

THE POTENTIAL OF INTERGRATING STRUCTURED EXPERIENTIAL
LEARNING INTO THE CURRICULUM AS A MEANS OF IMPROVING THE
AGRICULTURAL EXTENSION CURRICULUM: A
COMPARATIVE STUDY OF TWO PROGRAMS IN KWAZULU-
NATAL

BY

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DECLARATION

I, Bongiwe Thabile Masuku, declare that the work presented in this dissertation is mine. It has never been presented to any other university or institution. Where other people's works have been used, references have been provided, and in some cases, quotations made.

Student: Bongiwe Masuku

Signed -----

Date -----

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ABSTRACT

The training of agricultural extension graduates is an important contributor to agricultural development in both developed and developing countries. Extension workers help small holder farmers uplift their food production. In most African countries, the curriculum of agricultural extension institutions has been adopted from other countries. This causes higher education institutions to produce graduates with inadequate skills to meet the needs of African countries. With the transformation in South Africa, and the resultant unification of the extension system, the curriculum needs to be reviewed to meet the current needs of the employers.

This research explores the potential of including structured experiential learning into the curriculum with the aim of bridging the gap that exists within the extension training systems in South Africa. The alumni from two institutions, one with an unstructured experiential learning programme and the other with a structured experiential learning programme were interviewed to find out the skills that they feel are needed and whether those skills can be effectively taught during the academic training of students.

A convenience sampling method was used.

The employer's perceptions regarding the skills for effective extension work were also solicited. Both the alumni and the employers indicated that well planned and supervised experiential learning would help students acquire practical agriculture skills, and also orientate them to the new work environment. The educators indicated that the curriculum structure at times impedes the effective implementation of an experiential learning programme due to semester system and demands from other courses

The research revealed that for effective experiential learning, it is important that universities work with communities in development programmes and to forge links with the industry. Although service providers may be willing to offer experiential learning to students, they are also limited in terms of resources. They cannot always accommodate students from tertiary institutions as there are number of them requiring experiential learning opportunities.

Definition of Key Concepts

Cooperative Education: Is a program which formally integrates a student's academic studies with work experience in participating employer organizations. It is a strategy of applied learning which involves a structured educational program that combines productive relevant work experience with academic study and professional reflection. Cooperative education provides academic credit for structured job experience.

Extension: The term extension is a series of embedded communicative interventions that are meant, among other things, to develop and/or induce innovations which supposedly help to resolve multi-actor problematic situations.

Experiential Learning: Involves a direct encounter with the phenomena being studied rather than merely thinking about the encounter or only considering the possibility of doing something about it (Brookfield, 1983).

Service-Learning: Is a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development. Reflection and reciprocity are key concepts of service-learning.

Work Integrated Learning: Refers to applied learning that focuses on work experience where students acquire work-related skills under supervision and or mentorship of the workplace. It is a learning programme that focuses on the application of theory in an authentic, work-based context.

The relationship among the above concepts, except Extension, is that they all aim at exposing students to a real world of work during their academic training. These are all different forms of experiential learning exposing students to a direct encounter with the phenomena being studied, rather than merely thinking about the encounter, or only considering the possibility of doing something about it.

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CHAPTER 1

BRIEF OVERVIEW OF STUDY

1.0 Introduction

“Currently, the world is faced with two main food-related challenges: widespread hunger and malnutrition, and the mismanagement of natural resources” (Pinstrup-Andersen, 2002, p.6).

Malnutrition, a phenomenon that manifests itself in various forms, among which is hunger, vitamin and mineral deficiency, or even obesity, is a worldwide problem. While it is a global plight, malnutrition is excessive in the developing countries, as many of the people in these countries experience absolute poverty. Lack of access to basic non-food resources such as clean water, education, energy and health care services (Gutheri, 2003), for example, characterise such countries. These unfavorable conditions often cause serious health complications. Poor health, which may lead to poor education, for instance, means poor job prospects for the majority of people in developing countries (Gardner and Halweil, 2000). What complicates this issue is that half of the world’s population lives in developing countries, and yet that is where the rural sector experiences the prevalence of absolute poverty. A total of 800 million of the worlds’ population, the majority of whom in developing countries’ rural areas, is food insecure. This group of the world’s population often does not know where they will find their next meal (Pinstrup-Andersen, 2002). The majority of these rural poor people depend on land for survival (Rivera and Qamar, 2003).

