Perceived effects of professionalization of extension services on delivery by public and private agents in South Western Nigeria

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DECLARATION

I, the undersigned, declare that this thesis titled Perceived Effects of Professionalization of Extension Services on Delivery by Public and Private Agents in South Western Nigeria submitted to the North-West University for the degree of Doctor of Philosophy in Agricultural Extension in the Faculty of Natural and Agricultural Sciences, School of Agricultural Sciences, and the work contained herein is my original work with exemption to the citations and that this work has not been submitted to any other University in partial or entirely for the award of any degree.

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DEDICATION

This thesis is dedicated to the Almighty God, the author, creator, maker, redeemer and sustainer of my life. He indeed is the Source of all Wisdom and Sovereign God over all.

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LIST OF ACRONYMS

AAAC	Australian Association of Agricultural Consultants
ADP	Agricultural Development Programme
AIC	Agricultural Institute of Canada
APEN	Australasia-Pacific Extension Network
ATI	Agricultural Training Institute
CFA	Confirmatory Factor Analysis
CPD	Continuous Professional Development
DAFF	Department of Agriculture Forestry and Fisheries
DHS	Department of Homeland Security
FAO	Food and Agricultural Organization
FGN	Federal Government of Nigeria
GFRAS	Global Forum for Rural Advisory Services
GR	Green Revolution
HRPA	Human Resource Professionals Association
IALB	International Academy of Rural Advisors
ICRISAT	International Crop Research Institute for Semi-Arid Tropics
ICT	Information Communication Technology
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture

ILRI	International Livestock Research Institute
LGA	Local Government Areas
NAFPP	National Accelerated Food Production Programme
NGEO	Non-Governmental Extension Organization
NPC	National Population Commission
OFN	Operation Feed the Nation
OLS	Ordinary Least Square Regression
PCA	Principal Component Analysis
RBDA	River Basin Development Authority
SASAE	South African Society for Agricultural Extension
SDG	Sustainable Development Goals
SEM	Structural Equation Modelling
UN	United Nations

ABSTRACT

The need to professionalize extension services which is an indispensable way to improve and ensure a viable, effective and vibrant extension and advisory service delivery in the study area led to this study. The study analyses the perceived effects of professionalization of extension services on delivery by public and private agents in South Western Nigeria. Specifically, the study described the socio-economic characteristics of the extension agents, identified the sources of information utilized on professionalization, examined their knowledge on professionalization, evaluated the attitude of the extension agents towards professionalization of extension services, identified the barriers to professionalization and determined the perceived effects of professionalization on extension service delivery.

Data were collected using a two-stage sampling technique to select three hundred and fifty six extension agents for the study. A purposive selection of three states Agricultural Development Project (ADP) (i.e. Ogun, Osun and Oyo ADPs) and two agro-based non-governmental extension organizations (NGEOs) (i.e. FADU and JDPM-RUDEP) was carried out based on the prominence of their extension personnel and activities in the zone. Three hundred and one public extension agents and fifty five private extension agents were randomly selected from the various states ADPs and agro-based NGEOs respectively. A structured questionnaire consisting of seven sections was used to elicit information from the public and private extension agents. Descriptive statistics (frequency counts, percentages, means and ranks) and inferential statistics (T-test, Principal Component Analysis (PCA), Tobit regression, Ordinary Least Square regression and Confirmatory Factor Analysis was used to analyse the data

The findings indicated that there were significant differences in the mean age ($t = 3.77$, $p \leq 0.01$), average household size ($t = 2.81$, $p \leq 0.01$) and mean years of experience ($t = 5.53$, $P \leq 0.01$) of the public and private agents. Five sources of information which include forth-night Training Sessions, other extension agents, seminars and workshops, on-the-job trainings and extension publications were utilized and ranked differently by the public and private agents. The study showed that the public and private extension agents exhibited a high level of knowledge on the general concept of professionalization and its components. Also, the public and private extension

agents were largely in support of professionalizing extension services as they both had a favourable attitude towards professionalization and its components of accreditation, registration and certification. Furthermore, the public and private extension agents had a positive perception of the effects of professionalization of extension services in enhancing and improving delivery and they both indicated similar barriers towards professionalization of extension profession.

Tobit regression model of factors influencing the perceived effects of extension professionalization on service delivery using the perceived effects index generated from PCA showed that marital status ($p < 0.01$), educational qualification ($p < 0.05$), household size ($p < 0.10$), rural-urban background ($p < 0.05$), knowledge ($p < 0.01$) and attitude ($p < 0.01$) significantly influence extension agents' perception of the effects of professionalization on service delivery. Also, the Ordinary Least Square regression result of determinants of perceived effects of professionalization (using the PCA generated perceived effect index) revealed that the knowledge level ($t = 5.303$), attitude ($t = 12.733$) and educational qualification ($t = 2.037$) of the extension agents were significant at 1 per cent level of significance while their marital status ($t = 2.758$) and background ($t = 2.061$) were significant at 5 per cent level of significance implying that these five variables significantly determine the perceived effects of extension professionalization in the study area. Confirmatory factor analysis of the result of the correlated exogenous constructs of professionalization revealed significant and strong positive correlations between the constructs of the extension agents' knowledge, attitude, and the components of accreditation, registration and certification.

It was recommended that there is the need for extension agencies to support continuous professional development for extension agents through training, acquisition of relevant higher degrees as stated in the requirement for professionalization. Also, the public and private extension organizations should improve the conditions of services in their organizations that will help facilitate the successful implementation of professionalization for efficient service delivery.

Keywords: Attitude, Extension Agents, Extension Services, Knowledge, Nigeria, Perceived effects, Professionalization.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

About 75 percent of the world's poorest people live in rural areas with majority of them depending on agriculture (FAO, 2016). Agriculture is the single largest employer and source of income in the world as it provides livelihoods for over 40 percent of the global population (UN, 2015). Leveraging on the agricultural sector is one of the most effective ways of tackling poverty and reducing hunger and malnutrition in many countries including Nigeria (Pye-Smith, 2012) and its development is hinged on a viable, effective and vibrant extension services. The agricultural sector is said to possess the greatest potential in transforming the Nigerian economy (Anaeto *et al.*, 2015) as it contributes 40 percent to the GDP (Adekunle, 2013) and employs about 70 percent of the labour force (FAO, 2012). However, the sector has significantly underperformed its potential (FGN, 2008). Nigeria still manifests the typical symptom of peasant agriculture as small holder rural farmers are responsible for about 50-95 percent of the total staple food production (Tijani and Mudashir, 2013) but many are inadequately reached by research, extension and advisory services (Pye-Smith, 2012).

Adejo *et al.* (2012) stated that agricultural extension still remains the most crucial and critical means to reach farming households in the rural areas of Nigeria and globally. It plays a significant role in the global production and supply of food (Fan and Saurkar, 2008). Agricultural Extension service is particularly important to farmers because it helps to increase their production capacity by disseminating information aimed at increasing their knowledge, attitude and skills. Furthermore, agricultural development in many countries is hinged on extension services which help farmers to identify, analyze and link with research on their production problems. They also create awareness on opportunities for improvement of farm yields leading to increased income and better standard of living (Balantyne and Bokre, 2003). Extension services remain the pivot of development of agriculture in Nigeria (Oladele, 2008).

Musa, Aboki and Audu (2013) revealed that Nigeria probably has the most elaborate extension system in Sub-Saharan Africa (SSA), with a population of over 140 million and 71 million hectares of arable land. The agricultural research system in Nigeria comprises 17 commodity-based research institutes, national extension institute, over 45 faculties of agriculture in conventional federal, state and private universities, three universities of agriculture, and several colleges of agriculture/polytechnics (Akingbade and Ajayi, 2010). Also included are three international agricultural research centres which are International Institute of Tropical Agriculture (IITA), a sub-station of International Crop Research Institute for Semi- Arid Tropics (ICRISAT) and a substation of International Livestock Research Institute (ILRI). These institutions individually or collectively usually serve as a source of agricultural innovations for both public and private agricultural extension service providers (Okwu and Ejembi, 2001; Akingbade and Ajayi, 2010). This is expected to foster a sustainable and dynamic approach to agricultural development in the country.

However, the performance of the Nigerian extension services can be said to be unsatisfactory as the much desired development of the agricultural sector is still far from being achieved (Adekunle, 2013). The changing trends and challenges facing agricultural extension service delivery in Nigeria thus remain a great concern and priority for discourse by all stakeholders in the sector. The recent economic indices of dwindling oil prices, high unemployment rate and the challenge of food insecurity in Nigeria point out the need to urgently embark on the right strategies to transform the extension spheres of the agricultural sector so that they will be able to play their part in assisting farmers and other actors to leverage on the enormous potential the sector has to offer in providing a more sustainable solution to the economic problem of the country.

Current global discussions in the field of extension over the last twenty years have brought to the fore a shift from government funded agriculture extension services to private funded extension (Adetayo and Eunice, 2013) and recently, there has been an increasing alliance on the side of professionalizing extension and advisory services delivery to farmers. This is a fall out from the incessant complaints by farmers and other stakeholders about poor extension service delivery evident by inefficiency and poor timeliness of service, low knowledge level of extension agents,

poor information and communication technology skills, unaccountability for the services rendered and poor links to research. Also, global public investment in extension has generally declined because donor agencies that often support governments' investment in extension services with funds and loans have shown increasing concern on the decreasing rate of returns on investments made in extension (World Bank, 2006). All these have necessitated the need to focus attention on professionalizing extension service delivery.

1.2 Professionalism and Extension Service

The concept of professionalism in agriculture is not new as its promotion, justification and relevance have been popping-up as issues for priority discourse among academics, extension practitioners, policy makers and other stakeholders in the sector (Zwane, 2014). According to Van Der Wateren (1990), Professionalism is usually earned on account of competence and being properly qualified to execute a task. Critical analyses of professionalism usually explore the value of the service offered by the members of an occupation. Hoyle (2001) explained professionalism as an enhancement of the quality of service rendered while Boyt, Lusch and Naylor (2001) emphasize professionalism as involving the attitudinal and behavioural orientation one possesses towards one's occupation. Professionalism goes beyond having extraordinary mastery over knowledge and skills of a subject matter. It also has to do with character, attitude, striving for excellence, competency, integrity in behaviour as well as ethical conduct (Reedthe, 2011). Therefore in extension service, professionalism is evident when expertise in terms of knowledge and skills combines with integrity and ethics resulting in a competent, highly capable, committed and responsive extension practitioner.

Professionalism is mainly said to be in two forms or dimensions which are organizational and occupational professionalism (Evetts, 2009). Organizational professionalism which is most relevant to extension services in Nigeria is basically facilitated through the accreditation, registration, certification and continuous training of employees (Evetts, 2009). Accreditation, Registration and Certification are all processes that ensure that an individual, having gone through the prescribed standard of education for a profession, passed the necessary qualifying

exams and/or met the minimum experience is given the right to practise in a profession by a professional society or specialized board.

The idea behind professionalism in extension service, therefore, is to increase the status of extension agents to extension professionals. This implies that everyone who performs the duties of agricultural extension and advisory services needs to demonstrate the attributes of professionalism. Thus professionalization of extension services therefore refers to the process of setting up policies and structures that will ensure that extension and advisory services are carried out by a certified, legitimate, registered, accredited closed community of individuals with similar knowledge, skills and expertise characterized by commonly-held norms, values and regulation as well as the exhibition of the highest level of integrity, competence and ethical conduct underpinning the practice. As stated by International Fund for Agricultural Development (IFAD) (2001), professionalization will add greater integrity, flexibility and authority to extension agents. Extension services, as a profession, require professional competencies as well as high level of professional performance (Okwoche, Ejembi and Obinne, 2011). Professionalization of extension services will thus enhance the image of extension profession, promote credibility and accountability in the extension profession, regulate the professional conduct of extension personnel and ensure the competence of extension agents through their accreditation and registration with a recognized and credible professional body (Terblanche, 2015).

1.3 Statement of the Problem

Over the years, in Nigeria, there has been a growing concern for the provision of quality, efficient and sustainable agricultural extension services to majority of farmers who are responsible for the bulk of agricultural production (Ayansina, 2011). The problem of agricultural extension services in Nigeria has become increasingly prominent with the expiration of the World Bank component of agricultural extension funding arrangement in the Agricultural Development Programme (ADP) (Imoloame and Olanrewaju, 2014; Ogunremi and Olatunji, 2013). This has led to the shortage of funds and near collapse of extension organizations that provide rural and advisory services to farmers in the country (Apantaku *et al.*, 2016).

Extension service in Nigeria is currently plagued with poor service delivery resulting from poor funding, poorly trained personnel, absence of legal and policy framework, poor linkages in the innovation system and general poor work ethics (Oladele, 2011; Obiora and Emordi, 2013; Anaeto *et al.*, 2015). All these bring about inefficiency and confusion around the effort to transfer agricultural knowledge to farmers. Extension practitioners are said to be unresponsive to farmers' need, unaccountable for services rendered, not liable for unethical conduct, prone to incorrect and wrong message dissemination and general inefficient service delivery. Extension service in Nigeria which is often tagged as "public good" is currently experiencing declining low rate of investment due to high wage cost and its inability to generate funds to support itself hence questioning its fiscal sustainability. As reported by Omotesho *et al.* (2015), farmers perceived the level of accountability of extension agents to farmers in Oyo State, Nigeria area as poor. All these are pointers to the necessity for restructuring extension and advisory services in order to enhance its relevance to meet the need of all actors and thus properly play its role in the agricultural innovation system.

Several reforms have been introduced into the extension systems' approaches, models, methods, funding, training, over the years without desired impact as part of attempts to overcome these highlighted problems. Oladele (2011) and Zwane (2014) opine that the institutionalization of a proper policy framework which outlines the guiding principles for service delivery and the professionalization of extension to promote proper work ethics is an indispensable way to improve and ensure excellent extension service delivery. This is predicated on the fact that most of the problems associated with extension service delivery in many African countries do not occur in European countries such as Germany, Netherlands, Belgium and other parts of Europe due to the professionalization of agricultural extension services which involves registration, accreditation and certification of extension service providers (Terblanche, 2007). This continuous process of professionalization in Europe is evident as pointed out by Waldmeier (2012) who reported a recent initiative by the International Academy of Rural Advisors (IALB) which was to ensure that European rural consultants and farm advisors are re-trained and certified so as to make sure they acquire methodical, communicative, social and personal skills for the exhibition of professional behaviour in their advisory roles towards their clientele.

Professionalization has been reported to enhance the qualification, competence, work ethics, integrity, objectivity and accountability of service providers (Zwane, 2014). Accreditation involves the process of ensuring that an individual has gone through a professional programme that meets the prescribed standard for a profession (HRPA, 2010). Registration on its own part ensures that an individual having passed some qualifying exams is said to have met the specified standard of professional training for a profession while Certification is the process whereby a professional society or body attests to the professional qualification of an individual and thus gives the right to practise the occupation or profession having ensured that minimum standards of education or experience have been met (HRPA, 2010). This thus calls for a case to be made for the professionalization of extension in Nigeria.

The Global Forum for Rural Advisory Services (GFRAS) has a mandate which is being implemented to revitalize agricultural extension by ensuring that countries have legislated extension policy and that there is professionalization of extension service providers (GFRAS, 2010; Davis, 2015). Terblanche (2015) reported that countries such as South Africa and Ghana have taken the lead in Africa in implementing this mandate and the same would soon be applied in Nigeria to unlock the extension sector for accountability and efficient service delivery.

In view of these therefore, as an organizational response to the pressure from an increasingly complex and rapidly changing environment and also in line with the current GFRAS global agenda, there is the need to examine the perceived effect of extension professionalization on service delivery by public and private agents that are the key players in agricultural extension in south western Nigeria, an area with the highest concentration of private and public extension activities (Oladele and Fawole, 2007) before this concept is implemented in order to have the solid foundation needed to properly refocus strategies that will be employed in restructuring extension and advisory service delivery in Nigeria.

This study attempts to proffer answers to the following research questions:

1. What are the socio-economic characteristics of public and private extension agents in the study area?

2. What are the sources of information on professionalization of extension used by public and private extension agents?

3. How knowledgeable are the extension agents on professionalization of extension?
4. What is the attitude of extension agents towards the professionalization of extension providers in the study area?
5. What are the barriers to the professionalization of extension service in the study area?
6. What are the perceived effects of professionalization on extension service delivery in the study area?

1.4 Objectives of the Study

The aim/general objective of the study was to analyze the perceived effects of professionalization of extension services on delivery by public and private agents in South Western Nigeria.

The specific objectives were to;

i. describe the socio-economic characteristics of extension agents in the study area;
ii. identify the sources of information on professionalization of extension used by extension agents;
iii. examine the knowledge of extension agents on professionalization of extension;
iv. evaluate the attitude of the extension agents towards the professionalization of extension providers in the study area;
v. identify the barriers to the professionalization of extension service providers in the study area;
vi. determine the perceived effects of professionalization on extension service delivery in the area;

1.5 Hypotheses of the Study

These hypotheses stated in the null form were tested in the study.

Ho_1: There is no significant difference between the knowledge, attitude and perception of public and private extension agents on professionalization of extension services in the study area.

Ho_2: Selected socio-economic characteristics of the respondents' do not significantly influence their perceived effects of professionalization on extension service delivery in the study area.

Ho_3: There is no significant relationship between the respondents' knowledge and attitude and the components of their perceived effects of professionalization (i.e. accreditation, registration and certification).

1.6 Justification for the Study

Embarking on a comprehensive and holistic approach to solving the problem of ineffective extension service delivery in Nigeria is very pertinent for an in-depth and lasting intervention in the agricultural sector. As implied by Zwane (2014), professionalization of extension has become vital for establishing a collection of qualified and competent extension personnel who are licensed and guided by ethical codes and integrity in order for extension to assume its rightful position as a pillar and driver of transformation in agriculture.

Empirical research studies documenting issues relating to professionalization in agricultural extension and the advances made are very scarce. Therefore a proper understanding of the perception of stakeholders in agricultural extension on the effect of professionalizing the sector could go a long way in informing policy makers and agricultural extension administrators on the developmental strategy to leverage and embark upon in setting policies and guidelines that will enhance competence, integrity, ethical conduct and efficiency in extension service delivery in the study area thus facilitating quick development of the sector and promoting improved livelihoods for the general populace.

The study, in line with the Agricultural Extension Transformation of the Nigerian government and one of the recently adopted Sustainable Development Goals (SDGs), aimed at ending all

forms of hunger and malnutrition by 2030 through the promotion of sustainable agricultural knowledge and practices provides a clear roadmap on reviewing the current agricultural extension policies and recommending appropriate institutional structures and demands responsive extension approaches that will ensure the delivery of efficient and effective agricultural extension and advisory services for all the multi-actors in the agricultural sector.

Moreover, the study examined the knowledge level of individuals currently in the extension occupation on issues of professionalization thus deriving lessons on how to train and build their capacity on this global concept that has been seen to be injecting more efficiency into service delivery. It reveals how stakeholders in the extension sector see, as beneficial, the process of professionalization which includes training, accreditation, registration and certification in enhancing improved service delivery in the study area.

Also by identifying the severe constraints that might serve as a barrier in the process of embarking on the professionalization of the agricultural extension sector it will assist government and other stakeholders in the sector to strategize and know the gap that needs to be filled for establishing the right platform for ensuring effective service delivery in the country thus ensuring that the potential in the agricultural sector is properly tapped into. The study is also of relevance to prospective researchers who would like to undertake similar studies in the area of extension professionalism

1.7 Scope and Limitation of the Study

The study put into consideration the perceived effects of agricultural extension agents on the professionalization of extension services in South Western Nigeria. The study is limited to South Western Nigeria. Like other social research that employs the use of questionnaire, the study is limited by the assumptions that responses from the respondents are as accurate as possible.

1.8 Structure of the Thesis

The thesis was structured into five chapters. Chapter one presents the introduction, comprising background information on agriculture and extension service delivery in Nigeria, including the relationship of professionalization and extension services. Others include statement of the problem, research questions and objectives, justification, scope and limitation and study plan.

Chapter two is a general review of literature on extension and professionalization. It consists of empirical studies and theoretical framework relating to professionalization and it ends with the conceptual framework that was used for the study.

Chapter three describes the methodology that was used in the study. It includes the description of the study area, research design, population and sampling procedure used. It also contains the method of data collection and analysis that was adopted for the study.

Chapter four presents the results of the analyses. The findings of the study were also discussed in the chapter.

Chapter five highlights the summary of the major findings. The conclusion and policy recommendations that were drawn from the study were also presented in this chapter.

1.9 Definition of Terms

The terms below are defined operationally and conceptually as used within the scope of the study. Generalization of the meanings outside this study may not be applicable.

Extension Agent/Personnel: is a technically trained change agent with excellent people skills serving as a link and providing information and intervention between farmers and other stakeholders in the agricultural sector.

Extension Services: This refers to the various means through which innovations on farming systems, improved home management, and general development are communicated to the farmers: This could be accomplished through individual, group and mass media methods.

Perceived Effect: This refers to judgment, disposition, beliefs, and opinions that are held by the respondents on the resultant implication of professionalization of extension service on delivery.

Professionalization: refers to the process of setting up policies and structures that will ensure that extension and advisory services are carried out by a certified, legitimate, registered,

accredited closed community of individuals with similar knowledge, skills and expertise characterized by commonly-held norms, values and regulation as well as the exhibition of the highest level of integrity, competence and ethical conduct underpinning the practice.

1.10 Chapter Summary

The chapter introduces the study of perceived effects of professionalization of extension services on delivery by public and private agents in South Western Nigeria giving a comprehensive background of the agricultural extension sector in the area and its connection with professionalization. The statement of the problem was systematically presented highlighting the need for professionalization of extension services in Nigeria for efficient service delivery. This gave rise to outlining six research questions which the study attempted to proffer answers to through six broadened objectives and three hypotheses. The justification and relevance of the study was well articulated in the chapter and the study is expected to provide information for policy makers and agricultural extension administrators on the strategies to embark upon in setting policies and guidelines for the successful implementation of professionalization of extension services in enhancing and improving service delivery.

CHAPTER TWO

LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORK

2.1 Introduction

This section of the study focuses on connecting with existing body of knowledge and reflecting on contribution from past researches. It reviews relevant literature, models on professionalism and technology acceptance, theories on perception, administration, reasoned action, planned behaviour and gives a detailed conceptual framework for the study.

2.2 Concept of Agricultural Extension

Agricultural extension is becoming increasingly important in countries which depend heavily on agriculture for their livelihood (Oladele, 2005). The concept of Agricultural Extension has evolved over time and has been explained differently by several authors. Every definition of Agricultural Extension is a product of the period and interest of extension scientists. According to Maunder (1973), he explained extension as a service or system which helps farmers to improve their farming techniques and methods through educational processes in order to increase their production efficiency and income, improve their standard of living and upgrade their social and educational standards. Adams (1982) defines Agricultural extension as help rendered to farmers to assist them to identify and analyse their production constraints and to become aware of ways of improvement.

Swanson and Claar (1984) whose interest were on the communicative and educational dimension of extension defines the concept as an on-going process of transferring beneficial technology and information to people and helping them to obtain the necessary knowledge, attitude and skills needed to effectively utilize such technology and information. Roling (1988) however describes extension as a professional communication intervention made available by an organization to bring about change in voluntary behaviours with a presumed collective utility. Van den Ban and Hawkins (1996) from their own perspective stated that Agricultural Extension involves the conscious process of transferring information to help people form sound opinions and make good judgments.

