representing 29.5% of the responses. Marketing functions, supply of input and increased accessibility to funds where 2nd, 3rd and 4th representing 21%, 17% and 10% of the respondents. Next was increased sense of belonging and technical advice with 7% of respondent each, while increased possibility of investment and capacity utilization are 6th and 7th representing 5% and 3.5% of the respondents, respectively.

Effect of cooperative extension on cooperative performance
We regressed six separate performance measures as well as cooperative extension education to explore whether and to what extent cooperative extension education impact cooperative performance. The regression equations we employed is:
Cooperative performance = α + β_1 Size+ β_2 Extension training+ β_3 Current ratio+ β_4 Education+ β_5 Lenght of existence+ β_6 Qualification+ β_6 Gender ε

Table 4.7 Result of Multiple Regression on effects of cooperative extension on cooperative performance 2013.

Variables	Coefficient	t- statistic	Significance level
Constant	2.095		
Size of Society	-0.001	-1.569	0.117
Number of Extension training per annum	-0.164	-1.525	0.128
Current ratio	0.107	4.707	*0.000
Number of years of formal education	0.001	0.032	0.975
Length of existence of society	-0.042	-1.638	0.102
Qualification of extension workers	0.098	0.942	0.347
Gender	0.084	0.789	0.431

Source: *Regression Analysis Field Data, 2016.*
R   =   0.262
R^2 =   0.069
Adjusted R^2 = 0.052
Note * means significant of 5% level.

Interpretation

A close inspection of the regression results indicates that only one variable is statistically significant in affecting cooperative performance. This variable is current ratio of the cooperative societies studied. Current ratios have a positive coefficient of 0.107, conforming to apriori expectation, implying that cooperative performance increases as current ratio increases. Meaning that cooperatives' performance increases as its ability to pay up its debts in a 12 months period increases.

The regression coefficients for other variables were not statistically significant including cooperative extension.

Table 4.8 Result of Multiple Regression on effects of cooperative extension on cooperative performance 2014.

Variables	Coefficient	t- statistic	Significance level
Constant	2.096		
Size of Society	-0.002	2.703	*0.007
Number of Extension training per annum	-0.174	-1.420	0.156
Current ratio	0.181	6.965	*0.000
Number of years of formal education	0.009	0.223	0.824
Length of existence of society	-0.018	-0.635	0.526
Qualification of extension workers	0.070	0.589	0.556
Gender	0.034	0.279	0.780

Source: *Regression Analysis Field Data, 2016.*
R   =   0.356
R^2 =   0.127
Adjusted R^2 = 0.111
Note * means significant of 5% level.

Interpretation

A close inspection of the regression results indicates that only two variables are statistically significant in affecting cooperative performance. These variables are size of the society and current ratio of the cooperative societies studied. Size of the society has a negative coefficient, implying that as size of the society decreases, cooperative performance increases. Also, current ratios have a positive coefficient conforming to apriori expectation, implying that as current ratio increases, cooperative performance increases likewise.

The regression coefficients for other variables were not statistically significant to fit into the model as predictors including cooperative extension. Therefore, it can be concluded that there is no significant relationship between the effects of cooperative extension on the performance of cooperative societies statistically.

Summary, Conclusion and Recommendations
Summary of findings

The major findings of this study are summarized below as:

1. Almost half (47.5%) of the respondents have not participated in cooperative extension education programme.
2. Among those who have participated, Member's gender, members' age, members' previous educational qualifications, duration of Extension training programme and Learning for certificate were factors discovered to have influenced their participation in cooperative extension programmes.
3. Analysis of cooperative performance, indicated that majority of cooperative societies studied had a Extra value index (EVI) that is positive, meaning that cooperatives are generating value for their members, though a few had negative Extra value index.
4. Shared risks, marketing functions, supply of input and increased accessibility to funds represented the areas of non-financial cooperative benefits among the respondents.
5. Among the variables analyzed, cooperative extension training had no statistical significant effect on the performance of cooperative societies. Rather, current ratio of the cooperatives positively affected cooperative performance.

Conclusion

In conducting this study, there were a number of objectives, which the researchers sought to achieve. Foremost, they sought to find out to evaluate the level of participation in cooperative extension education among members of FMCS, to identify the factors influencing participation in cooperative extension education programmes among members of FMCS, to evaluate the level of profitability of members of FMCS, to evaluate non-financial cooperative effects on members of FMCS and to evaluate the effect of extension education on the profitability of members of FMCS in Enugu State. This study is grounded primarily on the Theory of Andragogy by Malcolm S. Knowles and its effect on the adult learner and society in general.

A far-reaching literature review was conducted as the basis for this study and for determining the effects of cooperative extension education on the performance of FMCS in Enugu State. The major findings from this study revealed no statistical effect of cooperative extension on the performance of FMCS in Enugu State; however respondents indicated some benefit of extension suggesting that cooperative extension may be enhancing unobserved productive attributes. The implication of the findings of this study suggests that cooperative extension education is indeed essential to the personal development of the cooperative member, the cooperative society and invariably the development of the nation.

Recommendations

The following recommendations are necessary in order to remedy the identified problems and shortcomings observed in this study:

1. Cooperative extension education programmes must be encourages in other to ensure participation of all cooperative societies in Enugu State.
2. Given that member's gender, members' age, members' previous educational qualifications, duration of Extension training programme and Learning for certificate was factors discovered to have influenced participation in cooperative extension programmes, government as well as cooperative professional should streamline cooperative extension education to fit these variables to ensure mass participation.
3. Additional skill areas must be included to those analyzed in this study to further improved cooperative extension education programmes' impact.
4. Proper cooperative education training programme coordination must be ensured in other to guarantee an effect in cooperative performance and adopting member follow-up which is key to success
5. Given the current structure of the cooperative department in the state, government should adequately fund cooperative extension education in other to ensure far reaching improvement among cooperative societies in Enugu State.
6. Cooperative extension education must be viewed as a major responsibility of a specialized agency of cooperative professionals and must be adequately supported and promoted and vigorously advanced by policy makers in particular and governments in general.

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