The current global hunger crises, furthermore, demonstrates that the world is interconnected. It is within this context that the international partnerships for development are essential (Learner, 2008a). The Millennium Development Goals (MDGs) developed by the United Nations, for example, is one of the partnerships toward achieving sustainable development globally. Juma (2007a), for example, asserts that governments of the developed and developing countries should formulate food policies that will effectively reduce poverty and

ensure adequate food security for all people. These policies should place emphasis on long term economic growth and not on emergency interventions only. In response to these calls for governments to do something about development needs of the developing countries, the participants attending the World Food Summit in 1996, for example, comprised of high-level policymakers from more than 180 countries, including the many heads of governments. These delegates committed themselves to the goal of reducing the number of food insecure people by half to 400 million by 2015 (Pinstrub-Andersen, 2002). Such commitments demonstrate commitment to achieving food security for all. This, however, will, among other things, require access to resources by the poor, better technologies for producing and distributing food supplies, more efficient and accountable governance, appropriate strategies, relevant and effective policies and institutions in the areas of food production, and effective training by institutions designed to offer advanced knowledge in food production.

Educational training and support, nutrition, science and technology, natural resources, markets and trade, are also important contributors to sustainable livelihoods (International Food Policy Research Institute, 2005). It is for this reason that this study wishes to argue that agricultural extension education is key, for it is aimed at providing expertise and support in relation to food production and agricultural productivity, most particularly to rural and subsistence farmers (although often to commercial farmers as well). Within the context of South Africa and other developing countries, agricultural extension is seen as vitally important in tackling severe socio-economic challenges relating to food security. Training for such activities is conducted by Universities, Universities of Technology, formerly known as the Technikons in South Africa, and Agricultural Colleges, known as Community Colleges in the developed countries such as the United States of America.

My interest in the study emanates from the fact that I am involved in the training of agricultural extension workers in an institution of higher education that works closely with the national agricultural sector. I have experienced frustrations with the concerns that have been raised by the employers regarding the level of skills in agriculture and community development that tertiary education graduates exhibit when they leave the tertiary institution

and join the world of work. I am aware, furthermore, that this may affect my own position as a researcher regarding how I perceive the role of experiential learning in imparting the skills required by the employers from agricultural extension graduates. Extension graduates are supposed to exhibit skills that enable them to contribute to food security and other related challenges facing the world today.

In order to meet the 2015 target regarding food shortages, the South African Government has since 1994 been engaged in a number of development initiatives. Such initiatives aimed at poverty alleviation, and are engaged with in cooperation with other development agencies and governments of other developed and developing countries. Strategies to achieve such aims include, among other things, food aid, food entitlement approach, and /or food production approach to food security. Food Aid is one of the ways suggested in the Mandela Mission report regarding poverty in Africa (Suri, 2005 p.4). Mandela pleaded with the finance ministers of G7 countries (developed countries) to give more aid, debt relief and trade concessions to Africa. Paterson (2002) shares Mandela's vision in this regard, and further adds that the aid from the developed countries should be in the form of cash to those who need emergency relief, rather than providing food and shelter. Giving food aid to African countries is a popular concept in developed countries, since this is one way in which developed countries can get rid of their surpluses. However, providing aid in the form of goods and services will chase business away and, most disturbingly, locally produced food will be exported because the local people will not have enough capital to buy it (Peterson, 1997). Furthermore, other major problems associated with food aid, depending on the kind and source, are that they create an attitude of dependency, and are perceived as some kind of entitlement to people in the developing countries. While short term emergency relief is important to assist people and countries in need of food, Von Braun (2008) warns that a focus on short term crisis mitigation strategies alone will fail to address the root problems and to bring the needed resilience into a food production system.

Learner (2008a) asserts that, with so many people dependant on agriculture for their livelihoods, the strongest most powerful way to reduce poverty around the world is to devote more attention and resources to improving agriculture. In his words: “Promoting agriculture is imperative for meeting the MDG of halving poverty and hunger by 2015” (2008b, p2). Chakeredza, Temu, Saka, Munthali, Muir-Leresche, Akinnifesi, Ajayi and Sileshi (2008) further assert that Africa’s economic growth hinges on the development and promotion of a vibrant and sustainable agricultural production base. It is on these bases that this study argues that efforts toward sustainable agriculture are the key to sustainable food security, if the mistakes of the past are to be avoided. Owing to the complexity of agriculture, environment and food security issues, there should be an ongoing dialogue on these issues. Furthermore, Rukuni (as cited in Chakeredza et al., 2008) highlights the concept of prime movers of agricultural sustainability. One of the prime movers is the development of human capital in the form of professional and technical skills produced by investments in schools, agricultural colleges, facilities of agriculture, and on the job training and experience. This brings in the importance of the agricultural extension curriculum. Gasperini and Maguire (2001, p.2) state that:

...education and training are two of the most powerful weapons in the fight against rural poverty and for rural development. If education and training is to have the desired impact, it will have to open up to new stakeholders who will influence the content of curriculum, participate in management, and be instrumental in influencing government and business in order to provide the policy and material support needed to sustain a revitalization system.