A more elaborate and recent definition is that given by Leeuwis and Van den Ban (2004), who explained Agricultural Extension as a series of professional interventions meant to induce new patterns of coordination and adjustment between people, technical services and natural phenomena in a direction that supposedly assists to resolve problematic situations, which must be determined by the different stakeholders involved.

The term agricultural extension has also been interpreted to mean all set of institutions that assist and facilitate individuals involved in agricultural related production and activities to access needed information, skills and technologies for solving their problems in order to improve their livelihoods (Davis, 2008). It is seen as a policy instrument to improve agricultural output thus increasing food security and alleviating poverty (Oladela, 2011). According to Eliphas (2014), agricultural extension is a non-formal type of education that provides professional advisory services through the utilization of educational approach in acquiring knowledge and skills in order to deal with the growing needs of the global world.

An overview of all this definition gives us an inclination that agricultural extension is a professional activity and conscious intervention which is facilitated by communication between personnel and stakeholders to bring about an al-round positive desired change for the good of all actors involved. It also gives insight to the fact that Agricultural Extension is a science that focuses on the communication of innovations to end users. These definitions therefore further propel us to examine the historical development of the concept of agricultural extension in Nigeria.

2.3 Historical Development of Agricultural Extension in Nigeria

Agricultural Extension has been conceived as a service to extend knowledge to the rural populace to improve the lives of the people who are mostly farmers. Extension in Nigeria has a long history and it is said to be in constant evolution (Anaeto *et al.*, 2015). As stated by Akubuilo (2008), the history of agricultural extension in Nigeria is synonymous with the history of the development of agriculture in the country. However, in the light of the definition of extension as an educational service performed by an agency to disseminate information to rural people, we

can say agricultural extension began in Nigeria around 1921 when a Unified Department of Agriculture was created for the country and in 1954 when the three regional ministries of agriculture were formed (Anaeto *et al.*, 2015). Okwu and Ejembi (2001) stated that the ministry of agriculture extension system operated by the post-colonial national government was not very effective as it was characterized by unfavourable extension agent-farmer ratio, lack of mobility and poor remuneration. This resulted in low morale and high rate of absenteeism (Naswem *et al.*, 2008).

The oil boom era of 1970 – 1979 which brought about some retrogression in the agricultural sector of Nigeria's economy was characterized by the introduction of major extension approaches such as the National Accelerated Food Production Programme (NAFPP), Operation Feed the Nation (OFN), River Basin Development Authority (RBDA) and the Green Revolution (GR) (Arokoyo, 2010). The Agricultural Development Project (ADP) Extension system replaced the ministry of agriculture extension system in 1970. This was first introduced as an integrated rural development assisted project by the World Bank in 1975 and the success recorded by the pilot scheme of the programme led to the establishment of State-wide ADPs in the country (Oladele, Koyoma and Sakagami, 2004). This system adopted the Training and Visit (T & V) extension delivery approach which was more structured and based on organized principles making it more efficient than the ministry system.

The T & V extension system was more vigorously introduced in 1986 by the World Bank and it aimed at strengthening the research-extension-linkage system by making research findings more relevant to the subsistence farmers (Musa *et al.*, 2013). The T & V system was modified in 1990 by the introduction of the Unified Agricultural Extension System (UAES) which provides extension services to the farmer in all sectors such as crop, livestock, fisheries, agro-forestry and water conservation techniques by one extension agent (Naswem *et al.*, 2008). This system is organized on a professional line and structured under one single line of command. The important highlights of the UAES were that all information related to an individual farming system are to be passed to the rural farmers through a single extension personnel who will be assisted by a subject matter specialists. Also, frontline extension officers are to ensure they focus majorly of

extension activities and there should be a close collaboration between the research institutes working on the state main agricultural output and the ADP research team (Oladele *et al.*, 2004).

The ADPs nationwide remain the main organization responsible for rendering public extension service in Nigeria and the Research-Extension-Farmer-Input-Linkage System (REFILS) is a major management mechanism used to bring together stakeholders as equal partners in agricultural development. The entry of the private sector and Non-Governmental Organizations into extension service delivery in recent times has also given a little boost to the agricultural extension development in Nigeria. They have been involved in the provision of a wide range of extension education and technical support services which include essential input supply and micro-credit financing in different parts of Nigeria (Arokoyo *et al.*, 2002).

2.4 Concept of Perception

"Perception is conceived as a process intervening between stimuli and responses." (Garner, Hake and Eriksen, 1956). Coats (1998) defined perception as the process that encompasses the senses and enables individuals to reach true beliefs about their environment. Ibeh (2001) on the other hand explained perception as the process of identifying, discriminating, recognizing and judging objects, qualities or relations to our environment by means of sensory information. This simply reveals that an individual learns to understand his physical and social world through sense organs. Perception is said to be a function of present, past and future experiences, incorporating motives, contexts, needs, expectations, goals and people and the necessity to communicate with them (Ayansina, 2011).

In this study, the term perception is used to describe the motives, beliefs and expectations of extension personnel regarding the professionalization of extension services. Ghimire (2010) stated that experimental psychologists currently theorize that human "behaviour is unknowingly and unintentionally influenced by our perceptions". Perception is the process by which information received from the environment is transformed into psychological awareness (Ajayi, 2013). Perception plays a major role in human behaviour. This implies that the modification of

human behaviour towards a particular innovation is accompanied by changes in perception (Leeuwis, 2013).

Perception varies among cultures and individuals. Perceptions are usually influenced by expectancies, needs, unconscious ideas, values and conflicts. Humans have a tendency to impose order and meaning upon their experiences. Perception in humans is a cognitive process inextricably linked with communication and interaction. People communicate their understanding of what and how they see both their past experiences, moods and needs. They also interact by exchanging knowledge, feelings, and judgements about events in their social process partly created by social interaction in accordance with the way they understand their environment (Ayansina, 2011).

As further revealed by Ibeh (2001), the field of perception is between the field of cognitive processes and sensory processes. Cognitive processes are basically psychological while sensory processes are physiological. The determinants of perception are social, personality and cultural traits which together affect the utilization of available innovations. Other influential factors are interpersonal influence, values, beliefs, expectations and needs of the individual. This implies that the way the extension personnel will perceive the effect of professionalization of extension will be based on their needs, goals, purposes and the accumulation of past experiences.

2.5 Determinants of the Perception of Agricultural Extension Professionals

Several researchers have examined the determinants of extension agents' perception on various contemporary and emerging issues in the field of agricultural extension service delivery. Allahyari, Chizari and Homaee (2008) in their study of "Perceptions of Iranian Agricultural Extension Professionals towards sustainable agricultural concepts", stated that the perception of agricultural extension professionals was moderate. The study further revealed that age, level of education, years of experience and position in organization were key influencers of the perceptions of extension professionals. The study recommended planning for more training that will enhance the understanding and perception of the agricultural professionals on the philosophy of agricultural sustainability.

Also, Islam et al. (2013) in their research examined the factors that determine that perception of extension agents in Bangladesh. They stated that the extension agents' perceptions were average on sustainable agricultural practices because of inadequate training and exposure and moderate knowledge on sustainable agriculture. They further contributed that Knowledge, innovativeness, cosmopoliteness, source of information and environmental awareness were determinants of the extension agents' perception. The study recommends that training on sustainable agriculture should be provided to the extension agents.

Roberts *et al.* (2016) in their study titled, "*Agricultural extension officers' knowledge and perceptions of food security in Trinidad and Tobago*", observed that the perception of the extension agents on food security issues was influenced by their level of education, innovativeness on global issues and previous training received. They recommended more professional development training in order for extension officers to have the requisite knowledge for efficient advisory service delivery. Furthermore, Ogunremi and Olatunji (2013) in their study of perception of extension agents on the privatization of service delivery in Ondo, Nigeria, revealed that extension agents had a favourable perception on the privatization of extension services stating that it will improve effectiveness and efficiency of the agents.

More so, Adeola and Ayoade (2011) examined the perceptions of extension agents in South West Nigeria. Majority of the extension agents had a favourable perception on the information needs of women farmers. The determinants of extension agents' perception were age, gender, education and their area of specialization. They conclude that the perception of extension agents regarding information needs of women farmers is shaped by their direct interaction with women farmers.

In South Africa, Mabe and Oladele (2012) using multiple regression analysis observed that the extension officers had a high perception on the importance and use of Information Communication Technology (ICT). They reported that significant determinants of the perception of extension officers on the importance of the utilization of ICT were religion, competence on

ICT, accessibility to ICT and awareness of ICT. They recommended intensification of the use of ICT tools in promoting, gathering and disseminating agricultural information.

It could be summarized from the reviewed literature that the socio-economic characteristics with recurring emphasis on their level of education and knowledge are very important variables influencing their perception. However, little or none of the existing literature have analysed the factor influencing the perception of extension agents in relation to professionalization for efficient service delivery. This study therefore seeks to fill this lacuna for necessary policy intervention and actions in the study area.

2.6 Concept of Professionalism

Professionalism as a concept as seen from literature means different things to scholars and researchers. Hoyle (1975) defined professionalism as the strategies adopted by the members of an occupation in order to upgrade and improve the status and condition of service. Ozga (1995) from her own point of view explains professionalism as a form of occupational control. She stated that professionalism is best understood when viewed from a policy context. Professionalism, according to her, aims at not stressing the inherent qualities in an occupation but seeks to improve on the value of the service rendered by the members of that occupation.

More recently, Hoyle (2001) gave more explanation on professionalism as the process of bringing about an enhancement in the quality of practice and service rendered which, according to Boyt *et al.* (2001), is inspired by an improvement in the attitude and behaviour one possesses towards their occupation or profession. In British sociological analysis, professionalism is regarded as an important and highly desirable occupational value while the American sociological theorists emphasized more on the occupational value of professionalism based on competence, trust, a strong occupational identity and cooperation (Evetts, 2009).

Evans (2008) gave a broader and more holistic definition of professionalism as professionality-influenced rules and practice that is consistent with commonly-held consensual delineations of a specific profession and that both contribute to and reflect perceptions of the profession's purpose

and status and the specific nature range and levels of service provided by, and expertise within, the profession, as well as the general ethical code underpinning the practice. Therefore in the light of all the above definitions, professionalism of agricultural extension as an occupation which, in this study, is referred to as professionalization, is the process of ensuring that extension and advisory service is carried out by a legitimate, registered, accredited closed community of individuals with similar knowledge, skills and expertise characterized by commonly-held norms, values and regulation as well as the exhibition of the highest level of integrity, competence and ethical conduct underpinning the extension profession.

According to Evetts (2009), there are two different forms of professionalism which are organizational and occupational professionalism. "Organizational professionalism refers to control used very often by managers in work organizations. It involves standardized procedures, rational-legal forms of authority and hierarchical structures of decision making and authority. It is based on accountability and externalized regulations such as target setting and performance review. Attainment of organizational professionalism is possible through increased occupational training and the certification of the workers/employees.

On the other hand, however, occupational professionalism occurs within professional groups. It is based on collegial authority and focuses on trust between clients and employers. In complex cases, it is established on autonomy and discretionary decision and valuation by practitioners. It depends on common and lengthy systems of education and vocational training and the development of strong occupational identities and work cultures. Practitioners themselves put in place necessary controls that are guided by codes of professional ethics which are supervised by professional associations and institutions." (Evetts, 2009). Considering these two dimensions of professionalism, organizational professionalism seems to be the most relevant to extension services in Nigeria and it is basically facilitated through the accreditation, registration, certification and continuous training of employees.

2.7 Extension Professionalization: Lessons from Other Countries

2.7.1 South Africa

Extension professionalization in South Africa was pivoted by the South African Society for Agricultural Extension (SASAE) whose major objective was to "advance extension science and promote professionalism, status and dignity of the extension profession" (Terblanche *et al.*, 2012). The need for professionalization of extension services was formally recognized in 2005 and it was borne out of the Department of Agriculture Forestry and Fisheries (DAFF) willingness to engender norms and standards for extension services aimed at effective and efficient service delivery (Terblanche & Koch, 2011). Professionalization of extension services in South Africa focused on ensuring that all extension service providers are registered and certified. It also emphasized the development of a credible and accredited system of Continuous Professional Development (CPD) for extensionists (Terblanche, 2015). The framework for professionalization of extension in South Africa was set-up and influenced by the establishment of the "Extension Recovery Plan in 2008 and facilitating an operational agricultural extension policy process (Zwane, 2014). All these provided the enabling environment for extension professionalization and recognition of agricultural extension as a field of practice in South Africa (Becker, 2013).

2.7.2 Philippines

The Philippines is an agricultural-based country with about one-third of its population residing in the rural areas (Qamar, 2012). Agricultural extension services in the Philippines adopt a pluralistic pattern of extension with service providers comprising governments, academic institutions, private organizations and non-governmental organizations. The importance of research and extension linkages is properly recognized by the government through various administrative orders and laws. The Agricultural and Fisheries Modernization Act (AFMA) is the principal policy book that gives guidelines and directives on how agricultural extension activities and services are to be carried out in the country (Ani and Correa, 2016). The need to create a recognized identity and organize to advance the interest of extension motivated the professionalization of agricultural extension in the Philippines and the Philippine Extension

Network (PEN) was at the forefront of the process. The Agricultural Training Institute (ATI) is saddled with the responsibility of accrediting extension service providers. The main goal was to ensure that extension service providers are responsible, competent, dedicated and self-directing in the pursuit and practice of extension and advisory services in the country. Professionalization of extension in the Philippines ensured that all extension workers are accredited, registered and certified (licensed) after having passed the required examination. (Cardenas, 2010)

2.7.3 Canada

Agricultural extension services rendered to farmers in Canada was majorly provided by the government until the 1990s when there was a gradual reduction in government-driven agricultural extension services and the viability of privatization was being considered (Milburn, Mulley and Kline, 2010). Agricultural professional capacity in Canada is promoted and supported by the Agricultural Institute of Canada (AIC) (Terblanche, 2007) and agricultural extension and advisory services in the country is "overseen by the Agrologist Act of 1994" (Zwane, 2014). Certification and registration of professional agrologists is a requirement needed for practice. All registered and practising extension/agrologist professionals must have been academically qualified from an accredited institution, competent, accountable and abide by the code of ethics guiding the practice of the profession while performing their professional responsibilities (SIA, 1994; Terblanche, 2007).

2.7.4 Australia

Agricultural extension services in Australia are rendered by both the public and private sector but with an increasing trend towards private sector driven extension and funding (Marsh and Pannell, 2000). Professionalization of agricultural advisers and consultants in Australia was borne out of the need to ensure that people with suitable credentials provide extension services. Extension practitioners who have been evaluated and trained to maintain and enhance Australia's competitiveness in the global market are those accredited and credentialed. Extension professionalization initiatives in Australia were pivoted by the Australian Association of Agricultural Consultants (AAAC) and Australasia-Pacific Extension Network in 2002 and it focused on professional accreditation, certification and registration of agricultural consultants

and advisers (Toohey, 2002). This resulted in the endorsement of a "National Professional Accreditation Framework" which facilitates a quality assurance process that guides and influences the educational qualification and training needed for competent extension practitioners in the country. The main goal was to ensure that extension consultants and advisers adhere to code of ethics, maintain currency of knowledge and best practices, maintain public accountability and trust and possess the necessary competences for an effective and efficient service delivery (Toohey, 2002).

Conclusively, it could be summarized from the reviewed literature that the important requirements and components for the successful implementation of extension professionalization in any country include; the establishment of a legislative policy framework, the presence of a motivated professional association, setting up of quality accreditation, registration and certification (licensing) processes and focus on continuous professional development of all practicing professionals.

2.8 Theoretical Models and Framework for the Study

2.8.1 Models of Professionalization

Several sociological researches have explained professionalization using three models focusing on different viewpoints based on the development of a given profession. These models include; the Attribute model, Process or Standard model and Power model (Curnow and McGonigle, 2006; Starr, 2009). These models are not automatically superior to each other because various professions develop differently. The stage of development of a profession usually helps to dictate the appropriateness of the model to be adopted by an organization (Curnow and McGonigle, 2006). These models are subsequently explained below.

The Attribute Model

The attribute model usually helps to distinguish a particular occupation from others by focusing on defining the traits and characteristics that are peculiar to that profession. In the application of

this model, the standards of a profession are described by first of all establishing the benchmarks though until all the standards are met and the profession is seen to be offering services that benefit the general public an occupation is not stated to be a profession (Curnow and McGonigle, 2006).

The Process Model

The process or standard model of professionalization as summarized by Wilensky (1964) reveals that any occupation desiring to exercise professional authority must find a technical basis for it, assert an exclusive jurisdiction, link both jurisdiction and skill to standards and training and convince the public that its services are excellent and trustworthy. This model is different from the attribute model because it basically focuses on describing the series of events for professionalization. This series of events is organized in five sequential and directly related stages. The first stage of the process model begins with the identification of a full time occupation and the determination of the need of such an occupation by the groups of individuals involved in it. This then leads to the second stage where capacity building and educational programmes are identified and integrated into the curriculum in order to enhance knowledge and skills of the members of the occupation. The establishment of a professional body is then initiated in the third stage so as to develop qualifications in the form of certifications and licenses thus giving a better definition to the profession. This helps to distinguish qualified personnel from those not qualified and differentiate the services rendered by the occupation from others. The code of ethics guiding the profession is established in the fourth stage by the association which defines standards such as entry requirements, disciplinary processes and ethics of practice (DHS, 2014). The professional body points out accepted procedures and recognizes individuals that comply with these procedures (McConnell, 2004). The legal backing for the profession needs to be put in place and this is carried out in the fifth stage. Titile recognition and work activities, legal recognitions, protections and restrictions supporting the profession are properly fine-tuned in this stage (Curnow and McGonigle, 2006; DHS, 2014).

The Power Model

Power model which is also referred to as the market model pays attention to the various motivations driving professionalization and by what means these motivations develop. It tries to investigate whether the reason for professionalization is just to improve the quality of services rendered, or to exercise some degree of monopoly rights over these services thus limiting competition (Law and Kim, 2005). Consequently, quality of service improvement should be the main focus of stakeholders when carrying out regulation of entry into the profession (DHS, 2014).

For extension professionalization in Nigeria, the process model would be most appropriate to begin the initial stage of professionalization. The stage by stage process model presented by Curnow and McGonigle (2006) is illustrated in Figure 1 which is similar to that presented by other researchers (Tobias, 2003; Houle, 1981; Wilensky, 1964; Snider, 1996). The process of professionalization is systematically illustrated in the model with the likelihood of the stages affecting each other.

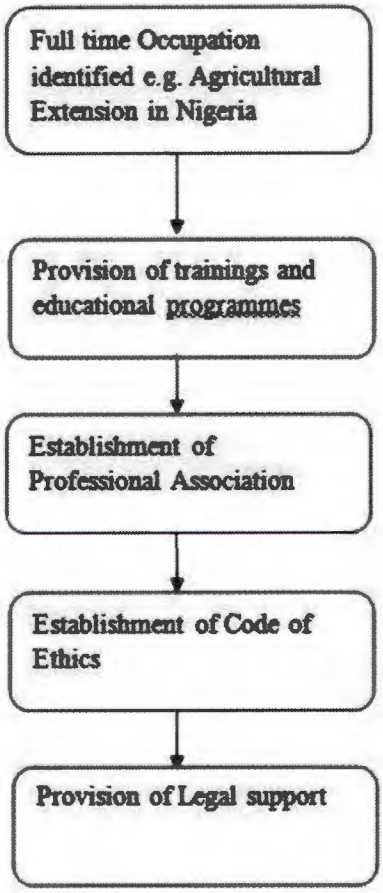


Figure 1: The Process Model

Source: Curnow and McGonigle (2006).

Some elements emphasized by sociologist as required for professionalization of an occupation are the occupation having an area of technical and specialized knowledge; normative commitments to a service ideal, often formally expressed in a code of ethics and an exclusive jurisdiction. In addition to these three elements, such professions must also have in place three interrelated institutions which are professional schools, professional associations and professional licensing and accreditation systems (Starr, 2009). Some of these basic elements that are needed to be incorporated during the professionalization of extension in Nigeria as indicated by McConnell (2004) are shown in the table below.

Table 1: Elements of Professionalization

Elements	Description
Beginning Professional Education	The extension profession having an advanced university programme (e.g. law school for lawyers).
Accreditation	Ensuring the accreditation of advanced university programmes by one or more oversight bodies.
Development of Skills	Immediate application of the university acquired knowledge in an approved organization before taking a certification exam.
Certification	The conduction of professional examination for the extension profession to be taken by all personnel (e.g. CPA exam for accountants).
Registration/Licensing	Compulsory and overseen by a governmental authority.
Professional Education and Training	On-going professional development.
Professional bodies	A network of like-minded selfless and unbiased individuals who place more priority on professional standards.
Ethical Codes	The adherence to behavioural standards which if violated results in withdrawal of licensed and/or ejection from the professional body.

Source: McConnell, 2004.

This study was premised upon the following theories; Theories of Perception, Theories of Administration, Theories of Needs, Theory of Reasoned Action, Theory of Planned Behaviour and the Technology Acceptance Model.

2.8.2 Theories of Perception

Gibson Theory of Perception: Gibson (1950) stated that individual cognition is formed by the exposure and influence of the external environment which is apparent in its structures and abilities. Thus human beings tend to react and decide on situations based on the information extracted which is necessary for their survival (Dermuth, 2013). The core of Gibson's theory is

that human perception is based on information volume and knowledge from sensory inputs which is further processed through revealing and explaining the available information.

Neisser Theory of Perception: According to Neisser, cognition refers to all processes by which sensory input is transformed, reduced, stored, recorded and utilized. He also opined that the process of perception is based on human's exposure to their environment in terms of information gathered and knowledge gained (Dermuth, 2013).

The study examines the perception of extension agents on the effect of professionalization on extension service and their judgement, attitude and disposition on this concept are examined based on their information volume and knowledge accumulated from past exposure and influence of their external environment. This therefore ties these theories to the main objective of this study.

2.8.3 Theories of Administration

Decision Making Theory: Decision making theory is one of the theories of administration that also provide a foundation for this study. Decision making theory is concerned with identifying the values, uncertainties and other issues in a given decision. It is the complex of human association of events or activities leading to any conclusion for a programme of policy or operation. It is established that this theory consists of a process of identification of the best course of action from a set of alternatives. As a process, no single individual takes decision in any organization or institution. Stakeholders, events and the environment always influence it (Akinsorotan, 2007). Professionalization of extension services is a system solution process requiring a solution seeking approach therefore the input of stakeholders among which are the extension personnel need to be taken into consideration. The study in application of the decision making process among extension agents is poised to investigate their level of satisfaction with bringing in the concept of professionalization into extension service delivery through their perception.

2.8.4 Theories of Need

Need is said to be a discrepancy between what is and what should be (or what is reasonably possible). Existing body of knowledge projects three main theories of need which are the Maslow's Hierarchy Need Model, McClellands theory of Need and the Bradshaws Need Model. The concept of need as proposed in this study is best explained by Bradshaw's categorization of needs.

Bradshaw (1972) set out four types of needs as follows;

i. Normative needs – These are needs as defined by experts. These categories of needs are not absolute and may not be of different standards as laid down by different experts.

ii. Felt needs – These are needs perceived by an individual. These categories of needs are thus limited by individual perception and knowledge of services.

iii. Expressed needs – These are usually referred to as demanded needs; these are often help seeking.

iv. Comparative Needs – These are derived by associating individuals with similar characteristics to those receiving help.