Central to the effectiveness of agricultural extension programmes is the production of suitably qualified graduates who are technologically competent and equipped with relevant

skills (Chakeredza et al., 2008). This is crucial because there can be no improvement in graduates without concerted efforts to redress university curricula. This is particularly true in Africa, since most of the countries in this continent are considered to be developing countries, with large rural communities seriously threatened by food security issues. It is in this context that reforming the existing African universities and supporting the creation of new models of higher education is of prime importance. Lessons can be learned from the United States of America, since it has a long history of sharing its experience in using universities as engines of regional and community development. As universities in most countries are catalysts of development, this must also be true for Africa (Juma, 2007b). It is precisely on the basis of this reality that this study views extension as extremely important in addressing food security and poverty issues. When systematically and effectively provided, extension is also known to enhance social and economic development (Rivera and Qamar, 2003). More carefully differentiated extension strategies are therefore required if governments are to reduce poverty among the rural poor. Poverty, after all, is a multidimensional phenomenon, and so requires a differentiated response.

Within the South African institutions, this means that there is a need for the revitalization of agricultural extension curricula to align themselves with the National Qualifications Framework. This may contribute in the process of closing the gap between the different programmes for training agricultural professionals and to improve the output of agricultural graduates. Given the inequalities in the training of educators, reviewing and revisiting the strategies deployed to training extension program personnel may need to be given serious attention.

Should this be the route adopted by South Africa, the relevance of the current curriculum to the communities, industries, and other stakeholders, will need to be ensured. This means a regular review of the extension curriculum through informed research findings. It is in this context that it can be made responsive to the ever present and ongoing changes in South

Africa. This may involve ensuring that the designed extension curricula in higher education institutions are such that they focus on both agriculture and non-agricultural activities. This will help produce graduates who will be able to contribute to rural development, since agricultural services are used by governments as a policy instrument to achieve certain agricultural development goals and objectives (Bembridge, 1993).

Extension is a non-formal education function that applies to any institution that disseminates information and advice with the intention of promoting knowledge, attitudes, skills and aspirations, although the term tends to be associated with agriculture and rural development. Extension is now used in many fields, especially in the practical and vocational fields like agriculture and nursing, and other health related fields. “At the same time, extension is a political and an organizational tool that is used to facilitate development” (Rivera and Qamar, 2003 p.14). It combines educational methodologies, communication and group techniques in promoting agricultural and rural development

(Rivera and Qamar, 2003). Although extension covers agricultural and non-agricultural activities, the focus of this study will be mainly on agriculture.

On the other hand, extension education deals with strategic questions associated with the extension process. It collects and integrates, where possible, existing knowledge about the process of extension from other scientific disciplines, and adds to knowledge through extension research (Van Den Ban and Hawkins, 1988). It is also oriented toward long term goals, and is underpinned by principle based theories which guide the choice of methodological approaches, tools, and what is practiced within extension systems (Düvel, 1999). Extension uses different models based on different learning theories. Amongst the different models of agricultural extension used in developed and developing countries are three basic models:

- Technology Transfer;

- Farmer First model and;
- Participatory model.

These models are the fundamental underpinnings of the agricultural extension curriculum and extension teaching in higher education. These include universities, technikons and colleges of agriculture. In order to understand how we arrived at the participatory extension models used today in South Africa, it is important to briefly review the origin of extension and extension models in other countries, with an intention of learning from their experiences. This will be helpful in the process of modifying and applying them to the needs of South Africans.

1.1 The Purpose of Extension and its Different Models

The original purpose of extension has always been to improve people's quality of life through one means that has proven for centuries that it works: education. As part of the extension programme, for example, the technology transfer model played a significant role in the diffusion of technology from research stations to farmers and their families in a language they would easily understand. In the process, the technology transfer model regarded the extension worker as an expert and the farmer as a passive recipient of information. Since then, different views of extension have evolved, and this has resulted in the development of other extension models that give greater recognition to the knowledge of farmers. One of the lessons, furthermore, is that the changes in extension models go with curricula reform to make them relevant to local needs (Juma, 2007b).

Some lessons, moreover, can be derived from the experiences of the industrialized countries that pioneered most of the extension models. The understanding of the origin and the

differences in the models of extension will help the African countries, including South Africa, to look at these differences and, if necessary, adapt them to the local conditions. The knowledge of the extension model used in a country will shape the curriculum design, as well as the teaching of agricultural extension in higher education in that country.