Perceived effect of the extension agents on extension professionalization focuses on the felt needs of the extension personnel. The idea is that steps towards professionalization of extension will be meaningful and successful only when the extension personnel as major stakeholders in the process deem it fit to be incorporated into the policy guiding their occupation. It is when they see professionalization as a felt need that they will have a positive perception of its effect on enhancing service delivery and their commitment and cooperation to it can be gotten and sustained.

2.8.5 Theory of Reasoned Action

The theory of reasoned action as postulated by Ajzen and Fishbein (1980) is a widely used theory in innovation adoption. It is a very relevant innovation theory useful in researches where attitudes and perception are involved. The theory states that individual behavioural intentions are a function of their attitudes and subjective norms. Individual's beliefs about themselves and their

environment form the bedrock for their attitude and subjective norms which eventually influence their intentions (Otieno *et al.*, 2016). Attitudes towards utilization of an innovation are affected by the perceived usefulness of the innovation and its impact on the system while subjective norm is based on the individual's perception about how others want to act and their willingness to comply with what the people and environment want them to do (Otieno *et al.*, 2015). Therefore, the intention to adopt and continue to use an innovation such as professionalization by extension agents is determined by their attitude, beliefs and perception of the effects of professionalization on extension service delivery.

2.8.6 Theory of Planned Behaviour

The theory of planned behaviour which is an extension of the theory of reasoned action is usually adapted to model attitude-behaviour relationships (Ajzen, 1985). It reveals that the attitude towards a particular behaviour, the perceived behavioural control and the subjective norm all determine the decision to adopt a particular innovation or perform a given behaviour (Adebayo and Oladele, 2012). The perceived behavioural control which is an additional variable included above the TRA reveals the degree of an individual's perception as to whether the performance of a behaviour (such as the implementation of professionalization of extension services) is easy or difficult (Ajzen, 1991; Conner and Armitage, 1998).

Perceived behavioural control gives information about the potential benefits and constructs of an innovation or action as perceived by an individual and it influences such an individual's intention and behaviour towards the innovation (Armitage and Conner, 2001). Therefore, an increase in favourable attitudinal disposition towards a particular innovation, subjective norm and stronger perceived behavioural control helps to positively determine the likelihood to perform a behaviour or adopt an innovation. The theory of planned behaviour is thus related to this study in the sense that the eventual adoption/implementation of the innovation of professionalization is based on the knowledge and attitude of the public and private extension agents on the concept of professionalization and its components which is evident by their perceived effects (perceived behavioural control).

2.8.7 Technology Acceptance Model

Another major model related to technology acceptance and utilization which is also considered as an extension of the Theory of Reasoned Action is the Technology Acceptance Model (TAM). TAM was proposed by Davis (1986) and it explains how external variables such as knowledge and so on influence individuals' belief, attitude and intention to utilize an innovation such as extension professionalization. TAM claims that individual's belief is based on perceived usefulness and perceived ease of use of an innovation. These two variables are major determinants of users' acceptance and utilization of an innovation (Fathema, Shannon and Ross, 2015).

Based on TAM, this study focuses on perception (as influenced by other variables) of extension agents on the effects/usefulness of professionalization of extension services on delivery which will help in proffering policy relevant recommendations that will assist government, extension administrators and other stakeholders in facilitating the full implementation of extension professionalization in the study area thus injecting integrity, ethics, accountability and efficiency into the system.

2.9 Conceptual Framework

According to the theories of perception, administration and reasoned action in synergy with the technology acceptance and Bradshaw's need models, a diagrammatically synthesized framework was conceived. The framework is divided into three basic segments which are described as independent, dependent and intervening variables.

The independent variables are the extension agents' personal characteristics such as age, gender, marital status, educational level, household size and years of experience in extension. These personal characteristics are capable of influencing the perception of the extension agents on the effect professionalization will have on extension service delivery. The sources of information utilized are also a function of the personal characteristics of the extension agents. The positive or negative disposition of the extension agents in terms of their perception of the effect of extension

professionalization on service delivery is capable of being influenced by their attitude on professionalization which can be inferred from their knowledge on the concept of professionalism. Also the constraints that the extension agents encounter may affect their perception of the effect of professionalization on service delivery. All these variables are analysed in this study and the way they inter-face with each other are all based on the personal characteristics of extension agents.

The dependent variable in this study is the perceived effects of professionalization on extension service delivery. This explains the positive or negative disposition that the extension agents have in terms of their perception of the effects that professionalizing extension has on service delivery. Their perception on whether professionalization will protect the interest of the extension profession, enhance high level of credibility, accountability and ethical conduct, promote competent and efficient extension agents, enhance regular knowledge upgrade, regulate the professional conduct of extension personnel and enhance service quality.

There are intervening variables that have an indirect influence on the perceived effects of professionalization on service delivery by extension agents. These include organizational factors, pre-service training the agents received before the proper extension work starts; in-service training the extension agents are exposed to, other extension stakeholders that have a role to play in the extension linkage system and the prevailing government policies and programmes that have impact on the sector and the extension agents. All these intervening variables relate with each other and are present in the interface that exists between the dependent and independent variables.

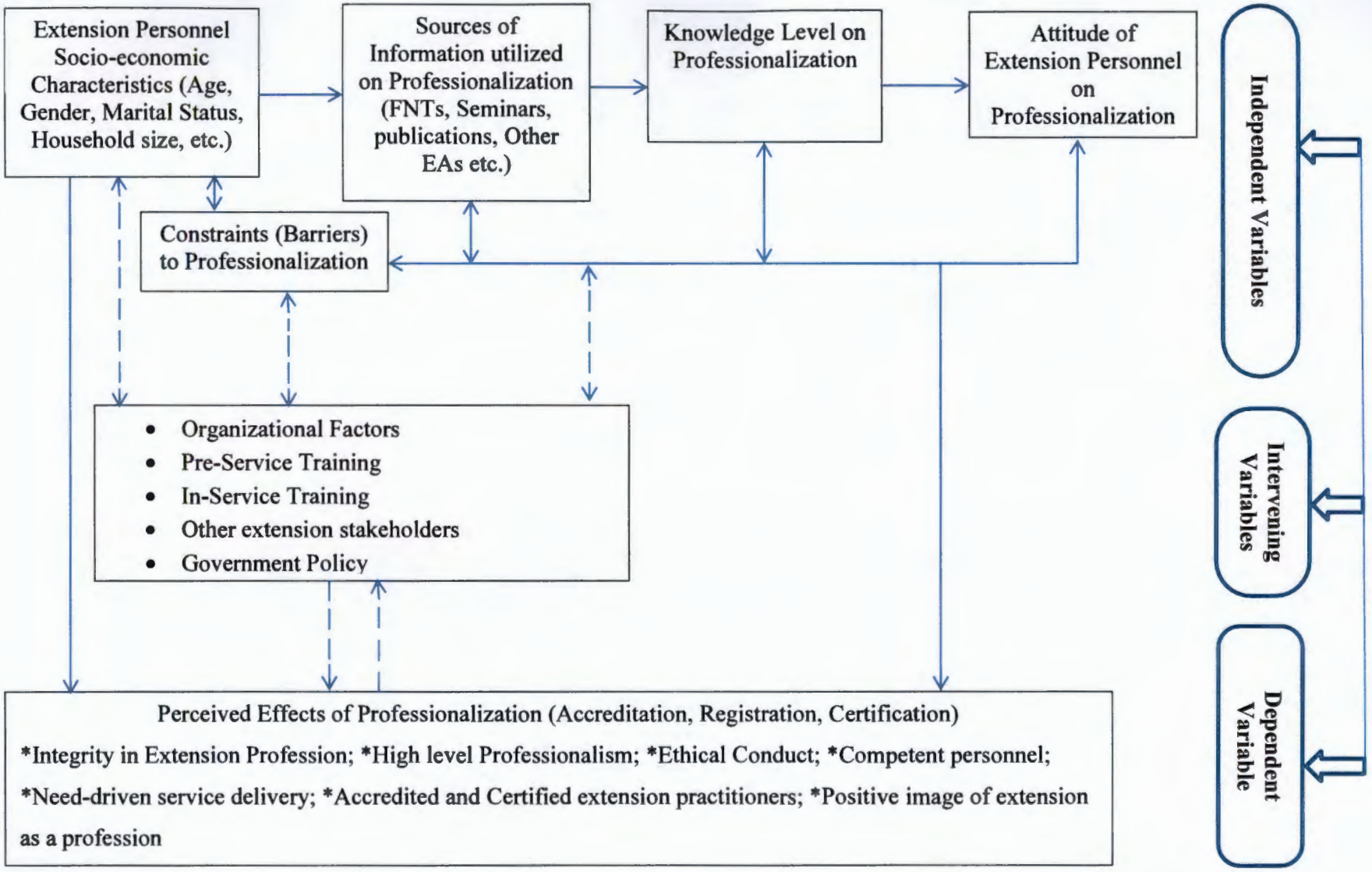


Fig 2: Conceptual Framework on Perceived Effects of Professionalization of Extension Services on Delivery by Public and Private Agents in South Western Nigeria

Source: Author's Concept, 2016.

2.10 Chapter Summary

The chapter focused on reviewing the literature on the concepts of agricultural extension, its development in Nigeria, perception and professionalization. The study further explored some theoretical models on professionalization and its relation to extension professionalization in Nigeria. Furthermore, the chapter revealed theories that were related to the study which include theories of perception, administration, need, reasoned action, planned behaviour and the technology acceptance model. The chapter was concluded by giving a detailed hypothesized conceptual framework for the study conceived from the reviewed models and theories.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the details of the methodology that was used in the research and procedures employed in the process of data collection. It also gave a detailed description of the research instrument, the validity and reliability of instrument as well as the various models that were employed in the process of data analysis.

3.2 Study Area

The study was carried out in South Western Nigeria. South Western Nigeria lies between Latitude 6^0 to the North and Latitude 4^0 to the South. It is marked by Longitude 4^0 to the West and 6^0 to the East (Awoyinka and Akinwumi, 2010). The zone comprises six states (Oyo, Osun, Ondo, Ogun, Ekiti, and Lagos), and agriculture forms the base of the overall development thrust of the zone. The zone covers an area ranging from swamp forest to western up lands, in between are rain forest and the northern parts of Oyo and Ogun states having derived Guinea savannah vegetation. Rainy and dry seasons are the two main seasons common in the area. The geographical location of South West Nigeria covers about 114, 271 kilometer square, that is, approximately 12% of Nigeria's total land mass. The total population is 15, 456, 789 and more than 96% of the population is Yorubas (NPC, 2006). The zone is bounded in the north by Kogi and Kwara States, in the East by Edo and Delta States, in the South by Atlantic Ocean, and in the West by Republic of Benin. Livelihood activities in the area are agricultural activities, off-farm income activities and wages and salary earning jobs. Agriculture in the area comprises cultivation of staple crops, fruits, vegetables and tree crops; livestock activities (backyard poultry, extensive goat and sheep production) and fish farming. The zone has an elaborate system of agricultural institutions, extension organizations and agricultural research institutes. It comprises five agro-research institutes, five federal Universities involved in agro-research, State ADPs and four major agro-based Non-Governmental Extension Organizations (NGEOs). As

corroborated by Oladele (2009), extension agents and agricultural activities are of high concentration in this part of the country thus informing the choice of the study area.

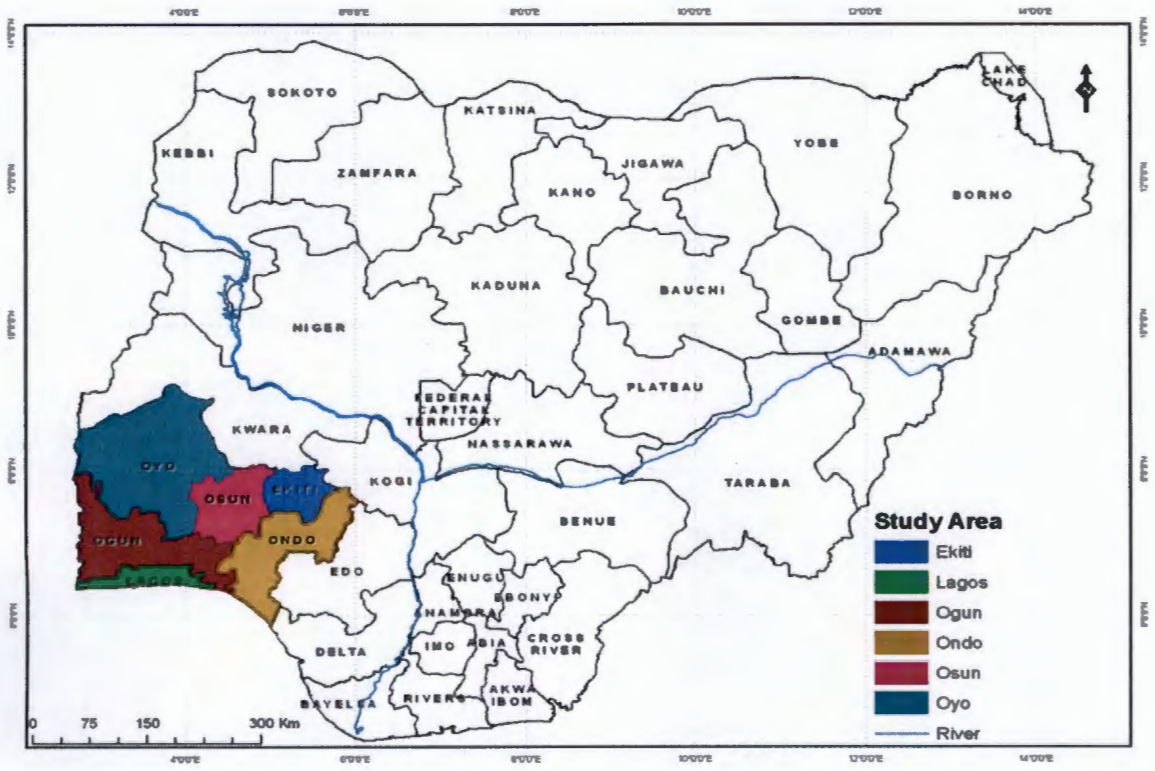


Figure 3: Map of Nigeria showing the Study Area.

Source: Adapted and modified from Faleyimu and Agbeja (2012)

3.3 Research Design

The research design adopted in the study is descriptive and quantitative, which as stated by Bless and Higson-Smith (2000), is a study concerned with the beliefs and attitudes that are held and trends that are developing. Rasouliazar *et al.* (2011) adopted a similar research design in their perception study carried out also on extension agents in Iran. The study thus profiles perceived effects of extension professionalization in South Western Nigeria.

3.4 Population of the Study

The population of the study is all Extension Agents in South Western Nigeria both in public and private extension organizations. Based on the population figures gotten from the six states Agricultural Development Programme (ADP) and the four non-governmental extension organizations in the zone, there were a total of 653 public extension agents and 70 private extension agents in South Western Nigeria

3.5 Sampling Procedure and Sample Size

Public extension organizations in South Western Nigeria are referred to as Agricultural Development Programme (ADP). The administrative structure of the ADP is headed by the Director of Extension Service. It is made up of frontline extension personnel which include the Village Extension Agents (VEAs) and Block Extension Agents (BEAs) who are both supervised by the Zonal Extension Officers (ZEOs).

A two-stage sampling procedure was employed in the selection of Extension Agents. The first stage was a purposive selection of three (3) states namely, Ogun, Osun and Oyo from the zone where extension personnel and activities are prominent in the zone based on the information obtained from the various extension agencies in the states.

Table 2: Number of Public Extension Agents in South West Nigeria

States	Number of Extension Agents
Ogun	**112***
Ekiti	56
Lagos	90
Ondo	94
Osun	**193***
Oyo	**108***

*Selected State ADPs

Source: Various State ADPs, 2016.

The second stage was a random selection of 87, 129 and 85 extension agents in Ogun, Osun and Oyo respectively. The proportionate sample size selected in each state was determined through the use of Roasoft sample size calculator. This gave a total of three hundred and one (301) public extension personnel.

Private extension agents were selected using a two-stage sampling procedure. The four (4) major agro-based NGEOs in the zone are Farmers Development Union (FADU), Leventis Foundation, British American Tobacco (BAT) and Justice Development and Peace Movement-Rural Development Programme (JDPM-RUDEP) having a population of 23, 8, 7 and 35 extension agents respectively. The first stage was a purposive selection of two prominent agro-based NGEOs out of these four based on their employee base and current activities in the region. Those selected were FADU and JDPM-RUDEP having a total extension employee base of 23 and 35 respectively. The second stage was a random selection of 22 and 33 extension personnel from FADU and JDPM-RUDEP respectively. The proportionate sample size selected in each NGEO was also determined through the use of Roasoft sample size calculator. This gave a total of fifty five (55) private extension agents. The total sample size for the study therefore was three hundred and one (301) public extension agents and fifty five (55) private extension personnel.

3.6 Data Collection

3.6.1 Instrument for Data Collection

Data for the study were obtained with the use of a structured questionnaire with the survey instrument made up of six sections each focused on a particular objective of the study. The first section was for the collection of data on the personal characteristics of the respondents. The second section was to elicit data on the sources of information and knowledge utilized by the extension personnel; the third section of the questionnaire was to examine the knowledge level of the respondents on concepts in professionalism; the fourth section was to determine the attitude of the extension agents on the professionalization of extension; the fifth section was to identify the barriers to the professionalization of extension while the sixth section was to elicit information on the perceived effect of professionalization on extension service delivery.

Section A – Respondents were asked to indicate the category they belong to on their personal characteristics

These variables were measured as follows:

Age: The actual age of the respondents as at the last birthday was obtained and measured in years.

Gender: It was measured as a dummy variable which was coded 1 for male and 0 for female.

Marital Status: Respondents status was measured as 1 if married, 0 if otherwise.

Number of Children: Respondents were asked to state the number of children they have.

Household size: respondents were asked to indicate the number of individuals with whom they share foods and other basic utilities in their house.

Highest educational attainment: Respondents literacy level was measured as 1 for possession of high formal education ranging from OND, HND, Bachelor degree, M.Sc, Ph.D and 0 if otherwise.

Study for higher degree: Respondents were asked whether they are currently studying for a higher degree and coded as 1 if Yes and 0 if otherwise.

Average Annual Income: Respondents were asked to state their average annual income in naira.

Years of extension experience: Respondents were asked to indicate how long in years they have been in the extension service.

Living in job location: Respondents were asked whether they live in their job location and this was measured as 1 if Yes and 0 if otherwise.

Number of communities: Respondents were asked to state the number of communities they cover.

Number of farmer groups: Respondents were asked to indicate the number of farmer groups they cover.

Means of mobility: This was measured as 1 for motorcycle and 0 if otherwise (Trekking, Motor vehicle).

Distance to clients: respondents were asked to state the average distance they cover in kilometres from their office to their client's location.

Background: respondents were asked to indicate their background and this was coded as 1 if rural and 0 if otherwise.

Section B - Sources of Information Utilized: Respondents were asked to indicate the information sources utilized on a Yes (1) and No (0) basis and then their frequency of utilization was rated on a 3-point likert-type scale of Frequently utilized (3), Occasionally utilized (2), Rarely utilized (1). A mean score of 2 out of the actual mean score of 3 was adopted to identify the most frequently utilized information sources among the respondents.

Section C - Knowledge Level of Extension Agents on Professionalism: The extension agents' knowledge level on professionalization was measured taking into consideration their knowledge statements on the indicators of professionalization namely, accreditation, registration and certification as operationalized in the study which is accreditation, registration and certification. Respondents were presented with a list of 12 statements on the general concept of professionalization, 8 statements on accreditation, 8 statements of registration and 8 statements on certification totalling 36 statements in all. They were asked to indicate whether these statements were true or otherwise using a 2 point scale of true (2) and false (1). The actual mean is 1.5 due to the rating scale and a mean of greater than 1.5 signified high knowledge level while a mean below 1.5 denoted low knowledge level.

Section D - Attitude towards Extension Professionalization: The attitude of the extension agents on professionalization was measured taking into consideration their attitude on the three components of professionalization which are accreditation, registration and certification as operationalized in the study. Respondents were presented with a list of 12 attitudinal statements on the general concept of professionalization, 10 statements on accreditation, 10 statements on registration and 10 statements on certification totalling 42 standardized attitudinal statements in all. These statements were rated on a 5-point Likert scale of strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). A mean of 3.0 was chosen as a cut-off due to the rating scale and a mean greater than 3.0 denots favourable attitude while a mean below 3.0 signifies unfavourable attitude.

Section E - Barriers to Professionalization of Extension Providers: A series of items were presented to the respondents and they were asked to State whether these items are barriers to professionalization rated on a Yes (1) and No (0). Those items identified as barriers to

professionalization were rated on a 4-point Likert-type severity scale of Very severe (4), Severe (3), Somewhat Severe (2) and a little severe (1). A mean score of 2.5 out of the total obtainable mean score of 4 was adopted to identify the severe barriers limiting the professionalization of extension in the area.

Section F – Perceived Effects of Professionalization of Extension Services on Delivery: The dependent variable for this study was the perceived effects of professionalization on extension service delivery. Respondents were presented with a list of 26 effects of professionalization on extension service delivery and they were asked to state their perception of the benefits derivable from these items on extension service delivery on a 4-point Likert scale of Greatly improve (4), Improve (3), Slightly improve (2), Not improve (1). From their responses, the extension agents were then classified into whether they perceive professionalization of extension as a means of bringing about positive improvement to service delivery or not. The actual mean of 2.5 was then chosen as a cut-off point due to the rating scale used. Respondents with a mean greater than 2.5 were considered as perceiving professionalization as a means of positively improving service delivery (positive perception) while those with a mean below 2.5 were categorized as perceiving professionalization as not improving service delivery (negative perception).

3.7 Validity and Reliability of Instrument

Validity is to ensure that the data collection instrument measures what it is supposed to measure. The instrument was subjected to face-validation and close examination by experts in the field of agricultural extension and administration both in South Africa and Nigeria in order for them to judge the extent to which the statements measure the highlighted issues in extension service professionalization as well as the extent to which they convey the intended meaning to all respondents.

Reliability is to prove the consistency of the data collection instrument. A pre-test of the instrument was carried out in Kwara State using the split-half method of reliability. A high reliability coefficient 0.87 was obtained which showed proper consistency of the instrument.

According to Kuder and Richardson (1937), a reliability co-efficient of 0.85 and above shows that the instrument is highly consistent and reliable.

3.8 Data Analysis

Data were analyzed using descriptive statistics such as frequency counts, percentages, means, and ranks. Inferential statistics such as t-Test and regression analysis were used in the study. t-Test was used to analyze hypothesis one, Principal Component Analysis, Tobit regression and Ordinary least square models were fitted to analyze hypothesis two and Structural Equation Modelling (Confirmatory Factor Analysis) was used for hypothesis three.

3.8.1 Model Specification

The different models used for the analysis of the objectives and hypothesis which include t-Test Principal Component Analysis, Tobit regression, Ordinary least square and Structural Equation Modelling using Confirmatory Factor Analysis are specified below.

3.8.1.1 t-Test Analysis

t-Test analysis is usually used to assess whether the means of two groups are statistically different from each other. t-Test was used to compare the mean score of attitude, knowledge and perceived effect of professionalization of the public and private extension personnel used in the study to see if there is any significant difference between the two groups.

The equation used was as follows:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{S_1^{\,2}}{N_1} + \frac{S_2^{\,2}}{N_2}}} \qquad \text{..................} (3.1)$$

(Koutsouyianis, 2003)

Where

X_1 = knowledge, attitude and perceived effect mean of public extension personnel

X_2 = knowledge, attitude and perceived effect mean of private extension personnel

S_1^2 = variance of X_1 variable

S_2^2 = variance of X_2 variable

N_1 = number of public extension personnel

N_2 = number of private extension personnel

3.8.1.2 Principal Component Analysis

Principal Component Analysis (PCA) which is a data reduction tool (Manyong *et al.*, 2006) was used to extract the key components structure of the perceived effects of extension professionalization on delivery and a composite index of the extension agents' perceived effect was generated. A total of 26 effects of professionalization on extension service delivery were identified and grouped into three (3) components of accreditation, registration and certification. Respondents' perceived effects of professionalization were ranked on a 4-point Likert scale of greatly improve (4), improve (3), slightly improve (2), not improve (1) and these were then used to generate their perceived effect index. The generated index was then used as a dependent variable to estimate the factors influencing the perceived effects of professionalization of extension services on delivery. The PCA model is thus stated as

$$PCi = \sum_{j=1}^{k} Nijxj, \quad i = 1, \ldots, m; j = 1, \ldots, k \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.2$$

Where xj's are the m variables observed from the i^{th} member.

PCi = Perceived effect index

N = number of effect items used in the study

3.8.1.3 Tobit Regression Model

Using the PCA generated index as the dependent variable, a tobit regression model was fitted to assess the factors influencing the perceived effect of professionalization of extension on service delivery (hypothesis two). The model was chosen because of its ability to model variables that have either a left or right censoring in the dependent variable (Tobin, 1958).

The Tobit model is presented as:

$$Y^{*} = X_i\beta + \varepsilon \quad \text{...} (3.3)$$

where Y* is the dependent variable', in this case the generated perceived effect index of the extension agents, β is a vector of unknown coefficients; X_i is a vector of independent variables (stated in table 3), and ε is an error term that is assumed to be independently and normally distributed with mean zero and a constant variance of S^2.

Y* is a latent variable that is unobservable and it is only observed as a continuous variable when the data of the dependent variable is above the limiting factor, zero in this case. If Y is at the limiting factor, it is held at zero. This relationship is presented mathematically in the following equations:

$$Y = Y_{*} \text{ if } Y_{*} > Y_{o} \quad \text{..} (3.4)$$

$$Y = 0 \text{ if } Y_{*} \leq Y_{o} \quad \text{..} (3.5)$$

where Y_o is the limiting factor. These two equations represent a censored distribution of the data.

The expected value E_y of the extent of perceived effect of extension professionalization on service delivery is given as

$$E_y = X_i\beta\, F(z) + \sigma\, f(z) \quad \text{..} (3.6)$$

where

X_i is the vector of explanatory variables

F(z) is the cumulative normal distribution of z

f(z) is the value of the derivative of the normal curve at a given point (the unit normal distribution)

z is given as $X\beta / \sigma$

B is the vector of Tobit maximum likelihood estimates whose coefficient sign will indicate the direction of influence or effect

σ is the standard error of the model

3.8.1.4 Ordinary Least Square Regression Model

The PCA generated index was also used as the dependent variable to fit an ordinary least square regression model to assess the determinants of perceived effects of professionalization of extension services on delivery (hypothesis two).

The explicit form of the model is specified as follows

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 \ldots\ldots\ldots BnXn + e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.7)$$

Where

Y is the generated PCA perceived effect index, the independent variables that were included are stated in Table 3 and e in the error term

Table 3: Description of the Independent Variables used in the Tobit and OLS Regression Analysis

Variables	Description
Age	measured in years (continuous)
Gender	measured as a dummy variable 1 for male, 0 if otherwise
Marital Status	measured as a dummy variable 1 for married, 0 if otherwise
Number of Children	measured as number of children (continuous)
Household Size	measured as number of persons (continuous)
Educational Qualification	measured as 1 for possession of high formal education ranging from OND, HND, Bachelor degree, M.Sc., Ph.D. and 0 if otherwise
Annual Income	measured in naira (continuous)
Years of Experience	measured in years (continuous)
Living in Job location	measured as a dummy variable 1 for Yes, 0 if otherwise
No. of Community Covered	measured as number of community (continuous)
Means of Mobility	measured as a dummy variable 1 for Motorcycle, 0 if otherwise
Distance Covered	in Kilometers (continuous)
Rural-Urban Background	measured as a dummy variable 1 for rural, 0 if otherwise
Information Sources	measured as 1 for utilized, 0 if (otherwise) not utilized
Knowledge level	measured as 1 for high, 0 if otherwise
Attitude	measured as 1 for favourable, 0 if otherwise
Barriers	measured as 1 for Yes and 0 if otherwise

Source: Authors Computation

3.8.1.5 Structural Equation Modelling (Confirmatory Factor Analysis)

Structural Equation Modelling using the Confirmatory Factor Analysis approach of IBM AMOS version 24 was used in determining the hypothesized model of the inter-relationship that existed between the extension agents' constructs of knowledge, attitude and the components of their perceived effects on professionalization (i.e. accreditation, registration and certification). It is a tool that is used to specify and estimate the effects among measured variables and latent variables. Measured variables represent and serve as indicators of each latent variable (Tutkun, Lehmann and Schmidt, 2006). Four items of knowledge, three items of attitude, three items of accreditation, two items of registration and four items of certification with the highest

frequencies were measured variables that represented and served as indicators of the constructs of knowledge, attitude, accreditation, registration and certification used in the analysis.

3.9 Ethical Consideration

The researcher observed the highest possible ethical and professional codes of conduct throughout the study. A deliberate effort was made to eliminate prejudices, biases and sentiments that might want to prevent objectivity and neutrality. Ethical issues which were taken into consideration in this study include:

Anonymity and Confidentiality: Respondents were given the right to remain anonymous as they were not asked to indicate their names or give any form of personal identifiers on the questionnaire. Information elicited from the respondents was treated with confidentiality.
Voluntary Participation: Respondents were given full right to decide whether to participate in the study or not.

Informed Consent: The objective of the research was stated clearly for the respondents and their permission was sought whether they want to participate in the study or not. Their willingness to participate in the research was formally gotten by verbal consent.

Beneficence and Non-maleficence: The researcher, throughout the study, ensured that the welfare of the respondents was paramount. The study did not in any way engage in anything that was harmful or injurious to the health and interest of the respondents.

3.10 Chapter Summary

This chapter gave a detailed description of the study area and the research methodology adopted for the study. Descriptive and quantitative research design was used to profile the perceived effects of professionalization of extension services in the study area. It gave an explanation of the sampling technique, instrument used for data collection, validity and reliability of the instrument and the data collection procedure. A two-staged sampling procedure was employed in the

selection of 356 public and private extension agents and a structured questionnaire was used to elicit information from them. Descriptive and inferential statistics were used in analysing the data. Models fitted for inferential statistics which include t-Test, Principal Component Analysis, Tobit regression, Ordinary least square regression and Structural Equation Modelling (Confirmatory Factor Analysis) were all explained in the chapter.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the data analyses, discussion of the findings of the research and their implications. It is divided into eight sections based on the specific objectives and hypotheses of the study. The sections focused on discussing the results of the socio-economic characteristics of the public and private extension agents in South Western Nigeria, the sources of information they utilized on professionalization, their knowledge on professionalization, the attitude of the agents on extension professionalization, the barriers militating against extension professionalization in the study area, the effects of extension professionalization on service delivery and the factors that influence the perception of the extension agents on the effects of professionalization of extension services on delivery in the study area.

4.2 Socio-economic Characteristics of the Extension Agents

In this section, findings relating to the socio-economic characteristics of the respondents are presented and discussed.

The results from Table 4 show across the study area that a little above average (53.9%) of the pooled respondents were 40 years of age and below, 30.9% were within 41-50 years, while just about a handful of the extension agents were found to be within the age of 51 years and above. The mean age of the public and private extension agents was 42.05years and 38.49years with a standard deviation of 7.50 and 6.21 respectively. There is a significant difference in the mean age of public and private extension agents ($t = 3.77$, $p \leq 0.01$); which implies that private extension agents in the study area are generally younger in age than their public counterparts. This is probably due to the fact that private extension agencies just came to the limelight some few years ago in the area and the private sector in the area generally recruits young graduates. However, the average age of 41.50 years across the study area reveals that the agents are generally in their economically active years. This agrees with Akintonde, Akinboye, Farayola and Akintola (2012) who reported that extension agents in South Western Nigeria were young and active. This

attribute helps them to cope with the rigour that comes with extension work as they possess the stamina, vigour and sense of maturity needed for extension service delivery. The mean age of the respondents also tends to positively influence their innovativeness and make them to be open minded to the adoption of new ideas and concepts such as the professionalization of the sector.

Findings from Table 4 reveal that majority of the public (74.8%) and private (74.5%) extension agents in the study area were males while just about one-quarter of both public (25.2%) and private (25.5%) agents were females. This shows the general observable trend among extension agencies across the study area where about three-quarters (74.7%) of the field staff strength of both government extension agencies and private non-governmental extension organisations pooled together were predominantly men. This corroborates Ajayi (2013), Arokoyo (2010) and Oladele and Mabe (2010) who reported that there were more males in extension services than females in Africa. This is a pointer to the need to recruit and inject more females into agricultural extension services in order to assist extension agents to render effectively and equally gender related services.

Furthermore, Table 4 shows that a little above average (55.1%) of the public agents were of the Christian religion while 44.9% were Islam. On the other hand the private extension agents were predominantly (83.6%) Christians while only a few (16.4%) of them were Muslims. The notable difference in distribution of religious affiliation across the public and private extension agencies is due to the fact that one out of the two private non-governmental extension organisations (JDPM) is a Christian-faith based organisation hence the staff are also predominantly of the Christian religion. Consequently, the extension agents in the study area pooled together are majorly Christians and this may also be as a result of the fact that south western Nigeria (i.e. study area) has more of Christian population as opposed to the northern part of Nigeria where Islamic religion is more prevalent.

From Table 4, majority (92.4% and 80.0%) of the public and private extension agents were married while the remaining few (7.6% and 20.0%) were single respectively. This agrees with Thomas and Laseinde (2015) who reported a similar trend in their study in Oyo State, Nigeria. Adebayo and Adesope (2007) and Adesope *et al.* (2007) also indicated that majority of the

extension agents in the southern parts of Nigeria are married. This is an indication that majority of the respondents are responsible adult who will most likely be very committed and focused on their duties as extension agents thus increasing the tendency of their willingness to be more professional in the discharge of their responsibilities.

Table 4: Distribution of respondents according to age, gender, religion and marital Status

Characteristics	Public Extension Agents (n = 301)		Private Extension Agents (n = 55)		t-stat	Pooled (n = 356)	
	Freq(%)	Mean(SD)	Freq(%)	Mean(SD)		Freq(%)	Mean(SD)
Age (years)							
≤ 30	17(5.6)	42.05(7.50)	2(3.6)	38.49(6.21)	3.77***	19(5.3)	41.50(7.42)
31-40	134(44.5)		39(70.9)			173(48.6)	
41-50	98(32.6)		12(21.9)			110(30.9)	
51 and above	52(17.3)		2(3.6)			54(15.2)	
Gender							
Male	225(74.8)		41(74.5)			266(74.7)	
Female	76(25.2)		14(25.5)			90(25.3)	
Religion							
Christianity	166(55.1)		46(83.6)			212(59.6)	
Islam	135(44.9)		9(16.4)			144(40.4)	
Marital Status							
Single	23(7.6)		11(20.0)			34(9.6)	
Married	278(92.4)		44(80.0)			322(90.4)	

Source: Field Survey, 2016 **Note: Statistical Significance at p ≤ 0.01 (***)**

The findings from Table 5 reveal that a little above average (52.5%) of the pooled respondents in the study area had between 1-3 children, 39.6% had between 4-6 children while only a handful had 7 children and above. The mean number of children of the public and private extension agents was 3 children and 2 children with a standard deviation of 1.45 and 1.56 respectively. This is similar to the report of Oladele and Mabe (2010) among extension agents in South Africa. A significant difference ($t = 3.48$, $p \leq 0.01$) exists in the average number of children of the two groups thus revealing that the number of children per household relatively seems to be a little larger among public agents than private agents. This may be as a result of the fact that the private extension agents are generally younger in age than their public counterparts and so tend to be up-coming in building their families and birthing children. The mean number of children of 3 per respondent evident throughout the entire study area implies that majority of the respondents are enlightened and actively involved in the current trend and campaign for family planning and not having too many children as it was in the past for health and population control reasons. The current economic recession being experienced all over and the need to make ends meet in family finances as they relate to children upbringing may also inform the relatively moderate number of children per household.

The results from Table 5 show across the study area that majority (71.0%) of the pooled extension agents had a household size of 5-8 persons, 22.5% had a household size of 1-4 persons while only a few had a household size of 9 persons and above. A significant difference ($t = 2.81$, $p \leq 0.01$) is observable in the average household size of about 6 persons and standard deviation of 1.92 for public agents as against 5 persons and standard deviation of 2.13 for private agents. This difference is most likely informed by the lower number of children among private agents when compared to the households of public agents. The overall mean household size of about 6 persons for the entire study area is a little higher than the average household size of less than 5 persons per extension officer in South Africa (Oladele, 2015a). This further confirms that extension agents in the study area have dependants and are with great family responsibilities thus pointing out the need for them to properly balance their time for maximum efficiency and professionalism in the discharge of their extension duties.

The educational qualification of the entire extension agents sampled for the study reveals that majority (84.0%) of the respondents had Higher National Diploma (HND) certificate and above level of education. This is in consonance with Fabusoro *et al.* (2008) and Oladele (2011) who stated that most of the extension agents in South Western Nigeria had HND and above level of education. However, there seems to be a proportionately higher number of bachelor and masters degree holders among the private agents when compared with the public agents suggesting that the private extension agents were more focused on continuous knowledge upgrade than their public counterparts. But, the level of education in the entire study area generally shows that most of the extension agents had above the minimum qualification required to occupy that position (i.e. Ordinary National Diploma Certificate (OND)), therefore majority of the agents in the study area are educationally qualified for the job. The implication of this is that most of the respondents are likely to be knowledgeable and understand what the basic concept of professionalization entails and this might tend to affect positively their perception about its effect on service delivery and its full implementation in the area.

The results from Table 5 also show that majority (82.1% and 80.0%) of the public and private extension agents respectively were not currently studying for a higher degree. This agrees with Adesoji and Aratunde (2012) who reported that only a few extension agents in Oyo State were studying for a higher degree. Terblanche, Koch and Lukhalo (2012) also stated that only a few extension officers in South Africa were committed to improving their academic status. This implies that continuous professional development is very low among respondents in the study area thus pointing out the need to professionalize the sector as it emphasizes continuous professional development among service providers at all levels.

Table 5: Distribution of respondents by number of children, household Size, education and higher degree.

Characteristics	Public Extension Agents (n = 301)		Private Extension Agents (n = 55)		t-stat	Pooled (n = 356)	
	Freq(%)	Mean(SD)	Freq(%)	Mean(SD)		Freq(%)	Mean(SD)
No of Children							
0	14(4.7)	3.21(1.45)	12(21.8)	2.42(1.56)	3.38***	26(7.3)	3.08(1.49)
1-3	159(52.8)		28(50.9)			187(52.5)	
4-6	126(41.8)		15(27.3)			141(39.6)	
7 and above	2(0.7)		-			2(0.6)	
Household Size							
1-4	62(20.6)	5.83(1.92)	18(32.7)	4.96(2.13)	2.81***	80(22.5)	5.69(1.97)
5-8	216(71.8)		37(67.3)			253(71.0)	
9 and above	23(7.6)		-			23(6.5)	
Educational Qual.							
College of Agric.	5(1.7)		-			5(1.4)	
OND	49(16.3)		3(5.5)			52(14.6)	
HND	149(49.5)		23(41.8)			172(48.3)	
B.Sc.	94(31.2)		26(47.3)			120(33.7)	
M.Sc.	4(1.3)		3(5.5)			7(2.0)	
Higher Degree Study							
No	247(82.1)		44(80.0)			291(81.7)	
Yes	54(17.9)		11(20.0)			65(18.3)	

Source: Field Survey, 2016 **Note: Statistical Significance at $p \leq 0.01$ (***)**

The findings from Table 6 show that the average income of the public and private extension agent was N505,411.96 (about $1,608.31) and N487,727.27 (about $1,552.04) per annum respectively. The result of t-test carried out, however, shows that there is no significant difference in the annual income of the two groups ($t = 0.72$, $p = 0.48$) implying that none of the two groups is better-off in terms of amount of income received. This suggests that both public and private extension agencies conform to the existing standard wage payment structure in the area.

The results from Table 6 reveal that a little above average (53.1%) of the pooled extension agents across the study area had 10years of experience and below, about 30.9% of them had 11-20years of experience while the remaining few (16.0%) had 21 years and above experience in extension work. The mean years of experience among the public and private extension agents were 12.54 years and 8.36 years with a standard deviation of 7.30 and 4.39 respectively. There is a statistical significant difference ($t = 5.53$, $P \leq 0.01$) in the mean years of experience of the two groups suggesting that public extension agents are generally more experienced in extension work than their private counterparts and they will have more exposure and practical knowledge of field work. This might be because the private sector usually employs fresh graduates and prominence of the activities of private extension services is also just a few years old in the country.

However, on the average, the extension agents pooled together have been into extension work for 12years with a standard deviation of 7.14. This conforms to Oladele (2011) who stated that extension agents in south western Nigeria have high number of years of experience in extension work. Also extension workers in Ghana were reported to have worked for an average of 13 years (Owens *et al.*, 2001) while extension officers in South Africa had a mean of about 14 years working experience (Oladele and Mabe, 2010). This suggests that the working experience in the study area is similar to other countries in the Africa. This attribute is expected to positively enhance their exposure and knowledge on professionalization.

The findings from Table 6 reveal that majority (64.8% and 96.4%) of the public and private extension agents respectively stated that they live in their job location. This result is similar to the findings of Oladele (2015b) in South Africa who reported that extension officers

predominantly reside in their job location. This high number of resident extension agents is expected to facilitate the effectiveness of extension services delivery in the area. It will enhance familiarity of respondents with their environment of operation and aid the frequency of contact between extension agents and farmers.

The results from Table 6 also show that majority (76.7%) of the public extension agents stated that they use motorcycles as means of mobility to reach their clients whereas on the other hand about one-third (61.8%) of the private extension agents used motor vehicles in getting to their clients' location. This notable difference in means of mobility between the two groups is due to the fact that some of the non-governmental extension organisation (private agencies) especially JDPM work together as a team and so transport themselves together in the organisation's vehicle as opposed to public extension agents that are posted to cells and so they have to get to their job locations individually.

Table 6: Respondents distribution according to income, years of experience, living in job location and mobility.

Characteristics	Public Extension Agents (n = 301)		Private Extension Agents (n = 55)		t-stat	Pooled (n = 356)	
	Freq(%)	Mean(SD)	Freq(%)	Mean(SD)		Freq(%)	Mean(SD)
Annual Income(Naira)							
300,000-599,000	253(84.1)	505411.96 (107817.48)	45(81.8)	487727.27 (176501.01)	0.72	298(83.7)	502679.78 (120844.07)
600,000-899,000	44(14.6)		6(10.9)			50(14.0)	
900,000-1,199,000	3(1.0)		4(7.3)			7(2.0)	
1,200,000 and above	1(0.3)		-			1(0.3)	
Years of Experience							
≤ 10	149(49.5)	12.54(7.30)	40(72.7)	8.36(4.89)	5.35***	189(53.1)	12.00(7.14)
11-20	97(32.2)		13(23.7)			110(30.9)	
21-30	53(17.6)		2(3.6)			55(15.4)	
31 and above	2(0.7)		-			2(0.6)	
Living in job location							
No	106(35.2)		2(3.6)			108(30.3)	
Yes	195(64.8)		53(96.4)			248(69.7)	
Mobility							
Motorcycle	231(76.7)		21(38.2)			252(70.8)	
Motor vehicle	70(23.3)		34(61.8)			104(29.2)	

Source: Field Survey, 2016 **Note: Statistical Significance at p ≤ 0.01 (***)**

The mean number of communities covered by public and private extension agents as revealed in Table 4 was 19.24 and 38.18 with a standard deviation of 9.54 and 9.04 respectively. This is similar to Oladele (2015b) who reported that majority of the extension officers in South Africa covered less than 30 communities. Further analysis of the result shows that there is a significant difference ($t = -14.16$; $p \leq 0.01$) in the number of communities covered by the public and private agents. This suggests that private extension agents cover more communities than their public counterparts. This is as a result of the wide ratio gap between the number of communities to be covered and the few private agents to reach them as opposed to the public who have larger number of agents in them.

Table 7 shows that the mean number of farmer groups covered by public and private agents was 23.86 groups and 49.27 groups respectively with a standard deviation of 9.29 and 12.77 respectively. The result of the t-test carried out shows a significant difference ($t = -14.09$. $p \leq 0.01$) in the number of farmer groups covered by the two groups. This implies that the private agents covered more number of farmer groups than the public agents due to the fewer number of agents in the private extension organisations. The average number of farmer groups of about 27.79 which a single agent is responsible for in the study area is very high giving an insight to the high extension agent to farmer ratio that is obtainable in the area. The implication of this shortage of extension personnel is that service delivery will be less effective in the area as the current number of agents on ground will be over-worked due to the number of farmer groups and consequently farmers to serve. This agrees with Ajayi (2013) who also reported a very high extension to farmer ratio in his study in Osun State, Nigeria.

Further results from Table 7 reveal that the distance to client travelled by majority of the extension agents across the study area ranged from 2 to 40km. The mean distance to client travelled by public and private agents was 11.09km and 21.27km respectively. The result of the t-test however confirms a significant difference in distance travelled by the two groups of agents ($t = -7.65$, $p \leq 0.01$). This implies that the private agents travelled longer distances before reaching their clients than the public agents. The overall shortage of extension personnel in the area is a contributory factor to the high average distance to client travelled by the agents which in-turn makes extension work less effective in the area.

The results from Table 7 also reveal that a little above average (58.1% and 52.7%) of the public and private agents had a rural background implying that they were born and brought-up in the rural area. Oladele (2015) also reported that about half of extension officers in North West, South Africa have their background in rural areas. This is a good attribute for extension service delivery as agriculture in the study area is predominantly practised in the rural communities and so the agents' rural background would have exposed them to the rural terrain, lifestyle and practices thus enhancing their adaptability and effectiveness in carrying out their duties.

Table 7: Frequency distribution of respondents based on number of community covered, number of farmer groups covered, distance to client and rural-urban background.