1.1.1 Cooperative Extension System

It was out of the need and commitment to meet specific socio-economic needs relating to poverty alleviation and unemployment in the United States of America that the cooperative extension system was originated. Although it is specifically the brainchild of the United States of America, it became the most influential and successful extension model which has developed within a historical context and with a resource base that may not be available in other countries (Bembridge, 1993). It is for this reason that the cooperative extension is the largest institution of adult education in America that resulted from the discussions held by universities on how they could serve the educational needs of the rapidly growing population in the industrial urban area near their homes, rather than making them come to university for studies. The related aim was to transfer technology from the research stations to ordinary farmers in a simple language they could understand. As a result, the first practical "university extension" was established (Rasmussen, 1989). The Morrill Act of 1862 in America resulted in the establishment of land grant institutions, whose main function was to take learning to the farmers, and the Iowa State College and Model Farm did this with schools and short courses, both at and away from campus (Rasmussen, 1989).

The Land Grant Act of the United States of America, furthermore, enabled each state access to public land in order to establish a university to teach subjects related to agriculture and home economics. This was under the provision of the first and second Land Grant College Acts of 1862 and 1890. It is within the context of this Act that an opportunity for the children of working men to secure higher education was provided (Rasmussen, 1989). Those colleges became known as the Land Grant-Universities. Although the name Cooperative Extension

came about as a result of the Smith-Lever Act of 1914, the idea of information and know-how transfer in agriculture was taking place before Cooperative Extension was named and created by the Smith-Lever Act in 1914 (Pesek, 2001). The Cooperative extension system not only played a key role in transforming rural America, but also offered the world a new model for bringing knowledge to support community development (Juma, 2006). Today, agricultural extension is a highly developed sector in all industrially advanced countries (Bembridge, 1993).

It therefore goes without saying that African countries have an opportunity to also draw some lessons from the cooperative extension model which they can use to transform the curricula of agricultural extension. The relevance of cooperative extension comes from the fact that in Africa, there is a need to transform higher agricultural training institutions into producing graduates who have

...a solid grounding in the scientific and technical principles that underlie practice as well as the practical experience critical to developing confidence coupled with a generalist preparation that will enable them to develop holistic solutions to the problems that they will encounter in their careers (Chakeredza et al., 2008, p.328).

The lessons to be learnt from the land-grant universities are that they still work on three main components:

- Teaching;
- Research and;
- Extension (Jones, 2002 personal correspondence).

These institutions had close partnerships with the agricultural experimental research stations which helped them in advancing research. The partnerships between higher education, industry and other stakeholders, most importantly, are still relevant today. Besides the benefits for the institutions that are in partnership with the government and communities in terms of funding and relevant information from research stations, there are also benefits for students in terms of the quality of education they receive. This is because the extension approach that linked the university with the farmers became known as the technology transfer model, as the scientists transfer the technology to farmers. Both public and private institutions, furthermore, support extension and extension-like activities, and this is termed a Cooperative Extension Service. This was a cooperative effort between the Federal and State governments, each contributing part of the money (Pesek, 2001).

Even though some lessons can be drawn from the information background on the origins and the models of extension in other countries, it is important to point out that the United States of America is still the only system world wide in which the main extension function remains within the university (Nagel, 1998). Among several countries, South Africa is still in the process of developing extension models that are appropriate for the South African situations (Düvel, 2004). As the universities in South Africa are also expected to operate on three legs, namely: teaching, research and extension, some lessons can be drawn from the experiences of cooperative extension service. The extension system of developing countries differs from that of developed countries in many respects, and to this I turn in the next section.

1.1.2 Technology Transfer in the Developing Countries

Most of the developing countries, including South Africa, had to adopt the technology transfer model of extension at the insistence of the World Bank. As a result, extension in many developing countries has tended to emulate the United States of America extension system of technology transfer, with some modifications and varying degrees of success (Coombs and Ahmed, 1980; Bembridge, 1993). The organization of extension work became important after the Second World War in the developing countries. Agricultural extension,

furthermore, largely grew out of the rural administration of the colonial governments (Baxter, Slade and Howell, 1989; Bembridge, 1993). The work of agricultural officers, during the colonial era, was mainly concerned with revenue collection and enforcement of regulations on such matters as soil conservation and animal health (Baxter, Slade and Howell, 1989).