Characteristics	Public Extension Agents (n = 301)		Private Extension Agents (n = 55)		t-stat	Pooled (n = 356)	
	Freq(%)	Mean(SD)	Freq(%)	Mean(SD)		Freq(%)	Mean(SD)
No of Community							
≤ 20	201(66.8)	19.24(9.54)	3(5.5)	38.18(9.04)	-14.16***	204(57.3)	22.17(11.68)
21-40	91(30.3)		28(50.9)			119(33.4)	
41 and above	9(2.9)		24(43.6)			33(9.3)	
No of Farmer Groups							
≤ 20	115(38.2)	23.86(9.29)	1(1.8)	49.27(12.77)	-14.09***	116(32.6)	27.79(13.50)
21-40	177(58.8)		16(29.1)			193(54.2)	
41-60	7(2.3)		34(61.8)			41(11.5)	
61 and above	2(0.7)		4(7.3)			6(1.7)	
Distance to Client							
≤ 20	294(97.7)	11.09(4.77)	25(45.5)	21.27(9.66)	-7.65***	319(89.6)	12.66(6.85)
21-40	7(2.3)		29(52.7)			36(10.2)	
41 and above	-		1(1.8)			1(0.3)	
Rural-Urban background							
Rural	175(58.1)		29(52.7)			204(57.3)	
Urban	126(41.9)		26(47.3)			152(42.7)	

Source: Field Survey, 2016 **Note: Statistical Significance at p ≤ 0.01 (***)**

4.3 Sources of Information Utilized on Professionalization

This section reveals findings related to the sources of information utilized by the respondents in accessing information and knowledge on professionalization. The findings from Table 8 show the frequently utilized sources of information on professionalization among the extension agents. Out of the ten (10) sources of information presented to the respondents, the public extension agents indicated they frequently utilize five of these sources more prominently. Using mean scores to rank the information sources according to their frequency of utilization, Forth-night Training Sessions (FNTs) (2.92, SD=0.28) ranked 1st, Other Extension Agents (2.77, SD=0.47) was 2nd, Seminars and Workshops (2.24, SD=0.55) was 3rd, on-the job trainings (2.18, SD=0.53) was 4th and Extension publications (2.05, SD=0.68) was ranked 5th. This agrees with Ajayi (2013) who also reported a similar trend. He stated that public extension agents in Osun State prominently utilized FNTs as source for most of their agricultural related information while other information sources follow.

On the other hand, the private extension agents ranked other extension agents (2.91, SD=0.29) 1st, on-the job trainings (2.87, SD=0.34) was ranked 2nd, seminars and workshops (2.85, SD=0.36) was 3rd, Extension Publication (2.16, SD = 0.63) was 4th and Agricultural Research Institutes (2.09, SD=0.62) was ranked 5th. It was noted that the use of FNTs which is one of the pillars of the T and V system adopted by the public extension agencies was not prominent among private extension agencies indicating that each of the non-Governmental extension organizations adopted their own individual training schedule to upgrade the competence of their agents.

A spearman's rank correlation was carried out to see the relationship in the ranking of information sources by the public and private extension agents. A correlation coefficient value of $\rho = 0.02$, $p = 0.897$ revealed that there is no significant relationship in the sources of information used by the public and private agents in the study area. Hence, the above prominent information sources highlighted by the agents in each of the extension agencies were the accessible, effective and preferred sources frequently utilized for information and knowledge on professionalization. The implication of this is that government and other stakeholders involved in extension administration should focus more attention on channelling information related to extension

administration and professionalization through these sources to the various agencies in order to ensure more communication effectiveness among the respondents in the study area.

Table 8: Sources of Information on professionalization utilized by public and private agents

Information Sources	Public Extension Agents (N = 301)		Private Extension Agents (N = 55)	
	Mean(SD)	Rank	Mean(SD)	Rank
Television	1.31(0.57)	10th	1.15(0.48)	9th
Radio	1.59(0.66)	9th	1.38(0.56)	8th
Other Extension Agents	2.77(0.47)	2nd	2.91(0.29)	1st
Agricultural Research Institutes	1.86(0.74)	6th	2.09(0.62)	5th
Forth-night Training	2.92(0.28)	1st	1.07(0.33)	10th
Extension Publication and Bulletins	2.05(0.68)	5th	2.16(0.63)	4th
Seminars/Workshops	2.24(0.55)	3rd	2.85(0.36)	3rd
Internet	1.81(0.86)	7th	2.07(0.81)	6th
On-the Job specialized trainings	2.18(0.53)	4th	2.87(0.34)	2nd
Journals	1.61(0.66)	8th	2.04(0.69)	7th

Mean Score derived from frequently utilized=3, occasionally utilized=2, rarely utilized=1

Source: Field Survey, 2016

4.4 Knowledge level of Extension Agents on Professionalization

This section presents the result of the respondents' knowledge level on professionalization taking into consideration their knowledge on each of the indicators/components of professionalization as operationalized in the study which is accreditation, registration and certification. Respondents were presented with a list of 12 statements on the general concept of professionalization, 8 statements on accreditation, 8 statements of registration and 8 statements on certification totalling 36 statements in all. They were asked to indicate whether these statements were true or otherwise using a 2 point scale of true (2) and false (1). The actual mean is 1.5 due to the rating scale and a mean of greater than 1.5 signified high knowledge level while a mean below 1.5 denoted low knowledge level.

Knowledge level of Extension Agents on the General Concept of Professionalization

The result from Table 9 shows that both the public and private extension agents in the study area exhibited a high level of knowledge on the general concept of professionalization as all the means for both public and private agents were above the cut-off points across the 12 knowledge statements. However, there were significant differences in knowledge level among the public and private extension agents on 3 statements which are, "professionalization ensures only agents that have met the professional required standards are certified" ($\bar{X}_{pub} = 1.92$, $\bar{X}_{pri} = 1.98$; t = -2.68, p = $\leq$ 0.01), "professionalization ensures appropriate regulation for extension service" ($\bar{X}_{pub} = 1.82$, $\bar{X}_{pri} = 1.91$; t = -2.04, p = $\leq$ 0.05) and "professionalization sets a foundation for continuous improvement in service delivery" ($\bar{X}_{pub} = 1.53$, $\bar{X}_{pri} = 1.81$; t = -3.96, p = $\leq$ 0.01), suggesting that the private extension agents were more knowledgeable on most of the statements than their public counterparts. This is in line with Mengal, Mallah, Mirani and Siddiqui (2012) who stated that private extension field staffs in Pakistan were more knowledgeable and competent than their public counterpart. This might be as a result of the fact that most of the private agents are generally younger in age and have higher educational qualification when compared to their colleagues in the public agencies. These two attributes possessed by the private agents are most likely to have positively enhanced their information seeking behaviour

and openness to new programmes/ideas thus giving them an edge in terms of their knowledge on contemporary issues such as professionalization.

The overall exhibition of a high level of knowledge on the general concept of professionalization across the entire study area is, however, a good omen as it will most likely make the respondents to have a positive attitude and perception on the effect of professionalization of extension services on delivery in the area and the country as a whole.

Table 9: Knowledge level of Extension Agents on the Concept of Professionalization

Professionalization Concept	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Professionalization is a process of setting up policies and structures to guide the extension profession	1.98(0.13)	1.98(0.13)	0.88
Professionalization signifies commitment by extension agents to maintain currency of skills and knowledge in the profession	1.88(0.32)	1.92(0.26)	-1.09
Professionalization ensures only extension agents that have met the professional required standards are certified by recognized professional bodies	1.92(0.28)	1.98(0.13)	-2.68***
Professionalization ensures appropriate regulation for extension service	1.82(0.39)	1.91(0.29)	-2.04**
Professionalization is a mechanism for ensuring that extension agents abide by the code of ethics set for the practice of the extension profession	1.73(0.44)	1.80(0.40)	-1.09
Professionalization is a mechanism to protect, promote and ensure extension service sensitivity to the needs of farmers	1.73(0.45)	1.82(0.39)	-1.55
Professionalization ensures periodic quality review of extension personnel and the services they render	1.72(0.45)	1.73(0.45)	-0.10
Professionalization promotes efficient and effective use of resources and access to certified information on infrastructures and facilities for service delivery	1.73(0.45)	1.71(0.46)	0.28
Professionalization legalizes extension practice	1.72(0.45)	1.78(0.42)	-0.98
Professionalization points out areas of improvement in extension service delivery	1.72(0.45)	1.78(0.42)	-0.93
Professionalization involves consistent monitoring, evaluation and assessment of extension services	1.73(0.44)	1.69(0.47)	0.59
Professionalization sets a foundation for continuous improvement in service delivery	1.53(0.50)	1.81(0.39)	-3.96***

Note: Statistical Significance at $p \leq 0.01$ (***) and 0.05 (**)

Source: Field Survey, 2016

Knowledge level of Extension Agents on Accreditation

The findings from Table 10 reveal that the public and private extension agents in the study area pooled together were highly knowledgeable on the accreditation component of professionalization as all the means for both public and private agents were above the cut-off points of 1.5 across the 8 statements on accreditation. This implies that the extension agents in the study area are most likely to be favourably disposed to participating in the process of accreditation when fully implemented in the study area. Significant differences in knowledge level were however observed among the public and private agents on 3 statements which are "accreditation of extension personnel is an essential criteria for professionalization of extension service" ($\bar{X}_{pub} = 1.88$, $\bar{X}_{pri} = 1.96$; t = -2.54, p = $\leq$ 0.01), "accreditation promotes accountability" ($\bar{X}_{pub} = 1.84$, $\bar{X}_{pri} = 1.96$; t = -3.72, p = $\leq$ 0.01) and "accreditation strengthens community confidence in quality of service delivery" ($\bar{X}_{pub} = 1.69$, $\bar{X}_{pri} = 1.83$; t = -2.15, p = $\leq$ 0.05) revealing that the private agents were more knowledgeable on most of the statements on accreditation component of professionalization than the public agents. This agrees with Mengal *et al.* (2012) who reported a similar trend. The young age and higher educational status of the private agents most likely gave them an upper hand in knowledge level above the public agents suggesting that the private agents have the tendency of adopting and embracing faster the accreditation process than their public counterpart.

Table 10: Respondents' knowledge level on accreditation component of professionalization

Accreditation Component	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Accreditation of extension personnel is an essential criteria for professionalization of extension service	1.88(0.32)	1.96(0.19)	-2.54***
Accreditation is a channel of injecting more integrity and competence into extension service delivery	1.85(0.35)	1.85(0.36)	-0.01
Accreditation is a mechanism for quality improvement and assurance in extension service delivery	1.76(0.43)	1.84(0.37)	-1.29
Accreditation promotes accountability	1.84(0.37)	1.96(0.19)	-3.72***
Accreditation promotes credibility	1.78(0.41)	1.84(0.37)	-0.10
Accreditation will improve standards of practice in the extension profession	1.86(0.35)	1.82(0.39)	0.75
Accreditation strengthens community confidence in quality of service delivery	1.69(0.47)	1.83(0.37)	-2.15**
Accreditation ensures a disciplined, systematic and reliable approach to extension training	1.85(0.36)	1.80(0.40)	0.87

Note: Statistical Significance at $p \leq 0.01$(***) and 0.05 (**)

Source: Field Survey, 2016

Knowledge level of Extension Agents on Registration

The results from Table 11 show that the extension agents across the study area had a high knowledge level on the registration component of professionalization as all the means for both public and private agents were above the cut-off points of 1.5 across the 8 statements on registration implying that the extension agents in the study area are most likely to support the process of registration when fully implemented in the study area. The result of t-test carried out, however, shows significant differences in knowledge level among the public and private agents on 6 out of the 8 statements. These are, "registration of extension personnel is an essential criteria for professionalization of extension service" ($\bar{X}_{pub} = 1.85$, $\bar{X}_{pri} = 1.93$; t = -1.88, p = ≤ 0.10), "registration is a channel of injecting more integrity and competence into extension service delivery" ($\bar{X}_{pub} = 1.85$, $\bar{X}_{pri} = 1.93$; t = -1.88, p = ≤ 0.10), "registration is a mechanism for quality improvement and assurance in extension service delivery" ($\bar{X}_{pub} = 1.76$, $\bar{X}_{pri} = 1.85$; t = -1.80, p = ≤ 0.10), "registration promotes accountability" ($\bar{X}_{pub} = 1.85$, $\bar{X}_{pri} = 1.95$; t = -2.48, p = ≤ 0.05), "registration promotes credibility" ($\bar{X}_{pub} = 1.73$, $\bar{X}_{pri} = 1.85$; t = -2.22, p = ≤ 0.05) and "registration ensures a disciplined, systematic and reliable approach to extension training" ($\bar{X}_{pub} = 1.71$, $\bar{X}_{pri} = 1.85$; t = -2.17, p = ≤ 0.05). The implication of this is that the private extension agents are more knowledgeable on the registration component of professionalization than their public counterpart thus confirming their innovativeness and openness to new information due to their young age and educational level. This gives a clue to their tendency of adopting faster registration processes involved in professionalization than the public agents. Similarly, Lopokoiyit, Onyango and Kibett (2011) also reported that public agents in Kenya needed more knowledge and training upgrade than their private counterparts on administration, instructional and cross-cutting issues in extension.

Table 11: Respondents' knowledge level on registration component of professionalization

Registration Component	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Registration of extension personnel is an essential criteria for professionalization of extension service	1.85(0.36)	1.93(0.26)	-1.88*
Registration is a channel of injecting more integrity and competence into extension service delivery	1.85(0.36)	1.93(0.26)	-1.88*
Registration is a mechanism for quality improvement and assurance in extension service delivery	1.76(0.43)	1.85(0.36)	-1.80*
Registration promotes accountability	1.85(0.35)	1.95(0.23)	-2.48**
Registration promotes credibility	1.73(0.44)	1.85(0.36)	-2.22**
Registration will improve standards of practice in the extension profession	1.85(0.36)	1.84(0.37)	0.20
Registration strengthens community confidence in quality of service delivery	1.85(0.35)	1.76(0.43)	1.47
Registration ensures a disciplined, systematic and reliable approach to extension training	1.71(0.46)	1.85(0.36)	-2.17**

Note: Statistical Significance at $p \leq 0.05$ (**) and 0.10 (*)

Source: Field Survey, 2016

Knowledge level of Extension Agents on Certification

The findings from Table 12 reveal that the public and private extension agents in the study area pooled together were highly knowledgeable on the certification component of professionalization as all the means for both public and private agents were above the cut-off points of 1.5 across the 8 statements on certification. This implies that the extension agents in the study area are most likely to willingly participate in the process of certification when professionalization is fully implemented in the study area. There were significant differences in knowledge level among the public and private agents on 4 statements which are, "certification of extension personnel is an essential criteria for professionalization of extension service" ($\bar{X}_{pub} = 1.85$, $\bar{X}_{pri} = 1.93$; t = -1.80, p = $\leq$ 0.10), "certification is a channel of injecting more integrity and competence into extension service delivery" ($\bar{X}_{pub} = 1.87$, $\bar{X}_{pri} = 1.95$; t = -1.97, p = $\leq$ 0.05), "certification is a mechanism for quality improvement and assurance in extension service delivery" ($\bar{X}_{pub} = 1.80$, $\bar{X}_{pri} = 1.89$; t = -1.94, p = $\leq$ 0.10) and "Certification promotes accountability" ($\bar{X}_{pub} = 1.86$, $\bar{X}_{pri} = 1.98$; t = -4.39, p = $\leq$ 0.01), implying that the private agents were more knowledgeable on most of the statements on certification component of professionalization than the public agents. This is similar to Lopokoiyit, Onyango and Kibett (2011) who stated that public agents in Kenya needed more knowledge and training upgrade than their private counterparts on contemporary issues in the extension profession. This attribute will help them to see more that certification is an important criterion for professionalization thus making them to support, embrace and adopt faster professional certification processes in the area.

Table 12: Respondents' knowledge level on certification component of professionalization

Certification Component	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Certification of extension personnel is an essential criteria for professionalization of extension service	1.85(0.35)	1.93(0.26)	-1.80*
Certification is a channel of injecting more integrity and competence into extension service delivery	1.87(0.33)	1.95(0.23)	-1.97**
Certification is a mechanism for quality improvement and assurance in extension service delivery	1.80(0.40)	1.89(0.31)	-1.94*
Certification promotes accountability	1.86(0.34)	1.98(0.13)	-4.39***
Certification promotes credibility	1.77(0.42)	1.82(0.39)	-0.82
Certification will improve standards of practice in the extension profession	1.84(0.36)	1.78(0.42)	1.03
Certification strengthens community confidence in quality of service delivery	1.86(0.35)	1.76(0.43)	1.53
Certification ensures a disciplined, systematic and reliable approach to extension training	1.80(0.40)	1.71(0.46)	1.39

Note: Statistical Significance at $p \leq 0.01$(***); 0.05 (**) and 0.10 (*)

Source: Field Survey, 2016

4.5 Attitude on Extension Professionalization

This section shows the findings of the extension agents' attitude on extension professionalization taking into consideration their attitude on the three components of professionalization which are accreditation, registration and certification as operationalized in the study. They were presented with a list of 12 attitudinal statements on the general concept of professionalization, 10 statements on accreditation, 10 statements on registration and 10 statements on certification totalling 42 attitudinal statements in all. The extension agents were asked to indicate their agreement and disagreement with these statements on a 5 point scale of strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1). The actual mean of 3.0 was chosen as a cut-off due to the rating scale and a mean greater than 3.0 denoted favourable attitude while a mean below 3.0 signifies unfavourable attitude. Thus the respondents were categorized as exhibiting the corresponding attitude on extension professionalization based on the interval they belong to.

Attitude on the General Concept of Extension Professionalization

The findings from Table 13 reveal that the public and private extension agents across the study area predominantly have a favourable attitude towards the general concept of extension professionalization as the mean scores of 11 out of the 13 attitudinal statements on professionalization were above the actual mean. The most prominent statements were "professionalization will improve the image of the extension profession" ($\bar{X}_{pub} = 4.40$, $\bar{X}_{pri} = 4.51$), "professionalization will increase my productivity" ($\bar{X}_{pub} = 4.26$, $\bar{X}_{pri} = 4.20$) and "professionalization protects the interest of the extension profession" ($\bar{X}_{pub} = 4.15$, $\bar{X}_{pri} = 4.20$), suggesting that both the private and public agents agreed that professionalizing the sector will help them to be more productive and improve the image and interest of the profession especially in an environment where extension work is being carried out and contracted to unqualified individuals.

On the other hand, statements such as "professionalization will increase the work load and demand of extension agents" ($\bar{X}_{pub} = 2.85$, $\bar{X}_{pri} = 2.60$) and "professionalization will make

extension personnel to be more prone to chances of litigation from farmers" ($\bar{X}_{pub} = 2.69$, $\bar{X}_{pri} = 2.60$) were below the cut-off point of 3.0 revealing that the extension agents in both agencies though generally were largely in support of professionalization, still felt it will expose them to more legal issues with farmers and give them more load of work to do. This might be because they have previously been used to a system of poor accountability (Omotesho *et al.*, 2015), absence of legal framework (Oladele, 2011) and poor work ethics (Obiora and Emordi, 2013) and the change that comes with professionalization will have to pull them out of their 'comfort zone' to operating under a more efficient and accountable system. Thus the show of little reluctance and less enthusiasm on their part is expected because change usually comes with the need to shift from the norm and making some conscious and not so easy sacrifices at first in order to achieve a greater good.

The result further shows that there were some significant differences between the attitude of the public and private agents on 3 statements which are, "extension profession in Nigeria cannot benefit from professionalization" ($\bar{X}_{pub} = 3.70, \quad \bar{X}_{pri} = 3.25; t = 2.48, p \leq 0.05$), "professionalization will increase the workload and demand of extension agents" ($\bar{X}_{pub} = 2.85$, $\bar{X}_{pri} = 2.60; t = 1.87, p \leq 0.10$) and "professionalization is just a base for further initiatives to improve service delivery" ($\bar{X}_{pub} = 4.09, \ \bar{X}_{pri} = 4.29; t = -1.90, p \leq 0.10$), implying that public extension agents were more positively disposed to the attitudinal statements on the general concept of professionalization than their private counterparts. This is most likely due to the fact that public agents are more experienced in the extension profession and so they have a better understanding and holistic view of what the sector has to benefit from professionalization.

Table 13: Attitude of the respondents on Extension Professionalization

Attitudinal Statements	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Professionalization will improve the image of the extension profession	4.40(0.54)	4.51(0.50)	-1.52
Professionalization protects the interest of the extension profession	4.15(0.83)	4.20(0.80)	-0.46
Extension profession in Nigeria cannot benefit from professionalization	3.70(1.19)	3.25(1.22)	2.48**
My Leadership and administrative capabilities will be enhanced through professionalization	4.19(0.67)	4.09(0.91)	0.79
Professionalization will increase my productivity	4.26(0.69)	4.20(0.68)	0.56
Professionalization will improve the linkage system between extension and other stakeholders in the agricultural profession	4.21(0.73)	4.05(0.93)	1.14
Job satisfaction level of extension agents will increase as a result of Professionalization	4.17(0.76)	4.09(0.59)	0.87
Professionalization will increase the workload and demand of extension agents	2.85(1.13)	2.60(0.85)	1.87*
Professionalization will improve the rights of farmers	4.04(0.96)	4.15(0.83)	-0.85
Professionalization will bring about motivation and better work conditions	4.06(0.88)	4.13(0.86)	-0.56
Professionalization will make extension personnel to be more prone to chances of litigation from farmers	2.69(1.03)	2.60(0.93)	0.65
Professionalization will encourage more team work, networking and collaboration in the sector	4.13(0.76)	4.15(0.52)	-0.15
Professionalization is just a base for further initiatives to improve service delivery	4.09(0.85)	4.29(0.71)	-1.90*

Note: Statistical Significance at $p \leq 0.05$ (**) and 0.10 (*)

Source: Field Survey, 2016

Attitude of Extension Agents on Accreditation

The results from Table 14 show that the public extension agents in the study area were in agreement with all the attitudinal statements on the accreditation component of professionalization as all the means were above the cut-off points of 3.0. Some of the most prominent statements were, "accreditation will improve the quality of extension service delivery" ($\bar{X}_{pub} = 4.30, SD = 0.62$) and "continuous knowledge upgrade and development will be encouraged through accreditation" ($\bar{X}_{pub} = 4.20, SD = 0.84$). This implies that the public extension agents in the area have a favourable attitude towards the accreditation component of professionalization as they agreed that it will improve service delivery and encourage continuous professional development.

The private extension agents were also in agreement with majority of the attitudinal statements on accreditation as 9 out of the 10 statements were above the actual mean. The most prominent statements were, "accreditation will improve the quality of extension service delivery ($\bar{X}_{pri} = 4.33, SD = 0.75$) and "accreditation will promote competent and need-driven extension service delivery" ($\bar{X}_{pri} = 4.24, SD = 0.77$), implying that the private extension agents in the study area also exhibited a favourable attitude towards the accreditation component of professionalization by their agreement that it will improve service delivery and enhance demand driven extension. This is in line with Tooheey (2002) who stated that technical competence, quality assurance processes, knowledge upgrade were some of the drivers of accreditation of both public and private agricultural advisers and consultants in Australia.

On the other hand, the agreement of the private extension agents with the negative attitudinal statement that, "accreditation will make extension work more stressful and cumbersome" ($\bar{X}_{pri} = 2.95, SD = 0.99$), suggests that despite their favourable support of the accreditation component of professionalization, they still have a little reservation towards it. This might be because of the few numbers of private extension agents currently in the study area facing the challenge of high work-load due to the very high extension to farmer ratio and they feel the process of accreditation might, in some way, further aggravate the shortage of personnel as some not so qualified agents currently assisting in carrying out extension work might be disaccredited.

There were significant differences in the disposition of the public and private agents on 2 attitudinal statements on accreditation which are, "accreditation will make extension work more stressful and cumbersome" ($\bar{X}_{pub} = 3.26, \bar{X}_{pri} = 2.95; t = 2.09, p \leq 0.05$) and "the standard of entry and practice in the extension profession will be raised through accreditation" ($\bar{X}_{pub} = 4.18, \bar{X}_{pri} = 4.00; t = 1.95, p \leq 0.10$), implying that the public extension agents were more favourably disposed to these attitudinal statements on accreditation than the private extension agents. This is because the public extension agents have more practical knowledge and field exposure than their private counterparts which gives them a better understanding of the intricacies in the extension profession and the benefits that accreditation of personnel will inject into the system.