Governments of the developing countries, on the other hand, adopted varied ways of providing extension services to their communities, depending on the objectives of that country. Like the Cooperative Extension System, the technology transfer model operated on the premise that the function of the scientists was to determine research priorities, and generate innovations they believed to be suitable for farmers. The scientists would then make research results available to extension agents, who in turn would eventually disseminate information about research results to farmers (Chambers, Pacey and Thrupp, 1993). The assumption was that, "in order to achieve development, modern research results had to be transferred to the traditional farmer" (Nagel, 1998, p.2). It is this context that the main objective of this model was to persuade and help farmers increase production by adopting improved technical practices. It also aimed at improving rural family life by teaching home economics to women, and to creating modern young farmers through youth clubs of the 4-H type. The four Hs mean improving the Head, Heart, Hands and Health (Coombs and Ahmed, 1980).

The technology transfer approach to agricultural extension is not concerned with directly generating knowledge, but takes the knowledge generated in specialized institutions such as agricultural research centers and agricultural colleges, and makes it available to farmers. This makes agricultural extension the process in which knowledge is communicated in a variety of ways to the farm family. Such a process is usually guided and supported by an extension agent who works at the program and project level, and who is in direct contact with farmers and their families. This is contrary to what happens in developing countries, where extension

was centrally directed and top down in nature. This means that there was little farmer participation in the design and content of extension work (Baxter, Slade and Howell, 1989).

For the administration of technology transfer in the developing countries, the World Bank supported the reorganization of agricultural extension services based on the Training and Visit System (T&V system) developed by Daniel Benor of Israel (Kum and van Crowder, 1996) . The T&V system is ministry based, and its main function was to create a single unified national system of extension, which is managed by the government departments of agriculture (Kum and van Crowder, 1996). The T&V system is designed for agricultural systems that are characterized by large numbers of small scale farmers using low technology and, in most cases, traditional methods (Bembridge, 1993).

Technology transfer in the rural developing countries, on the other hand, tended to be more bureaucratic. This bureaucratic nature of extension administration is largely associated with the failure of extension in most developing countries. New technology, which automatically necessitates the increase of bureaucratic processes, was imposed on the developing countries by the industrialized countries. As a consequence of such imposition, people in developing countries did not take ownership of the new technology, which caused the extension projects designed to implement the new technology in the developing countries to fail (Chambers, Pacey and Thrupp, 1993).

Research on the new methods of extension and agricultural education, as a result of such failures, has been on going. After their emergence out of such research, these methods encouraged active participation of farmers in the development of new technology, a state of affairs that changed their status from being passive recipients of new technology from the developed countries to active participants in the processes affecting their own country and community (Chambers, Pacey and Thrupp, 1993). In the next section I turn to a discussion

of some of the benefits of extension endeavors of involving the people in technology development.

1.1.3 Farmer First and Farming Systems Research and Extension

From a top down technology transfer model, an alternative was developed to enable the scientists to collaborate with farmers in developing new knowledge: the farmer first model. This model allowed the scientists, through research and in consultation with the farmers, to develop new knowledge. In the transfer model, indigenous knowledge was not taken into consideration. As a consequence, resource-poor farm families and conditions have been less well served by agricultural research than have resource-rich farmers. This is because most research in the developing countries has focused on commercial farmers and the technology developed benefited large scale farmers rather than small-scale farmers (Chambers, Pacey and Thrupp, 1993).

In response to the shortcomings of the technology transfer model, the farmer first model recognizes the farmer as a researcher because he continuously experiments, adapts and innovates (Chambers, Pacey and Thrupp, 1993). The main objective of the farmer first model is to empower farmers to learn and create better situations for themselves, rather than being passive recipients of new technology (Chambers, Pacey and Thrupp, 1993). On the other hand, the concept of farming systems research and extension model was applied to several activities which focused on the small-scale family farmers who did not benefit from the earlier organized research and extension system. The farming systems concept analyzed the situation of a farmer and recognized that some of the technology developed from research stations might not be applicable to them because they did not fit in with cultural norms (Bembridge, 1993). Bembridge further proposed the adoption of the farming systems research and extension together with the participatory extension model and with some adjustments.

1.1.4 A Participatory Model of Extension

Although various and distinct agricultural extension reforms have occurred, there is always a need to improve and adapt extension in response to the changing needs of the society and to accommodate new developments. The function and tasks of extension are increasingly assumed by multiple public and private organizations like non-profit, non-governmental organizations, for-profit private companies, rural producer organizations, private advisers, as well as national, state and municipal extension services (Rivera and Qamar, 2003). Participatory models are therefore essential so as to include all the stakeholders and for effective implementation of sustainable development.

It is on these bases that the participatory model emphasizes the involvement of key stakeholders in a cooperative and flexible process that facilitates the implementation of activities to achieve practical improvement. This required the reviewing of all existing practices, institutions and values, as higher education plays a central role in the social, cultural and economic development of modern societies (DoE, 1997). The participatory approaches to agricultural extension include Rapid Rural Appraisal, Participatory Technology Development, and Farming Systems Research and Extension methods discussed in the previous chapters.

Participatory rural appraisal is a fundamental extension method where the respective roles of extension agents and clients are interchangeable. In the process, the agent is no longer seen as the expert who has all the useful information and technical solutions. The clients' own knowledge and ingenuity, individually and collectively, are recognized as a major resource. There is therefore a need for the setting up of new priorities and the building of knowledge systems based on problem solving, rather than on information transfer (Nagel, 1998). It is in this context that there have been rapid developments and the introduction of the use of "Soft

Systems" extension methodologies. The objective of the soft systems approach to agricultural extension is to respond to the professionalism that is emerging in systems management, and participatory research and extension systems in the rural areas of poor nations (Coombs and Ahmed, 1980).

1.2 Concerns about the Agricultural Extension Curriculum

The greatest concern for the extension industry, policy makers and other stakeholders is the great variation in basic academic qualifications in agricultural extension, especially in developing countries. The differences in these qualifications can be partly attributed to the ways in which extension was introduced into the developing countries. The influence of political systems of the world contributed and with regard to this, Chakeredza et al. (2008) point out that the training of agricultural professionals in Sub-Saharan Africa is predominantly based on curricula adopted from countries that had colonies in Africa.

Needles to say, the curricula were founded on an agricultural philosophy by the colonizing powers and policies that aimed at production of cash crops for consumption by the colonizing countries. Zinnah, Steele, and Muttocks (1998) point out that one of the major problems that impedes the effectiveness of extension services in Africa is the low level of training of a large proportion of extension staff. Zinnah et al. (1998) further state that consistently unresponsive universities and colleges rarely offer extension training programmes that address the changing demands of the work environment. As a result, the training departments of ministries of agriculture generally run *ad hoc* in-service training programmes that do not prepare extension staff adequately to deal with complex agricultural problems.

In South Africa, the variation occurs both between the qualifications and within the qualifications. For instance, the Bachelor of Science in Agriculture degree (BSc.Agric) was

developed for graduates who were being prepared to work with commercial white farmers, while the Bachelor of Agriculture (B.Agric) degrees were introduced for the training of black graduates from the former homeland areas who were to work with small-scale farmers after graduating (Njobe, 2001). There is also variation within the qualifications, and this goes along with variations in institutions. Some institutions, especially historically white institutions, have a high prestige education compared with the historically black institutions. Graduates may have the same qualifications, for example, a BSc Agriculture degree, but where the qualification was obtained has an impact on the employability of the graduates. This is evident amongst the extension workers because of the differences in training systems brought about by the apartheid system in South Africa, and by the colonial rule in other developing countries. Consequently, this leads to deficiencies in knowledge, skills and ability among extension personnel. These deficiencies are common among the extension agents of Asia, Africa, and Latin America (Halim and Ali, 1998).

1.3 The Transformation Process in Agricultural Extension

In order to redress these imbalances in education, the tertiary institutions in South Africa have undergone a number of changes in their admission policies and curriculum development. Owing to the differentiation between Historically Black Institutions (HBIs) and Historically White Institutions (HWIs) in South Africa, a number of government policies have been put in place to readdress these imbalances like access to higher education for all, recognition of prior learning, and a number of laws that are aimed at aligning education in South Africa will be discussed in later chapters. The process of unifying qualifications has been in progress, and many qualifications which affected equality in education are being phased out in many universities, the process accompanied by the introduction of new qualifications. However, these do not go on without challenges and problems. For instance, one of the major problems facing higher education is the high drop out rates and poor throughput and graduation rates (Badat, 2001). With regard to academic research output, there is very little.

The process of transforming the dualistic nature of the South African agricultural extension service to a single amalgamated agricultural extension service needs a strong knowledge support system, as well as greater emphasis on professionally qualified extensionists in the recruitment of extension staff (Düvel, 2004). The unification of the extension system also brings with it a change in the extension focus from white commercial farmers to one almost completely focused on previously disadvantaged small-scale farmers (Düvel, 2004). At the same time, the improvement in the quality of extension workers is also an important element of the transformation process. The academic institutions are also required to review their curricula and search for the best methods of improving the quality of their graduates. Chakeredza et al. (2008) emphasize that this is the time for tertiary institutions to produce a new form of agricultural graduates with special qualities. It is important to establish if the skills required by the employers can be effectively developed during the academic training of the extension graduate. The information obtained from this study will help to answer the questions related to skills and serve as a guide in developing an appropriate curriculum based on the correct theoretical framework. In the next section I turn to a discussion on possible ways in which the teaching and learning in the curriculum of agricultural extension in higher education can be improved.