Table 14: Respondents' attitude on accreditation component of professionalization

Attitudinal Statements	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Accreditation will improve the quality of extension service delivery	4.30(0.62)	4.33(0.75)	-0.23
Accreditation ensures high level of integrity and ethical conduct in the extension profession	4.13(0.86)	3.93(0.98)	1.44
Conditions and demands of Accreditation will be too much for extension agents	3.22(1.08)	3.15(1.06)	0.45
Accreditation will make extension work more stressful and cumbersome	3.26(1.20)	2.95(0.99)	2.09**
The standard of entry and practice in the extension profession will be raised through accreditation	4.18(0.66)	4.00(0.61)	1.95*
Accreditation will promote competent and need-driven extension service delivery	4.18(0.84)	4.24(0.77)	-0.50
Accreditation will enhance the much needed transformation in the extension sector	4.04(0.90)	4.15(0.68)	-1.04
Continuous knowledge upgrade and development will be encouraged through Accreditation	4.20(0.75)	4.16(0.83)	0.30
Accreditation will increase the confidence of extension agents	4.11(0.84)	4.09(0.91)	0.14
Accreditation will provide a proper foundation and sense of direction for the extension profession	4.08(0.86)	4.00(0.92)	0.62

Note: Statistical Significance at $p \leq 0.05$ (**) and 0.10 (*)

Source: Field Survey, 2016

Attitude of Extension Agents on Registration

The findings from Table 15 reveal that the public extension agents in the study agreed with all the attitudinal statements on the registration component of professionalization as all the means were above the cut-off point of 3.0. Some of the prominent statements were, "registration will improve the quality of extension service delivery" ($\bar{X}_{pub} = 4.23, SD = 0.77$) and "continuous knowledge upgrade and development will be encouraged through registration" ($\bar{X}_{pub} = 4.16, SD = 0.83$), suggesting that the public extension agents have a favourable attitude towards the registration component of professionalization as they saw registration as a tool that will encourage continuous professional development of personnel and ultimately improve service delivery.

Also, the private extension agents were in agreement with all the attitudinal statements on registration as they were above the actual mean. The most prominent statements were, "registration will improve the quality of extension service delivery" ($\bar{X}_{pri} = 4.35, SD = 0.75$) and "registration ensures high level of integrity and ethical conduct in the extension profession" ($\bar{X}_{pri} = 4.22, SD = 0.76$). This implies that the private extension agents in the study area also exhibited a favourable attitude towards the registration component of professionalization by their agreement that it will enhance integrity and ethical conduct in the profession thus improving the quality of service rendered to their clients (farmers).

The result of t-test carried out, however, shows that there is no significant difference in the attitude of the public and private extension agents in the study area towards the registration component of professionalization revealing a favourable attitude across the area towards extension personnel registration. This is in line with Terblanche *et al.* (2012) who reported that majority of extension personnel in South Africa agree with professional registration. These point out the availability of a good foundation for the full implementation of the registration process of extension agents in the area.

Table 15: Respondents' attitude on registration component of professionalization

Attitudinal Statements	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Registration will improve the quality of extension service delivery	4.23(0.77)	4.35(0.75)	-1.08
Registration ensures high level of integrity and ethical conduct in the extension profession	4.11(0.83)	4.22(0.76)	-0.99
Conditions and demands of Registration will be too much for extension agents	3.33(1.20)	3.11(1.17)	1.30
Registration will make extension work more stressful and cumbersome	3.32(1.24)	3.07(1.09)	1.49
The standard of entry and practice in the extension profession will be raised through registration	4.12(0.74)	4.18(0.70)	-0.57
Registration will promote competent and need-driven extension service delivery	4.04(0.95)	4.09(0.87)	-0.42
Registration will enhance the much needed transformation in the extension sector	4.06(0.86)	3.84(1.08)	1.43
Continuous knowledge upgrade and development will be encouraged through Registration	4.16(0.83)	4.16(0.71)	-0.04
Registration will increase the confidence of extension agents	4.05(0.90)	4.07(1.00)	-0.16
Registration will provide a proper foundation and sense of direction for the extension profession	4.03(0.94)	3.91(0.95)	0.89

Source: Field Survey, 2016

Attitude of Extension Agents on Certification

The result from Table 16 shows that the public extension agents were in agreement with all the attitudinal statements on the certification component of professionalization as they were above the actual mean of 3.0. Some of the prominent statements were, "certification will improve the quality of extension service delivery" ($\bar{X}_{pub} = 4.25, SD = 0.75$), "the standard of entry and practice in the extension profession will be raised through certification" ($\bar{X}_{pub} = 4.19, SD = 0.75$). This implies that the public extension agents in the area have a favourable attitude towards the certification component of professionalization.

The private extension agents were also in agreement with all the attitudinal statements on certification as all the means were above the cut-off point. The most prominent statements were, "continuous knowledge upgrade and development will be encouraged through certification" ($\bar{X}_{pri} = 4.29, SD = 0.74$), "certification will provide a proper foundation and sense of direction for the extension profession" ($\bar{X}_{pri} = 4.27, SD = 0.59$), "certification will improve the quality of extension service delivery" ($\bar{X}_{pri} = 4.24, SD = 0.69$) and "certification will promote competent and need-driven extension service delivery" ($\bar{X}_{pri} = 4.22, SD = 0.69$), implying that the private extension agents were also favourably disposed towards the certification component of professionalization as they stated that it will facilitate their continuous professional development and provide the right platform for efficient service delivery.

The favourable disposition of the respondents towards certification provides a good platform to leverage upon for the initiation and driving of professionalization and its processes in the study area. Service quality, public confidence, personnel competence, environmental concerns, code of ethics, need for continuous education requirements were also some of the drivers of certification in Australia (Tooheey, 2002).

There was, however, no significant difference in the attitude of the public and private agents towards the certification component of professionalization pointing out a similarity in their favourable disposition to extension personnel certification in the study area implying that the

respondents will most likely have a positive perception towards the effects of professionalization of extension service on delivery.

Table 16: Extension Agents' attitude on certification component of professionalization

Attitudinal Statements	Public Agents	Private Agents	
	Mean(SD)	Mean(SD)	t-stat
Certification will improve the quality of extension service delivery	4.25(0.75)	4.24(0.69)	0.09
Certification ensures high level of integrity and ethical conduct in the extension profession	4.11(0.76)	4.02(0.73)	0.85
Conditions and demands of Certification will be too much for extension agents	3.40(1.19)	3.35(1.17)	0.31
Certification will make extension work more stressful and cumbersome	3.07(1.19)	3.02(0.98)	1.71
The standard of entry and practice in the extension profession will be raised through certification	4.19(0.75)	4.15(0.91)	0.36
Certification will promote competent and need-driven extension service delivery	4.05(0.94)	4.22(0.69)	-1.60
Certification will enhance the much needed transformation in the extension sector	4.03(0.91)	3.89(0.69)	1.34
Continuous knowledge upgrade and development will be encouraged through Certification	4.16(0.85)	4.29(0.74)	-1.19
Certification will increase the confidence of extension agents	4.04(0.89)	3.96(1.14)	0.47
Certification will provide a proper foundation and sense of direction for the extension profession	4.16(0.76)	4.27(0.59)	-1.28

Source: Field Survey, 2016

4.6 Barriers to Extension Professionalization

This section presents the results of the barriers militating against professionalization of extension services in the study area. Table 17 reveals the barriers to the smooth implementation of professionalizing extension services. Respondents were asked to indicate the extent of severity of the barriers on a 4 point scale of very severe (4), severe (3), somewhat severe (2) and a little severe (1). Due to the rating scale used, a mean of 2.5 was used to identify the prominent barriers to professionalization in the area. Using mean score to rank the barrier items according to their order of severity as indicated by the respondents, the public extension agents indicated that "insufficient number of extension personnel" ($\bar{X}_{pub} = 3.70, SD = 0.49$), "inadequate financial backing for extension services" ($\bar{X}_{pub} = 3.59, SD = 0.51$), "no legal act governing extension practice" ($\bar{X}_{pub} = 3.51, SD = 0.67$) and "inadequate conducive work environment" ($\bar{X}_{pub} = 2.92, SD = 0.63$), were very severe barriers as they ranked 1st, 2nd, 3rd, and 4th respectively.

Following almost the same trend, Table 17 further shows that the private extension agents indicated that, "insufficient number of extension personnel" ($\bar{X}_{pri} = 3.75, SD = 0.55$), "no legal act governing extension practice" ($\bar{X}_{pri} = 3.64, SD = 0.52$), "inadequate financial backing for extension services" ($\bar{X}_{pri} = 3.53, SD = 0.60$), and "inadequate conducive work environment" ($\bar{X}_{pri} = 2.67, SD = 0.64$), were severe barriers to professionalization of extension services as they ranked 1st, 2nd, 3rd, and 4th respectively.

A spearman's rank correlation was carried out to see if there was an existing relationship in the ranking of barriers militating against extension professionalization as highlighted by the public and private extension agents in the area. A correlation coefficient value of $\rho = 0.23$, $p \leq 0.10$ shows that there is a significant relationship in the barriers militating against extension professionalization in the public and private extension organizations. The similarity suggests that the four barriers pointed out by both groups were the major severe constraints to extension professionalization in the area. This agrees with the findings of several other researchers who stated that extension service in Nigeria is plagued with poor funding, absence of legal framework, inadequate equipment and conducive work environment and shortage of personnel

(Apantaku *et. al.*, 2016; Anaeto *et. al.*, 2015; Obiora and Emordi, 2013 and Oladele, 2011). This implies that extension services in the study area need an urgent intervention from government, non-governmental extension organizations and other stakeholders on ameliorating these severe barriers in order to set the right platform for a proper and effective professionalization process in the sector thus enhancing efficient service delivery and increased rate of return of investment in the sector.

Table 17: Barriers to professionalization of extension services

Barriers	**Public Agents (N = 301)**		**Private Agents (N = 55)**	
	Mean(SD)	**Rank**	**Mean(SD)**	**Rank**
No legal act yet governing extension practice	3.51(0.67)	3rd	3.64(0.52)	2nd
Insufficient number of extension personnel	3.70(0.49)	1st	3.75(0.55)	1st
Inadequate financial backing for extension services	3.59(0.51)	2nd	3.53(0.60)	3rd
Scepticism about the value of professionalization to extension services	1.70(0.68)	9th	1.84(0.94)	7th
Inadequate conducive work environment	2.92(0.63)	4th	2.67(0.64)	4th
Lack of employer cooperation	1.97(0.83)	7th	1.49(0.63)	8th
Prohibitive entry requirements to institutions for further educational upgrade and training	1.30(0.56)	10th	1.20(0.52)	10th
Lack of properly organized professional bodies in the extension profession	2.35(0.76)	5th	2.27(0.73)	5th
Lack of needed morale and will power by stakeholders in the sector to take the profession to the next level	2.32(0.85)	6th	1.93(0.77)	6th
Lack of coherent staff development plans by extension organizations	1.87(0.92)	8th	1.44(0.76)	9th

Mean Score derived from very severe=4, severe=3, some-what severe=2, a little severe=1

Source: Field Survey, 2016

4.7 Effects of Professionalization of Extension Services on Delivery

This section shows the result of the perception of the extension agents on the effects of professionalization of extension services in enhancing and improving delivery.

The results from Table 18 show a list of 26 statements on the effects of professionalization on service delivery among public and private extension agents in the study area. Respondents rated these statements on a 4 point scale of greatly improve (4), improve (3), slightly improve (2) and not improve (1). The actual mean of 2.5 was then chosen as a cut-off point due to the rating scale used. A mean of greater than 2.5 signifies positive perception of the effects while a mean below 2.5 denotes negative perception of the effects.

The result overwhelmingly shows that the extension agents across the study area in the public and private extension organisations had a positive perception of the effects of professionalization of extension services in enhancing and improving delivery as all the means of the statements were above the cut-off point of 2.5. The most prominent statements on perceived effects of professionalization highlighted by the public extension agents were, "improvement of quality and credibility of extension service delivery" ($\bar{X}_{pub} = 3.42, SD = 0.56$), "provision of a mechanism and channel for feedback in extension services" ($\bar{X}_{pub} = 3.34, SD = 0.64$), "enhancing the professional image of the extension profession" ($\bar{X}_{pub} = 3.33, SD = 0.64$), "enhancing integrity and ethics in the extension profession" ($\bar{X}_{pub} = 3.31, SD = 0.68$) and "regulation of the extension profession" ($\bar{X}_{pub} = 3.29, SD = 0.81$).

The private extension agents also positively perceived that professionalization, when fully implemented, is going to improve and enhance service delivery in the area by, "providing a mechanism and channel for feedback in extension services" ($\bar{X}_{pri} = 3.36, SD = 0.80$), "assist in identification and tracking of extension personnel identity" ($\bar{X}_{pri} = 3.35, SD = 0.75$), "enhance accountability in the extension profession" ($\bar{X}_{pri} = 3.30, SD = 0.77$), "provision of risk management mechanism and demonstration of due diligence" ($\bar{X}_{pri} = 3.29, SD = 0.83$), "enhance networking of like-minded professionals and peer group acceptance" ($\bar{X}_{pri} =$

$3.29, SD = 0.81$) and "reduction of rifts between extension agents and farmers" ($\bar{X}_{pri} = 3.29, SD = 0.71$).

There were significant differences in terms of the perception of the public and private extension agents on the effect of professionalization on service delivery on two statements which were, "enhance job motivation" ($\bar{X}_{pub} = 2.85$, $\bar{X}_{pri} = 3.18; t = 2.18, p \leq 0.05$) and "improve job satisfaction" ($\bar{X}_{pub} = 2.98$, $\bar{X}_{pri} = 3.25; t = 1.95, p \leq 0.10$). This implies that the public and private agents held different opinions on the effects of extension professionalization regarding these statements. The lower positive perception exhibited by the public agents might be as a result of the fact that the public extension agents are not entirely convinced that professionalization is a channel that can increase their staff welfare packages as Okwoche *et al.* (2015) stated, that public extension agents job satisfaction increases with increase in salary and welfare packages. Also the comparative lower educational qualification of the public extension agents as against their private counterparts might have influenced their low perception of professionalization as a channel of enhancing job motivation because, as Adesiji *et al.* (2015) stated, increase in educational level is directly related to public extension agents' job motivation in Kwara State, Nigeria.

However, the overall high level of positive perception of the effects of professionalization of extension services on delivery exhibited by the entire public and private agents in the study area is a good development for the extension profession in the area as it suggests that extension personnel see professionalization of the sector as a felt need and so they will willingly accept and be committed to the incorporation and sustenance of professionalization policies that will be introduced to guide and improve service delivery in the area and the county at large. As established by the Theory of Planned Behaviour and Technology Acceptance model (TAM), positive perception of the effects and ease of use of a technology or innovation always determine the actual adoption and use of such an innovation (Fathema, Shannon and Ross, 2015; Ajzen, 1991; Davis, 1989).

Table 18: Perceived effects of professionalization of extension in improving and enhancing service delivery

Effects	Public Agents Mean(SD)	Private Agents Mean(SD)	t-stat
Accreditation			
Accountability in the extension profession	3.20(0.74)	3.30(0.77)	-0.36
Enhancement of Clients(farmers) confidence and satisfaction	3.11(0.78)	3.27(0.78)	-1.42
Maintenance of currency of knowledge and skills at all levels by extension agents	3.09(0.81)	3.15(0.89)	-0.43
Regulation of the extension profession	3.29(0.81)	3.20(0.74)	-0.19
Extension service working conditions	3.11(0.74)	3.07(0.84)	0.28
Sensitivity to accurately solving farmers need	3.10(0.75)	3.13(0.90)	-0.18
Integrity and ethics in the extension profession	3.31(0.68)	3.25(0.91)	0.42
Networking of like-minded professionals and peer group acceptance	3.23(0.75)	3.29(0.81)	-0.53
Transparency in extension services and reduction in man know man issues	3.07(0.78)	3.24(0.84)	-1.37
Registration			
Specialization of Extension agents in service delivery	3.13(0.83)	3.22(0.90)	-1.71
Research culture and skills among extension agents	3.12(0.77)	3.02(0.87)	0.81
Elimination of lackadaisical attitude among extension agents	3.13(0.73)	3.16(0.92)	-0.26
Provision of risk management mechanism and demonstration of due diligence	3.20(0.77)	3.29(0.74)	-0.81
Reduction of rifts between extension agents and farmers	3.12(0.75)	3.29(0.71)	-1.63
Mechanism and channels for feedback in extension services	3.34(0.64)	3.36(0.80)	-0.22
Identification and tracking of extension personnel identity	3.17(0.80)	3.35(0.75)	-1.58
Extension personnel paying more attention to details	3.19(0.74)	3.20(0.83)	-0.06
Certification			
Professional image of the extension profession	3.33(0.64)	3.13(0.92)	1.58
Quality and credibility of extension service	3.42(0.56)	3.27(0.85)	1.23
Confidence of Extension agents	3.19(0.77)	3.29(0.83)	-0.84
Enhancement of the decision making capabilities of extension agents	3.09(0.82)	3.22(0.83)	-1.08
Job motivation	2.85(0.78)	3.18(1.04)	2.18**
Strength of Extension Organization and Profession	3.14(0.74)	3.02(0.80)	1.04
Job satisfaction	2.98(0.67)	3.25(0.99)	1.95*
Promotion of better and faster agricultural solution	3.14(0.79)	3.25(0.82)	-0.93
Improvement in quality of information in the sector	3.10(0.80)	3.11(0.90)	-0.09

Note: Statistical Significance at $p \leq 0.05$ (**) and 0.10 (*) **Source: Field Survey, 2016**

4.8 Comparison of the Knowledge, Attitude and Perception of the Public and Private Agents

An independent sample t-test was conducted to compare the knowledge, attitude and perception scores on professionalization of extension services among the public and private agents.

The knowledge score of the extension agents was computed from a total of 36 items relating to the concept of professionalism presented to the respondents. Their responses were graded as True (2) and False (1). The overall Knowledge Score of the respondents was determined from a range of 36 being the lowest knowledge level to 72 being the highest knowledge score possible. The mean scores of the public and private agents were obtained which were then used for comparison. Table 19 revealed statistically that there was no significant difference between the overall knowledge score of the public agents (M = 65.42, SD = 4.66) and private agents (M = 66.04, SD = 4.46) on professionalization hence the hypothesis (Ho_1) was accepted.

The attitude of the public and private extension agents was measured as a pooled score from 43 standardized attitudinal statements rated on a 5-point Likert scale of strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). A total attitudinal score per respondents was generated with 43 being the least score and 215 being the maximum score possible. The means of the public and private agents were obtained and then used for comparison. Findings revealed that there was no significant difference between the overall attitude of the public (M = 169.50, SD = 20.86) and private agents (M = 167.49, SD = 20.64) towards professionalization hence the hypothesis (Ho_1) was accepted.

The perceived effect score of the public and private extension agents was obtained from a list of 26 effects of professionalization on extension service delivery measured on a 4-point Likert scale of Greatly improve (4), Improve (3), Slightly improve (2), Not improve (1). The overall perceived effect score of the respondents was determined from a range of twenty six (26) being the lowest score and 104 being the highest score possible. The mean scores were computed and used for comparison. Results from Table 19 show that there was no significant difference between the overall perceived effect score of the public (M = 82.59, SD = 13.87) and private agents (M = 82.82, SD = 16.21) hence the hypothesis (Ho_1) was accepted.

The implication of this is that none of the two groups was superior or better-off than the other in terms of their knowledge, attitude and perception of professionalization in the sector. The respondents across the study area in both the public and private extension agencies had the basic knowledge about the concept of professionalization, exhibited a favourable attitude towards professionalizing the sector and had a positive perception of the resultant effects of professionalization of extension services in enhancing and improving delivery in the area.

Table 19: Independent Sample t-Test for Difference in Knowledge Score, Attitude Score and Perceived Effect Score on Professionalization by Public and Private Agents in South Western Nigeria.

	Agents	Mean	Std. dev.	N	t	df	Sig.
Knowledge Score	Public	65.42	4.66	301	-0.93	77.21	0.353
	Private	66.04	4.46	55			
Attitude Score	Public	169.50	20.86	301	0.66	75.57	0.509
	Private	167.49	20.64	55			
Perceived Effect	Public	82.59	13.87	301	-0.10	69.20	0.922
Score	Private	82.82	16.21	55			

Significance tested at $p \leq 0.05$

Source: Analysis of Field Survey data

4.9 Component Structure of Public and Private Extension Agents' Perceived Effects of Extension Professionalization on delivery

Principal Component Analysis (PCA) was used to extract the key component's structure of the perceived effects of extension professionalization on delivery among public and private agents in South Western Nigeria. The components were extracted using a correlation matrix (Krzanowski, 1987), and the reliability scores were tested using Cronbach's alpha which gave an overall value of 0.96. According to Winter *et al.* (2005), this reveals that the responses were suitable to constitute a reliable composite measure. Furthermore, it was concluded that the correlation matrix was a reliable identity matrix and PCA was suitable for providing significant reductions in dimensionality due to the significance of the Bartlett's test of sphericity ($X^2 = 6199.021$, $p \leq 0.01$). The Kaiser criterion (1960) was applied to select the number of principal components or factors explaining the data hence components with eigen values (a measure of explained variance) less than one were excluded and 3 components that had eigen values greater than one were retained as they were seen to account for more variation in the original scores. Variables with factor loadings more than ± 0.30 were selected as they indicated a strong relationship between the original scores and the factors (Koutsoyiannis, 1992). The selected loadings are shown in Table 20 in bold print while variables that loaded in more than one effect were discarded (Madukwe, 2004). The communality is the association that exists between a variable and all other variables (i.e. the squared multiple correlation between a variable and every other variable). The first principal component (F1) has a very high explanatory power as it explains 51% of the variation in extension agent's perception of the effect of professionalization on service delivery, with F2 and F3 explaining 5% and 4% respectively. The three principal components/factors explained 60% of the variation in the data.

All the coefficients of the principal component vector of the first factor are positive and are above 0.30 factor loading. Therefore, it is more economically meaningful unlike the vectors of the other two factors. Since the variables represent the perceived effects of extension professionalization on service delivery in each of the three operationalized components of professionalization (accreditation, registration & certification), the positive weights for all the variables in F1 can be taken as evidence that the first component represents the aggregate variations due to the differing degrees in extension agents' perception, thus F1 was retained and

used to generate the perception index for further analysis. The large percentage of variance explained by the first retained factor (F1) makes it suitable to be used alone for explanation and further analysis without much loss in information (Muchara *et al.*, 2014; Manyong *et al.*, 2006).

The first factor (F1) was dominated by the accreditation and certification components of professionalization as majority of the variables from the registration components were discarded because they loaded in more than one effect. This suggests that the benefits derivable from the implementation of the accreditation and certification components of professionalization in solving the felt needs of the extension agents largely contributed to determining their perception on the effect of professionalization of extension services on delivery. The benefits highlighted from the accreditation components were, enhancing/improving clients' confidence and satisfaction, transparency in extension service, networking of professionals, integrity and ethics in the extension profession, currency of knowledge and skills, accountability and regulation of the profession while those potential benefits highlighted to be derivable from the certification components were, enhancing job satisfaction, confidence of extension agents, quality and credibility of extension service, promotion of better and faster agricultural solution, strength of extension organisation and profession, job motivation, enhancement of decision making capabilities and improvement in the quality of information flow in the sector.

According to Terblanche *et al.* (2012), similar beneficial factors such as personnel competence upgrade, continuous development of officers' knowledge and skills, enhancement of ethical conduct and integrity, and the establishment of a legal framework influenced the professionalization move in South Africa. Toohey (2002) also stated that the need for adequate regulation and transparency, adherence to code of ethics, continuous knowledge upgrade, technical competence, quality assurance processes, sensitivity to clients need, and peer recognition and acceptance were some of the factors that initiated professionalization and accreditation of agricultural advisers and consultants in Australia. This implies that governments, extension administrators, and policy makers should focus on facilitating the quick initiation of professionalization in the sector and ensure that its implementation takes into cognisance meeting the highlighted need factors/potential benefits stated by the extension agents in order to ensure an improvement in extension service delivery in the study area.

Table 20: Principal component analysis of the determinants of perceived effect of extension professionalization on service delivery among public and private agents in South West Nigeria

	Factor 1	Factor 2	Factor 3	Communality
Effects				
Accountability in the extension profession	**0.713**	0.203	0.059	0.552
Clients(farmers) confidence and satisfaction	**0.772**	0.156	0.017	0.620
Maintenance of currency of knowledge and skills	**0.724**	-0.130	-0.173	0.571
Regulation of the extension profession	**0.704**	-0.011	-0.211	0.540
Extension service working conditions	**0.733**	0.043	-0.202	0.581
Sensitivity to accurately solving farmers need*	**0.732**	-0.054	**-0.320**	0.641
Integrity and ethics in the extension profession	**0.749**	-0.042	-0.169	0.591
Networking of professionals &peer group acceptance	**0.753**	-0.149	-0.163	0.615
Transparency in extension services	**0.750**	-0.260	-0.150	0.653
Specialization of Extension agents in service delivery	**0.741**	-0.225	0.115	0.613
Research culture and skills among extension agents*	**0.644**	-0.258	**0.431**	0.668
Elimination of lackadaisical attitude*	**0.732**	-0.151	**0.372**	0.696
Mechanism to manage risks demonstration of due diligence *	**0.765**	0.019	**0.386**	0.735
Mechanism and channels for feedback in extension services	**0.790**	0.023	0.293	0.711
Reduction of rifts between extension agents and farmers*	**0.614**	**0.461**	0.098	0.598
Identification and tracking of extension personnel identity*	**0.607**	**0.498**	0.155	0.640
Extension personnel paying more attention to details*	**0.637**	**0.397**	-0.148	0.586
Professional image of the extension profession*	**0.684**	**0.389**	-0.108	0.631
Quality and credibility of extension service	**0.727**	0.206	-0.070	0.576
Confidence of Extension agents	**0.735**	-0.038	-0.096	0.552
Enhancement of the decision making capabilities	**0.704**	-0.057	0.066	0.504
Job motivation	**0.716**	-0.175	-0.070	0.548
Strength of Extension Organization and Profession	**0.725**	-0.199	-0.122	0.581
Job satisfaction	**0.740**	-0.230	-0.029	0.601
Promotion of better and faster agricultural solution	**0.727**	-0.240	-0.028	0.586
Improvement in quality of information in the sector	***0.661***	0.035	0.106	0.450
Eigen Value	13.332	1.319	1.000	
Variance explained	51%	5%	4%	
Cummulative % of variance explained	51%	56%	60%	
Overall Cronbach's alpha = 0.96				
Bartlett's test of sphericity chi-value = 6199.021***				
Kaiser-Meyer-Olkin measure of sampling adequacy = 0.958				

Note: Factor loadings greater than ±0.30 are shown in bold print
Statistical Significance at $p \leq 0.01$ (***)
*** Effects that loaded under more than one factor**
Source: Survey data, 2016

4.10 Modelling the Determinants of Perceived Effects of Professionalization of Extension Services on Delivery

The determinants of perceived effects of professionalization on extension service delivery among the agents in the study area were estimated using Tobit and OLS regression models. The perceived effect index generated from the principal component analysis was used as dependent variable to determine the factors that influence the extension agents' perceived effects of professionalization of extension services on delivery. Findings show that there were slight differences in the quantitative results of the two models.

4.10.1 Factors influencing Perceived Effects of Extension Professionalization on Service Delivery using Tobit Regression

The Tobit regression results from Table 21 reveal that the likelihood ratio statistics as shown by the chi-square value are highly significant ($P < 0.000$) indicating that the model has a strong explanatory power. Variance Inflation Factors was used to test for multicollinearity among the variables and they were all below 10 with a mean value of 1.40. The result shows that marital status, educational qualification, household size, rural-urban background, knowledge, and attitude significantly influence extension agents' perceived effects of professionalization on service delivery hence the null hypothesis of the study (Ho_2) was rejected.

The coefficient of knowledge level (0.713; $p < 0.01$) of the extension agents had a positive and significant influence on their perceived effects of professionalization on service delivery. This is in line with apriori expectation. This shows that as the knowledge level of the extension agents' increases on professionalization concepts, their perception of the effect of professionalization of extension services on delivery also increases. This is consistent with Islam *et al.* (2013) who noted that the knowledge of extension agents in Bangladesh also had a positive significant relationship with their perception. This suggests that increasing the knowledge base of the extension agents on professionalization concepts will enhance their positive perception of its effects on service delivery and thus facilitate its full implementation and adoption in the area.

The coefficient of attitude (0.393; $p < 0.01$) conforms to the apriori expectation as it has a significant positive influence on perceived effects of professionalization of extension services on delivery. This shows that there is a direct relationship between the extension agents' attitude and their perception of the effect of professionalization on service delivery. This suggests that the display of favourable attitude by the public and private extension agents will lead to an increase in their perceived effects of professionalization of extension services on delivery. This is in consonance with Liu et al. (2005), Rezaei-Moghaddam and Salehi (2010) and Far and Rezaei-Moghaddam (2015) who all revealed that there was a positive and significant relationship between attitude and perceived effect or usefulness of an innovation. This implies that the favourable attitude exhibited by both the public and private extension agents towards professionalization and its components in the study area is a good omen that will facilitate the full acceptance and adoption of professionalization in the extension sector for more efficient service delivery as established by the Technology Acceptance Model.

The estimated coefficient of marital status (4.322; $p < 0.01$) shows a significant and positive influence on the perceived effect of professionalization of extension services on delivery. This implies that there is a positive and direct relationship between the marital status of the extension agents and their perception of the effect of professionalization on service delivery. This is expected as the marital status of extension agents shows that they are responsible adults who are supposed to be focused, committed and capable of taking decisions that will make them to be more efficient and professional in the discharge of their duties. This, however, disagrees with Ogunremi and Olatunji (2013) who stated that marital status of extension agents in Ondo, Nigeria is not significantly related to their perception on privatization which is also an important administrative concept in the agricultural extension sector.

The coefficient of household size (-0.758) was negative and significant at 10 percent level of significance implying that there is an indirect relationship between the household size of the extension agents and their perceived effects of professionalization of extension services on delivery. This suggests that as the number of household members reduces, responsibility at the home-front also reduces thus providing an avenue for more focus on extension work. This will

cause the extension agents to be more positively disposed and positioned to render efficient and professional services in the discharge of their duties as they will be faced with less distraction.

Furthermore in the model, the coefficient of educational qualification (1.964, $p < 0.05$) of the extension agents was positive and significant. This indicates that there is a direct relationship between the educational qualification of the extension agents and their perceived effects of professionalization of extension services on delivery. Marginally, an increase in the extension agents' level of education will lead to an increase in their perception of the effect of professionalization on service delivery by 1.964. This conforms to apriori expectation as an increase in extension agents' educational qualification will enhance their knowledge and cause them to better appreciate the benefits that professionalization will inject into the sector thereby increasing their innovativeness and rational disposition towards the effects of professionalization of extension services on delivery. Several perception studies have also pointed out educational level as a determinant of extension agents' knowledge and perception of innovations and agriculturally related contemporary issues (Adeola and Ayoade, 2011; Adesiji *et al.,* 2015; Oladele 2015b).

The extension agents' background was seen to have a reasonable contribution to their perception of the effects of professionalization on extension services delivery. The coefficient of background (1.482) was positive and statistically significant ($p < 0.05$) in the model. The result indicates that there is a direct relationship between the public and private extension agents' background and their perceived effects of professionalization of extension services on delivery in the study area. The background of the extension agents had the probability of increasing their perception of the effects of extension professionalization on service delivery by 1.482. This is expected as majority of the public and private extension agents are from the rural areas where agriculture is predominantly practised thus already exposing them to the terrain and making them better motivated to opt for an innovation such as professionalization that will enable them to render more effective and professional service to their clients.

Table 21: Tobit Regression Result of Factors influencing extension agents' perceived effect of professionalization on service delivery

Variables	B(SE)	t-stat	P > |t|	VIF
Information sources	0.050(0.085)	0.59	0.554	1.54
Knowledge level	0.713(0.130)***	5.47	0.000***	1.53
Attitude	0.393(0.030)***	13.01	0.000***	1.21
Barriers	-0.121(0.077)	-1.58	0.116	1.27
Age	-0.056(0.155)	-0.36	0.720	1.45
Gender	-0.048(0.789)	-0.06	0.951	1.05
Marital Status	4.332(1.473)***	2.94	0.004***	1.72
Number of Children	0.155(0.612)	0.25	0.800	1.42
Household Size	-0.758(0.451)*	-1.68	0.094*	1.08
Educational Qualification	1.964(0.804)**	2.44	0.015**	1.38
Years of Experience	0.065(0.151)	0.43	0.669	1.36
Living in Job location	1.171(0.833)	1.41	0.161	1.32
Number of Community	-0.036(0.352)	-1.01	0.314	1.50
Means of Mobility	0.666(0.814)	0.82	0.414	1.23
Distance Covered	0.068(0.064)	1.07	0.287	1.73
Rural-Urban Background	1.482(0.726)**	2.04	0.042**	1.58
(Constant)	-44.135(9.405)***	-4.69	0.000	
/sigma	6.328(0.238)			
LR Chi2 (16) = 576.69				
Prob > Chi2 = 0.000				
Pseudo R2 = 0.1991				
Log likelihood = -1160.1976				
Uncensored observations 355				
Left censored observation 1 (Minimum ≤ 42)				
Right censored observation 0				

Note: *, ** and * signifies significance at 1%. 5% and 10% levels respectively.**

Source: Field Survey, 2016

4.10.2 Determinants of Perceived Effects of Extension Professionalization on Service Delivery using Ordinary Least Square Regression

Table 22 reveals the Ordinary Least Square regression results of determinants of extension agents' perceived effects of professionalization of extension services on delivery. An R value of 0.89 showed that there was a strong correlation between the independent variables and the perceived effect of extension professionalization on service delivery. The model predicted about 79 per cent of the perceived effects of the extension agents and the F-value was statistically significant ($p<0.01$) showing that the model has a good fit. It was noted that the knowledge level ($t = 5.303$), attitude ($t = 12.733$) and educational qualification ($t = 2.037$) of the extension agents were significant at 1 per cent level of significance while their marital status ($t = 2.758$) and background ($t = 2.061$) were significant at 5 per cent level of significance implying that these five variables significantly determine the perceived effects of extension professionalization by extension agents in the study area hence the research hypothesis (Ho_2)was rejected. The coefficients of all the significant variables were positive implying that the explanatory variables all had a positive relationship on the extension agents' perceived effects of professionalization on service delivery.

The coefficient of the knowledge level (0.711) of the extension agents had a significant ($p<0.01$) and positive influence on the extension agents' perceived effects of professionalization of extension services on delivery. This indicates that a unit increase in the knowledge level of the extension agents will increase their perceived effects of extension professionalization on service delivery by 0.711. This implies that an increase in the knowledge level of the extension agents on the concept of professionalization will lead to an increase in the perception of the agents on the effects that professionalization of extension will have on service delivery.

The parameters of the extension agents' attitude (0.394) had a positive and significant ($p<0.01$) influence on their perceived effects of professionalization of extension services on delivery. This indicates that the exhibition of a positive attitude by the extension agents will also likely result in them having a positive perception of the effects of extension professionalization on service delivery. This is in agreement with Rezaei-Moghaddam and Salehi (2010) who revealed that

there was a positive and significant relationship between attitude and perceived effect or usefulness of an innovation.

Furthermore in the model, the educational qualification (1.721) of the extension agents had a significant ($p<0.05$) and positive influence on their perceived effects of extension professionalization on service delivery. A unit increase in the educational level of the public and private agents will lead to an increase in the perceived effects of extension professionalization on service delivery by 1.721. This indicates that there will be an improvement in the agents' perception of the effects of extension professionalization on service delivery as their educational qualification increases. This is supported by Oladele (2015b) who reported that extension officers' level of education positively and significantly impacted on their perceived effects of information access in South Africa.

The parameter of marital status (4.204) of the extension agents had a positive and significant ($p<0.01$) relationship on their perceived effects of professionalization of extension services on delivery. This indicates that extension agents that were married had a higher likelihood of positively perceiving the effects of extension professionalization on service delivery in the study area. This is attributed to the fact that a married individual usually expected to be matured in character and taking decisions that will positively enhance their growth and career productivity. Finally, the estimated coefficient of the background (1.539) of the extension agents positively and significantly ($p<0.05$) influenced their perceived effects of professionalization of extension services on delivery. This may result from the fact that majority of the agents have their backgrounds from rural areas which is the hub of agricultural activities and this attribute is expected to make them familiar with the terrain and the plight faced by rural farmers thus engendering in them the willingness to adopt strategies that will place them in a position to serve their clients better and more effectively.

Table 22: Ordinary Least Square estimates of the Determinants of perceived effects of extension professionalization on service delivery

Variables	B(SE)	T	p
(Constant)	-43.241(9.804)	-4.411***	0.000
Information sources	0.040(0.089)	0.452	0.652
Knowledge level	0.711(0.134)	5.303***	0.000
Attitude	0.394(0.031)	12.733***	0.000
Barriers	-0.114(0.080)	-1.434	0.152
Age	-0.054(0.160)	-0.340	0.734
Gender	-0.032(0.809)	-0.039	0.969
Marital Status	4.204(1.524)	2.758***	0.006
No. of Children	0.121(0.629)	0.193	0.847
Household Size	-0.721(0.462)	-1.561	0.120
Educational Qual.	1.721(0.845)	2.037**	0.042
Years of Experience	0.011(0.168)	0.064	0.949
Living in Job location	0.997(0.864)	1.154	0.249
No. of Community	-0.031(0.036)	-0.852	0.395
Means of Mobility	0.643(0.836)	0.769	0.442
Distance Covered	0.047(0.068)	0.693	0.489
Rural-Urban Background	1.539(0.747)	2.061**	0.040
F	81.217		
P	0.000		
R	0.896		
R square	0.803		
Adjusted R sq.	0.793		

Note: * and ** signifies significance at 1% and 5% levels respectively.**

Source: Field Survey, 2016

4.11 Confirmatory Factor Analysis (Structural Equation Modelling) on factors influencing professionalization

Confirmatory Factor Analysis (Structural Equation Modelling) was used in determining the hypothesized model of the inter-relationship that existed between the extension agents' constructs of knowledge, attitude and the components of their perceived effects on professionalization (i.e. accreditation, registration and certification) (Hypothesis 3). The findings from Table 23 show the confirmatory factor analysis (CFA) results of the relationship between the constructs of professionalization used in the study. The model fit indicators reveal that the chi-square statistic of the model is 214.297 and it is significant at $p = 0.01$. Although, this value seems not to indicate a great fit, however, according to Holtzman and Vezzu (2011), this is the general trend as chi-square analysis in SEM is widely seen to be problematic because of its sensitivity to large sample size. Therefore, the indication of a good model fit is preferably based on the utilization of other goodness of fit indicators.

The X^2/df for the model is 2.280 which is an acceptable fit as the value falls below the upper threshold of 5. The Root Mean Square of Approximation (RMSEA) value for the model is 0.06 and this indicates a good fit as it falls into the proposed range of adequate values (Hair *et al.*, 2010; Hu and Bentler, 1999). Furthermore, the Comparative Fit Index (CFI) is said to be an incremental fit index which evaluates the improvement of a proposed model over an independence model (Byrne, 2013). The CFI value of the model is 0.941 which shows an acceptable fit as it goes beyond the cut-off value of 0.90 (Zaremohzzabieh *et al.*, 2015). Other model fit indicators that were considered are the Goodness of fit index (GFI), Tucker Lewis Index (TLI) and Incremental Fit Index (IFI) whose values are 0.929, 0.925 and 0.942 respectively. All values of these indicators exceed the cut-off point of 0.90 (Hair *et al.*, 2010) thus revealing that the model has displayed a good fit for the data in the study. The entire indicators of the structural model all fall within the acceptable region thus showing that the model adequately represented the hypothesized relationship (Brown, 2006; Steiger, 2007; Hair *et al.*, 2010; Zhou and Abdullah, 2017).

Table 23: Summary of Model Fit for the Confirmatory Factor Analysis

Model	X^2	X^2/df	AGFI	GFI	CFI	RMSEA	TLI	IFI	AIC
Default	214.297	2.280	0.898	0.929	0.941	0.060	0.925	0.942	298.297
Independence	2161.225	18.010	0.260	0.347	0.000	0.219	0.000	0.000	2193.225

Source: Analysis of field survey, 2016

The findings from Table 24 reveal the unstandardized and standardized estimates (factor loadings) (Figure 4) of the model. The standardized factor loadings of the model are of greater interpretative importance and the square of each individual standard factor loading equals the squared mean correlation of the indicator (R^2_{smc}). On the overall, more than half of the standardized loadings have values of $R^2_{smc} < 0.50$ indicating that the model explains the minority of the observed variance for less than half of the indicators making the convergent validity of the factors seemingly doubtful (Kline, 2011), however, as revealed in Table 25, the correlations of the factors show very high and significant correlations between them.

Table 24: Standardized and Unstandardized Coefficient Estimate for Confirmatory Factor Analysis

Observed Variable	Latent Construct	B	SE	*β	$R^2_{smc}(*\beta^2)$
Know-1	Knowledge	1.000		0.432	0.19
Know-2	Knowledge	0.820***	0.173	0.425	0.18
Know-3	Knowledge	0.670***	0.183	0.283	0.08
Know-4	Knowledge	0.800***	0.188	0.354	0.13
Att-1	Attitude	1.000		0.501	0.25
Att-2	Attitude	1.315***	0.153	0.733	0.54
Att-3	Attitude	1.234***	0.139	0.820	0.67
Acc-1	Accreditation	1.000		0.670	0.45
Acc-2	Accreditation	1.051***	0.090	0.681	0.46
Acc-3	Accreditation	1.118***	0.092	0.711	0.51
Reg-1	Registration	1.000		0.748	0.56
Reg-2	Registration	0.968***	0.074	0.767	0.59
Cert-1	Certification	1.000		0.540	0.29
Cert-2	Certification	0.975***	0.118	0.562	0.32
Cert-3	Certification	1.422***	0.135	0.858	0.74
Cert-4	Certification	1.201***	0.116	0.825	0.68

B = unstandardized estimate; *β = standardized estimate; CR – Critical Ratio *** p<0.01

Source: Analysis of Field Survey, 2016

The results of the hypothesis testing of the correlated exogenous constructs of professionalization using the confirmatory factor analysis in Table 25 and Figure 4 reveal significant and strong positive correlations between the constructs of the extension agents' knowledge, attitude, and the components of accreditation, registration and certification confirming the existence of a relationship between the extension agents' knowledge, attitude and the components of their perceived effects of professionalization (i.e. accreditation, registration and certification) hence the hypothesis was rejected. The implication of this is that as the knowledge and favourable attitude of the agents' increases towards the concepts of professionalization, their perception of

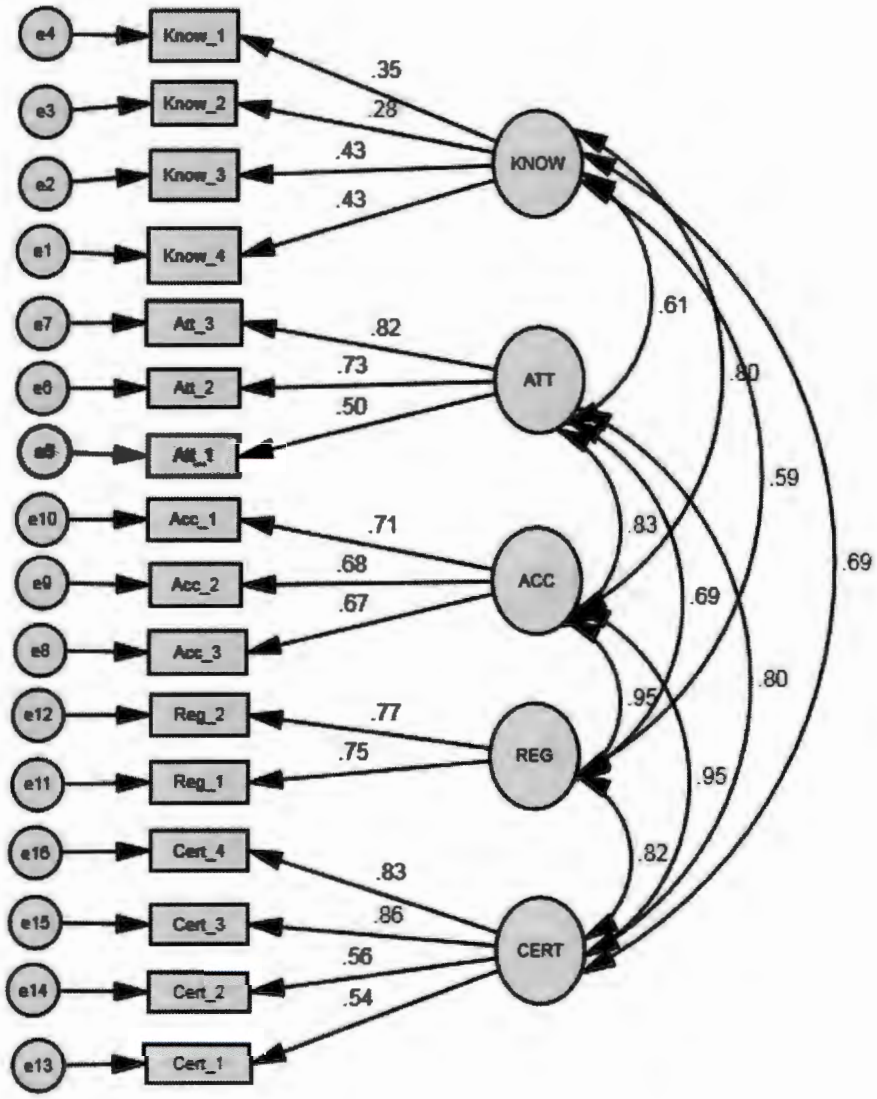
the effects it will have on service delivery will also increase hence facilitating the adoption and smooth implementation of professionalization on a full scale in the study area.

Table 25: Correlation Coefficient matrices between latent variables of the Confirmatory Factor Analysis

Variables	Knowledge	Attitude	Accreditation	Registration	Certification
Knowledge	1				
Attitude	0.605***	1			
Accreditation	0.804***	0.833***	1		
Registration	0.586***	0.691***	0.952***	1	
Certification	0.695***	0.796***	0.948***	0.819***	1

***** p<0.01**

Source: Analysis of Field Survey, 2016



Source: Analysis of Field Survey, 2016

Figure 4: Path Diagram of Confirmatory Factor Analysis of the Constructs of Knowledge, Attitude, Accreditation, Registration and Certification

4.12 Chapter Summary

This chapter provided a detailed overview of the results of the data analysis carried out in the study. It also discussed the findings of the research and their implications. A detailed description of the socio-economic characteristics of the public and private extension agents was given using descriptive statistics and t-test to compare the means of the two groups. Findings revealed that majority of the public and private extension agents were in their economically active age, males, married, experienced, with an averagely large household size and possessing higher national diploma educational qualification and above. Significant differences were observed in the age, household size, years of experience among others of the public and private extension agents in the area.