1.4.1 Suggested Approaches to Agricultural Extension Training

Chakeredza et al. (2008) suggest that the process for curricula review should include faculty, students and external stakeholders. Zinnah et al. (1998), furthermore, points out that a precondition for innovative thinking about curricula is stakeholders' agreement and action on a common vision. Compared with the former curricula, which were based on foreign ideas, the first step of curricula reform should be the identification of the needs of African farmers and extension workers, and this makes stakeholders' participation fundamental. Such participation, moreover, needs serious attention when one considers the fact that the new demands to produce graduates for a globally competitive economy and to contribute to the

reconstruction and development needs of society impacted directly on the curriculum of higher education in South Africa (Luckett, 2001).

It is for this reason that the curriculum change has to address the needs for transformation from Mode 1 to Mode 2 knowledge production, and this why there has been a shift from Mode 1 to Mode 2-knowledge. Mode 1 knowledge is defined as hierarchically structured and coded according to the canonical rules of specific disciplines. On the contrary, Mode 2 knowledge production is based on the critical conception of curriculum which emphasizes the continuous construction of curriculum by the learner and lecturer during their interaction (Cornbleth, 1990). Mode 2 knowledge is non-hierarchical, inter-or trans- disciplinary, conceptualized and socially responsive (Gibbons, Limoges, Nowotny, Swartzman, Scott and Trow, 1994; Luckett, 2001). Higher education institutions have been further challenged to move away from being solely concerned with preparing students for entrance only to preparing them for becoming responsible citizens by transforming the institutions themselves to meet the needs of the development path aimed at satisfying the needs of the majority of the people (Subotzky, 1999).

In spite of the differences between the HBIs and HWIs in South Africa, and academic training units in agricultural extension, all have used a traditional curriculum, with some differences in the content. The BSc degrees and the Bachelor of Agriculture, for example, are the case in point. As indicated in the previous sections, most black students read for the B Agric degree. While these students were trained to serve small-scale farmers in rural areas, their white counterparts were either studying in order to be able to manage the family farm or to work within large scale commercial farming.

Currently, however, there are efforts to combine the old and the new curriculum in the teaching process. The way the sequence of the courses is structured resembles mastery

learning, which sometimes impedes the effectiveness of the teaching methods designed to integrate theory with practice. Here, students are put on a rigorous three-year fulltime program. The assumption is that after a three year academic training, the graduate will have mastered the learning and is expected to transfer the skills to farmers, thus the term: technology transfer. The mastering of the skills is done during the professional training of the agent at university or college. The other element of the process includes the communication of technical knowledge. The graduate is also expected to know how to use the knowledge for the benefit of the farm family. Training in agricultural extension is therefore an equally important aspect of the training of an agent who wishes to work with farmers (Oakley and Gaforth, 1985).

In South Africa, the traditional Universities, Universities of Technology (formerly known as Technikons) and Agricultural Colleges offer professional agricultural extension training. In the former homeland governments, each homeland would have at least one college of agriculture in order to service the needs of the people of that area. Agricultural Colleges of the former homeland areas, to name a few, were: Fort Cox in the former Ciskei, Tsolo College in the former Transkei, Owen Sithole College administered by the former Kwa-Zulu Government, and Cedara College which serviced the needs of white commercial farmers. The training offered by these agricultural colleges is a form of service-learning because most of the students studying in these colleges are employed and funded by the departments of Agriculture and others are running family farms.

All these institutions have very strong experiential learning component. In other countries, agricultural extension training is also offered by the Universities, Polytechnics (an equivalent of the former technikons in South Africa) and Community colleges. The contribution toward meeting the needs of the rural people made by these institutions cannot be underestimated since the training provided was suitable for the farmers in context. However, Kraak (1997, p.69) refers to the categorization of the institutions highlighted earlier as the “flawed Van Wyk De Vries binary divide which historically has allocated roles in institutions on the basis of a rigid academic/theoretical or practical/vocational divide”. Therefore, institutions of

higher learning have a task of reshaping their curriculum in line with the new trends in education.