The chapter further revealed that five prominent sources of information were utilized by the public and private extension agents. The respondents' exhibited a high level of knowledge on the general concept of professionalization and its components. The public and private extension agents' attitude towards professionalization and its components across the study area was also favourable. The results of the effects of professionalization on service delivery among the public and private extension agents revealed in the chapter showed that the extension agents across the study area had a positive perception of the effects of professionalization of extension services in enhancing and improving delivery.

The chapter further presented the inferential statistics approaches (Principal Component Analysis, Tobit regression and Ordinary Least Square regression) of the factors influencing the perceived effects of extension professionalization on service delivery. Tobit regression model showed that marital status, educational qualification, household size, rural-urban background, knowledge and attitude significantly influence extension agents' perceived effects of professionalization on service delivery. Also, the Ordinary Least Square regression result of determinants of perceived effects of professionalization revealed that the knowledge level, attitude and educational qualification of the extension agents were significant at 1 per cent level of significance while their marital status and background were significant at 5 per cent level of significance. The significance of the variables of knowledge, attitude, marital status, educational qualification and rural-urban background in both models is an indication that these variables are

relevant and key influencers of the extension agents' perceived effects and will therefore have policy implications for the successful implementation of professionalization of extension services in the study area. The confirmatory factor analysis model also revealed a good model fit and indicated a significant and strong correlation between the constructs of the respondents' knowledge and attitude and the components of accreditation, registration and certification.

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

Professionalization of extension services which involves the accreditation, registration and certification of extension service providers remains an indispensable way to enhance competence, good work ethics, integrity, accountability and efficient service delivery. Empirical research studies in literature documenting issues relating to professionalization in agricultural extension and its effects on service delivery are very scarce. The need to tackle the problem of ineffective extension service delivery by ensuring the full implementation of this innovative comprehensive approach in Nigeria in line with the GFRAS global mandate of ensuring professionalization of extension service providers necessitated this study to analyse the perceived effects of professionalization of extension services on delivery by public and private agents in South Western Nigeria.

The study specifically described the socio-economic characteristics of the public and private extension agents in the study area, identified the sources of information on professionalization used by the extension agents, examined the knowledge of extension agents on professionalization of extension, evaluated the attitude of the extension agents towards the professionalization of extension providers in the study area, identified the barriers to the professionalization of extension service providers in the study area and determined the perceived effects of professionalization on extension service delivery in the area

The study was carried out in South Western Nigeria which comprises six states of Oyo, Osun, Ondo, Ogun, Ekiti and Lagos. The zone has an elaborate system of agricultural and extension organization informing the choice of the study area. A two-staged sampling procedure was employed in the selection of 356 public and private extension agents and structured questionnaire was used to elicit information from them. Descriptive and inferential statistics were used in analysing the data. Models fitted for inferential statistics were t-Test, Principal Component Analysis, Tobit regression, Ordinary least square regression and Confirmatory Factor Analysis.

5.2 Summary of major findings

The investigation of the socio-economic characteristics of the respondents revealed that the mean age of the public and private extension agents was 42.05years and 38.49years respectively. There is a significant difference in the mean age of public and private extension agents ($t = 3.77$, $p \leq 0.01$). More than two-third of the public (74.8%) and private (74.5%) extension agents in the study area were males and majority of the public (92.4%) and private (80.0%) extension agents were married. A significant difference ($t = 2.81$, $p \leq 0.01$) is observable in the average household size of about 6 persons for public agents as against 5 persons for private agents. Majority (84.0%) of the pooled respondents had Higher National Diploma (HND) certificate and above level of education, however, most of the public (82.1%) and private (80.0%) extension agents were not currently studying for a higher degree. The mean years of experience among the public and private extension agents were 12.54years and 8.36years with a statistical significant difference ($t = 5.53$, $P \leq 0.01$) in the mean years of experience of the two groups. Majority of the public (64.8%) and private (96.4%) extension agents respectively stated that they live in their job location while more than half of the public (58.1%) and private (52.7%) agents had a rural background implying that they were born and brought-up in the rural area.

Five prominent sources of information were utilized by the public and private extension agents. These sources of information which include forth-night Training Sessions, other extension agents, seminars and workshops, on-the-job trainings and extension publications were preferred and ranked differently by the public and private agents. A spearman's rank correlation with coefficient value of $\rho = 0.02$, $p = 0.897$ revealed that there is no significant relationship in the sources of information used by the public and private agents in the study area.

The respondents' knowledge level on professionalization revealed that both the public and private extension agents in the study area exhibited a high level of knowledge on the general concept of professionalization as well as on the accreditation, registration and the certification components of professionalization. However, significant differences in knowledge level were observed among the public and private extension agents on some of the accreditation, registration and certification statements.

The findings of the extension agents' attitude on extension professionalization showed that the public and private extension agents across the study area predominantly have a favourable attitude towards the general concept of extension professionalization. However, there were some significant differences between the attitude of the public and private agents on some of the attitudinal statements. Also, the public and private extension agents were in agreement with majority of the attitudinal statements on the accreditation, registration and certification components of professionalization. There were however significant differences in the disposition of the public and private agents on only 2 attitudinal statements on accreditation which are "accreditation will make extension work more stressful and cumbersome" ($\bar{X}_{pub} = 3.26$, $\bar{X}_{pri} = 2.95; t = 2.09, p \leq 0.05$) and "the standard of entry and practice in the extension profession will be raised through accreditation" ($\bar{X}_{pub} = 4.18, \bar{X}_{pri} = 4.00; t = 1.95, p \leq 0.10$).

The public and private extension agents indicated four (4) most severe barriers militating against professionalization of extension services in the study area. These include: insufficient number of extension personnel, inadequate financial backing for extension services, no legal act governing extension practice and inadequate conducive work environment. A spearman's rank correlation coefficient value of $\rho = 0.23$, $p \leq 0.10$ revealed that there is a significant relationship in the barriers militating against extension professionalization in the public and private extension organizations.

The results of the effects of professionalization on service delivery among public and private extension agents in the study area revealed that the extension agents across the study area in the public and private extension organizations had a positive perception of the effects of professionalization of extension services in enhancing and improving delivery. However, there were significant differences in terms of perception of the public and private extension agents on the effect of extension professionalization on service delivery on two statements which were "professionalization will enhance job motivation" ($\bar{X}_{pub} = 2.85$, $\bar{X}_{pri} = 3.18; t = 2.18, p \leq 0.05$) and "professionalization will improve job satisfaction" ($\bar{X}_{pub} = 2.98$, $\bar{X}_{pri} = 3.25; t = 1.95, p \leq 0.10$).

The study applied Principal Component Analysis, Tobit regression model and Ordinary Least Square regression model to model the principal component structure of the factors influencing the perceived effects of extension professionalization on service delivery. Tobit regression model showed that marital status ($p < 0.01$), educational qualification ($p < 0.05$), household size ($p < 0.10$), rural-urban background ($p < 0.05$), knowledge ($p < 0.01$) and attitude ($p < 0.01$) significantly influence extension agents' perceived effects of professionalization on service delivery. Also, the Ordinary Least Square regression result of determinants of perceived effects of professionalization revealed that the knowledge level ($t = 5.303$), attitude ($t = 12.733$) and educational qualification ($t = 2.037$) of the extension agents were significant at 1 per cent level of significance while their marital status ($t = 2.758$) and background ($t = 2.061$) were significant at 5 per cent level of significance implying that these five variables significantly determine the perceived effects of extension professionalization in the study area

In addition, confirmatory factor analysis was used to determine the relationship between extension agents' knowledge, attitude and the components of professionalization used in the study. The result showed that the entire indicators of the structural model all fall within the acceptable region thus showing that the model was a good fit and adequately represented the hypothesized relationship. Finally, the result of the correlated exogenous constructs of professionalization revealed significant and strong positive correlations between the constructs of the extension agents' knowledge, attitude, and the components of accreditation, registration and certification confirming the existence of a relationship between the extension agents' knowledge, attitude and the components of their perceived effects of professionalization.

5.3 Conclusion

The study showed that the public and private extension agents exhibited a high level of knowledge on the general concept of professionalization and its components, although, the private agents were more knowledgeable than their public counterparts. Furthermore, the public and private extension agents were largely in support of professionalizing extension services as they both had a favourable attitude towards professionalization and its components of accreditation, registration and certification. Public and private agents indicate similar barriers towards professionalization of the extension profession. Also, the public and private extension

agents across the study area in the public and private extension organizations had a positive perception of the effects of professionalization of extension services in enhancing and improving delivery. Knowledge level, attitude, marital status, educational qualification and rural-urban background were significant determinants of the extension agents' perceived effects of professionalization on service delivery.

5.4 Policy Recommendations

The results and analysis of the data collected in the study provide insight to the government, policy makers and agricultural extension administrators on the developmental strategy to leverage and embark upon in setting policies and guidelines that will enhance competence, integrity, accountability, ethical conduct and efficiency in extension service delivery in the study area through professionalization, the following policy recommendations were made based on the findings from the study:

1. There is the need to recruit more qualified extension agents especially females into agricultural extension services so as to reduce the shortage in personnel currently experienced which will aid effectiveness and professionalism in extension and advisory service delivery.
2. Extension agencies should focus more attention on channelling information related to extension professionalization through the highlighted frequently utilized and preferred sources of information.
3. There is the need for extension agencies to support continuous professional development for extension agents through training, acquisition of relevant higher degrees as stated in the requirements for professionalization.
4. Public and private extension organizations should improve the conditions of services by:
   sourcing for more funds both internally and externally in order to facilitate the sustainable implementation of professionalization;
   facilitating the establishment of policies and framework that will support and sustain the professionalization of extension services.

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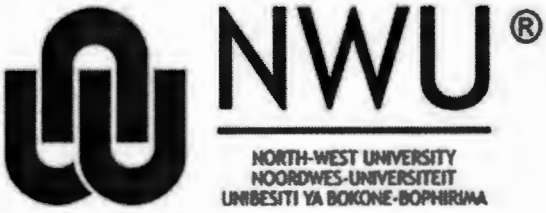
APPENDIX A



QUESTIONNAIRE

NORTHWEST UNIVERSITY MAFIKENG CAMPUS SOUTH AFRICA

DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION

Questionnaire number: ……..

State: ……..

Dear Respondent,

This questionnaire is designed for the study of **Perceived Effects of Professionalization of Extension Services on Delivery by Public and Private Agents in South Western Nigeria.** The questions are strictly for the purpose of this research. All information obtained will be treated with great confidentiality. Please, answer each question honestly and accurately as your participation in this exercise is crucial to the success of this study. Thank you for your anticipated cooperation.

Yours faithfully,

Olorunfemi, Oluwasogo David

Please Fill and Tick (✓) in the appropriate place where necessary.

Section A: Socio-economic Characteristics

1. Zone: _____
2. Local Government Area Covered: _____
3. Age of the Respondent: _____ years
4. Gender: Male ( ) Female ( )
5. Religion: Christianity ( ) Islam ( ) Traditional ( )
6. Marital Status: Single ( ) Married ( )
7. Number of children: _____.

8. Household Size: _____ persons
9. Educational Qualification: Sec. School Cert. ( ) College of Agriculture ( ) OND ( ) HND ( ) B.Sc ( ) M.Sc ( ) Ph.D ( )
10. Are you currently studying for a higher degree? Yes ( ) No ( )
11. If Yes, which higher degree OND ( ) HND ( ) B.Sc ( ) M.Sc ( ) Ph.D ( )
12. Average Annual Income: _____ naira
13. Years of Experience : _____ years
14. Current Job Level/Position: _____
15. Job location _____
16. Do you live in your job location area? Yes ( ) No ( )
17. State the number of communities you cover _____
18. State the number of farmers group you cover _____
19. What means of mobility do you use to visit your clients? Trekking ( ) Motorcycle ( ) Motor vehicle ( ) Others (please specify) _____
20. What is the average distance of your clients from your office _____ km
21. Rural-Urban background (i) Born in rural area ( ) (ii) Born in urban area ( ) (iii) Brought up in rural area ( ) (iv) Brought up in urban area ( )

Section B: Sources of Information Utilized

9. Indicate the sources of information and knowledge on professionalization utilized.

Information Sources	**Yes**	**No**	**Frequently Utilized**	**Occasionally Utilized**	**Rarely Utilized**
Television					
Radio					
Other Extension agents/colleagues					
Agricultural research Institutes					
Forth-night Training Sessions					
Extension Publications and Bulletins					
Seminars/Conferences/Workshops					

Internet					
On-the Job specialized trainings					
Journals					

Section C: Knowledge Level of Extension Agents on Professionalization

10. Kindly indicate your knowledge on the concept of professionalization of extension services by ticking the appropriate column below.

Professionalization Concept	**True**	**False**
Professionalization is a process of setting up policies and structures to guide the extension profession		
Professionalization signifies commitment by extension agents to maintain currency of skills and knowledge in the profession		
Professionalization ensures only extension agents that have met the professional required standards are certified by recognized professional bodies		
Accreditation of extension personnel is an essential criteria for professionalization of extension service		
Registration of extension personnel is an essential criteria for professionalization of extension service		
Certification of extension personnel is an essential criteria for professionalization of extension service		
Professionalization ensures appropriate regulation for extension service		
Accreditation is a channel of injecting more integrity and competence into extension service delivery		
Registration is a channel of injecting more integrity and competence into extension service delivery		
Certification is a channel of injecting more integrity and competence into extension service delivery		

Professionalization is a mechanism for ensuring that extension agents abide by the code of ethics set for the practice of the extension profession		
Professionalization is a mechanism to protect, promote and ensure extension service sensitivity to the needs of farmers		
Accreditation is a mechanism for quality improvement and assurance in extension service delivery		
Registration is a mechanism for quality improvement and assurance in extension service delivery		
Certification is a mechanism for quality improvement and assurance in extension service delivery		
Accreditation promotes accountability		
Registration promotes accountability		
Certification promotes accountability		
Accreditation promotes credibility		
Registration promotes credibility		
Certification promotes credibility		
Accreditation will improve standards of practice in the extension profession		
Registration will improve standards of practice in the extension profession		
Certification will improve standards of practice in the extension profession		
Professionalization ensures periodic quality review of extension personnel and the services they render		

Professionalization promotes efficient and effective use of resources and access to certified information on infrastructures and facilities for service delivery		
Professionalization legalizes extension practice		
Professionalization points out areas of improvement in extension service delivery		
Professionalization involves consistent monitoring, evaluation and assessment of extension services		
Professionalization sets a foundation for continuous improvement in service delivery		
Accreditation strengthens community confidence in quality of service delivery		
Registration strengthens community confidence in quality of service delivery		
Certification strengthens community confidence in quality of service delivery		
Accreditation ensures a disciplined, systematic and reliable approach to extension training		
Registration ensures a disciplined, systematic and reliable approach to extension training		
Certification ensures a disciplined, systematic and reliable approach to extension training		

Section D: Attitude on Extension Professionalization

11. Kindly indicate your agreement or disagreement with the following statements on professionalization of extension services.

Attitudinal Statements	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
Professionalization will improve the image of the extension profession					
Accreditation will improve the quality of extension service delivery					
Registration will improve the quality of extension service delivery					
Certification will improve the quality of extension service delivery					
Professionalization protects the interest of the extension profession					
Accreditation ensures high level of integrity and ethical conduct in the extension profession					
Registration ensures high level of integrity and ethical conduct in the extension profession					
Certification ensures high level of integrity and ethical conduct in the extension profession					
Conditions and demands of Accreditation will be too much for extension agents					
Conditions and demands of Registration will be too much for extension agents					
Conditions and demands of Certification will be too much for extension agents					
Extension profession in Nigeria cannot benefit					

from professionalization					
My Leadership and administrative capabilities will be enhanced through professionalization					
Professionalization will increase my productivity					
Professionalization will improve the linkage system between extension and other stakeholders in the agricultural profession					
Job satisfaction level of extension agents will increase as a result of Professionalization					
Professionalization will increase the workload and demand of extension agents					
Accreditation will make extension work more stressful and cumbersome					
Registration will make extension work more stressful and cumbersome					
Certification will make extension work more stressful and cumbersome					
The standard of entry and practice in the extension profession will be raised through accreditation					
The standard of entry and practice in the extension profession will be raised through registration					
The standard of entry and practice in the extension profession will be raised through certification					
Professionalization will improve the rights of farmers					
Accreditation will promote competent and need-driven extension service delivery					
Registration will promote competent and need-driven extension service delivery					

Certification will promote competent and need-driven extension service delivery					
Professionalization will bring about motivation and better work conditions					
Accreditation will enhance the much needed transformation in the extension sector					
Registration will enhance the much needed transformation in the extension sector					
Certification will enhance the much needed transformation in the extension sector					
Professionalization will make extension personnel to be more prone to chances of litigation from farmers					
Professionalization will encourage more team work, networking and collaboration in the sector					
Continuous knowledge upgrade and development will be encouraged through Accreditation					
Continuous knowledge upgrade and development will be encouraged through Registration					
Continuous knowledge upgrade and development will be encouraged through Certification					
Accreditation will increase the confidence of extension agents					
Registration will increase the confidence of extension agents					
Certification will increase the confidence of extension agents					
Accreditation will provide a proper foundation and sense of direction for the extension profession					
Registration will provide a proper foundation and					

sense of direction for the extension profession					
Certification will provide a proper foundation and sense of direction for the extension profession					
Professionalization is just a base for further initiatives to improve service delivery					

Section E: Barriers to Professionalization of Extension

12. Indicate the barriers militating against the professionalization of Extension Services in your area.

Barriers	**Yes**	**No**	**Very Severe**	**Severe**	**Somewhat Severe**	**A little Severe**
No legal act yet governing extension practice						
Insufficient number of extension personnel						
Inadequate financial backing for extension services						
Scepticism about the value of professionalization to extension services						
Inadequate conducive work environment						
Lack of employer cooperation						
Prohibitive entry requirements to institutions for further educational upgrade and training						
Lack of properly organized professional						

bodies in the extension profession						
Lack of needed morale and will power by stakeholders in the sector to take the profession to the next level						
Lack of coherent staff development plans by extension organizations						

Section F: Effect of Extension Professionalization on Service Delivery

13. Accreditation of Extension agents will improve service delivery? High ( ) Low ( )
14. Registration of Extension agents will enhance service delivery? High ( ) Low ( )
15. Certification of Extension agents will improve service delivery? High ( ) Low ( )
16. State your perceived effects of professionalization of extension in terms of accreditation, registration and certification in enhancing and improving service delivery?

Effects	**Greatly improve/ enhance**	**Improve/ enhance**	**Slightly improve/ enhance**	**Not Improve/ Enhance**
Accreditation				
Accountability in the extension profession				
Clients(farmers) confidence and satisfaction that professional quality assured standard is expected from extension personnel				
Maintenance of currency of knowledge and skills at all levels by extension agents				
Regulation of the extension profession				
Extension service working conditions				

Sensitivity to accurately solving farmers need				
Integrity and ethics in the extension profession				
Networking of like-minded professionals and peer group acceptance among extension stakeholders home and abroad				
Transparency in extension services and reduction in man know man issues				
Registration				
Specialization of Extension agents in service delivery				
Research culture and skills among extension agents				
Elimination of lackadaisical attitude among extension agents				
It will provide a mechanism to manage risks through demonstration of due diligence to assist in any litigation defence				
Reduction of rifts between extension agents and farmers				
Mechanism and channels for feedback in extension services				
Identification and tracking of extension personnel identity				
Extension personnel paying more attention to details				
Certification				
Professional image of the extension profession				
Quality and credibility of extension service				

Confidence of Extension agents				
Enhancement of the decision making capabilities of extension agents				
Job motivation				
Strength of Extension Organization and Profession				
Job satisfaction				
Promotion of better and faster agricultural solution				
Improvement in quality of information in the sector				

APPENDIX B
LETTER OF INTRODUCTION

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE BOPHIRIMA
NOORDWES-UNIVERSITEIT
MAFIKENG CAMPUS

FACULTY OF AGRICULTURE, SCIENCE & TECHNOLOGY

SCHOOL OF AGRICULTURE

Tel: 27 18 389 2746 Fax: 27 18 3892748 *Internet: htt://www.nwu.ac.za*

21th June, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Ma,

LETTER OF INTRODUCTION: OLUWASOGO DAVID OLORUNFEMI

Mr. Olorunfemi is a Postgraduate Student (Doctoral) of the above named institution with Student number 27591689 and his research is on **"Perceived Effects of Professionalization of Extension Services on Delivery by Public and Private Agents in South Western Nigeria."**

He will need your support and assistance on getting relevant information and data for his research work. All information obtained will be treated with great confidentiality and used strictly for research purpose. Kindly give him the needed assistance in this regard.

Thank you for your anticipated cooperation.

Kind regards,

Prof. OLADELE O. I.
Research Supervisor

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
MAFIKENG CAMPUS
DIRECTOR: SCHOOL OF AGRICULTURAL SCIENCES
2013 -06- 21
TEL. No: (018) 389 2702 / 2749
FAX No: (018) 389 2748
WEBSITE: www.nwu.ac.za

APPENDIX C

PICTURES

Cross-section of the researcher and extension agents during questionnaire administration

Extension agents filling the questionnaire at the Osun State ADP

Extension Agents filling the questionnaire at the Osun State ADP

The researcher at the FADU office after questionnaire administration

The researcher interacting with extension agents during questionnaire administration at the JDPM Osun State

The researcher at the JDPM office Osun State after questionnaire administration

The researcher at the Oyo State ADP office after questionnaire administration

The researcher at the JDPM office after questionnaire administration

The researcher at the Osun State ADP office after questionnaire administration

APPENDIX D

LIST OF PUBLICATIONS

The following manuscripts were extracted from the research presented in this thesis and are undergoing review process

1. Publication 1 – Chapter Four of the Thesis

Knowledge of Extension Agents regarding Professionalization of Extension Services: Evidence from South West Nigeria. *Journal of International Agricultural and Extension Education* (Undergoing review)

Authors: O. D. Olorunfemi and O. I. Oladele

2. Publication 2 – Chapter Four of the Thesis

Perceived Effects of Professionalization of Extension Services on delivery by Extension Agents in Nigeria. *Journal of the Saudi Society of Agricultural Sciences* (Undergoing review)

Authors: O. D. Olorunfemi and O. I. Oladele

3. Work in Progress on Publication 3 – Chapter Two of the Thesis

Professionalization of Extension Agents in Nigeria: Implication for Service Delivery. *Journal of Agricultural Education and Extension* (Tentative Publisher)

Authors: O. D. Olorunfemi and O. I. Oladele

4. Work in Progress on Publication 4 – Chapter Four of the Thesis

Engendering Ethics in Agricultural Extension: Constraints to the Professionalization of Extension Services in Nigeria. *South African Journal of Agricultural Extension* (Tentative Publisher)

Authors: O. D. Olorunfemi and O. I. Oladele

5. Work in Progress on Publication 5 – Chapter Four of the Thesis

Determinants of the Attitude of Extension Agents regarding Professionalization of Extension Services in South West Nigeria. *Journal of Developing Areas* (Tentative Publisher)

Authors: O. D. Olorunfemi and O. I. Oladele