What has been discussed so far indicates clearly that there are a number of changes that have taken place in South Africa. These are transformation in education in general, the new modes of knowledge production, and the unification of the dualistic agricultural system. Changes that have occurred since the 1994 elections. Currently, the higher education sector is faced with a number of challenges. These include the new technology, especially telecommunications, other knowledge producers such as in the workplace, taking over more of the research and development function and education providers. One of the examples is the new commercial education providers that have entered the higher education sector, and have strong vocational dimensions and compete with universities and other public institutions. This affects higher education directly since students now have a wider choice of higher education institutions. The other challenge is that knowledge is now produced in a variety of organizations, especially non-governmental ones. As a result, this has a direct impact on the higher education curriculum. Higher education is now forced to focus on the teaching and learning of "general transferable skills" (Lockett, 2001). The vehicle for this transformation is the South African Qualifications Authority, the body which sets the standards of educational outcomes in South Africa, and which ensures the development and implementation of the National Qualifications Framework, (NQF). This framework contributes to the full development of each learner, and to the social and economic development of the nation at large (NQF).

1.5 The Problem Statement

There is a need to improve the extension curriculum in South African higher agricultural education institutions in order to equip graduates with relevant skills that are required by the employers, and to make the curriculum responsive to the rapidly changing market for agricultural graduates. This could perhaps be achieved through the incorporation of

participatory methods of teaching that expose students to a real world of work, instead of just traditional classroom-based teaching methods. Experiential learning in the form of work-based learning and service learning methods that integrate the theory with the real world situation may help to expose extension graduates to a real world of work and practice that they have learnt in class.

The other concern is the inequality in the South African Higher education institutions between the HWIs and HBIs institutions that offer agricultural extension training. These inequalities have an effect on the development of the institutions. The important characteristic of the white institution's agricultural extension is that it is closely linked with industry and communities. The Community Higher Education Service Partnerships (CHESP), for example, is a partnership approach to community development, which aims to meet community priorities through transformation within the community, higher education and service sectors through transforming the relationship between these sectors by promoting service learning projects in higher education institutions. The aim of the project was to develop and research pilot academic programs which will give expression to the mandate of the White Paper 3 on Higher Education Act of 1997 (JET,1999). It is the majority of the HWIs that participated in the pilot project, and still continue to participate. This assisted them gain strong linkages with teaching, research and community engagement. Most of these institutions, furthermore, have well structured experiential training. These training programmes may contribute positively to their students in terms of how the employers perceive graduates from these institutions in comparison to graduates from institutions without organized or structured experiential training.

It is within this context that the first objective of this study is to investigate the skills required by employers of agricultural extension graduates from institutions of higher learning, with a particular focus on whether being exposed to experience or not, seems to influence the acquisition of skills needed. The second objective is to explore if such skills are effectively

taught during the academic training. Finally, there is a need to explore the role that experiential learning can play within the curriculum, and what possibilities are available for integrating work-based learning into the curriculum.

1.6 Educating for Quality in Agricultural Extension

Franz (2007) believes that, although extension is based on various theories of adult education, the theories that best support the transformation of extension are grounded in the critical perspective focused on power, ethics, lived experiences and emancipation. Franz (2007) further argues that the connection with theory is especially important, for extension systems work towards organizational transformation to create more participatory and democratic learning. A graduate degree program is one of the formal education mechanism by which individuals can acquire education and professional development (Galbraith and Zelenak, 1989). Grabowski and Knox (as cited in Galbraith and Zelenak 1989) suggested that:

all adult educators need to possess an understanding of the field of adult education, of various aspects of adult development and learning, and of the development of learning, the effectiveness of interpersonal relations and desire for improvement of practices through innovative strategies (Galbraith and Zelenak, 1989 p.124).

Other abilities include possessing communication skills and the ability to evaluate and appraise a program. Students, furthermore, require in depth knowledge in the theory and practice of adult learning, and must also be prepared to continue their own education. It is in this context that the purpose of professional development is to help the practitioners to acquire the knowledge, skills, attitudes, and behaviors needed to achieve the purpose of the job, and this will benefit students. Effective training must therefore be grounded on all the relevant theories of learning in order to change the action, belief, and knowledge components of a trainee simultaneously (Halim and Ali, 1998). Chakeredza et al. (2008) assert that the training of agricultural graduates should emphasize the importance of entrepreneurial skills,

including actual experience in planning and operating a productive enterprise as a means of preparing graduates for careers in the private sector, especially as independent entrepreneurs.

This study coincides with the South African National Department of Agriculture's plan to develop a National Agricultural Education curriculum that will be researched by one of the universities in collaboration with some of the service providers. This agricultural extension framework will inform the provincial extension education strategies in all the provinces. This will be a computer-based system piloted in about three regions (Ntlokwana, personal communication, May 12, 2002). This is an indication of the severity of a need for an improved extension curriculum. The lack of an extension framework in a country like South Africa indicates the discrepancies that existed in the past training of agricultural extension. This research forms the basis for the development of an informed curriculum which will respond to new challenges of agricultural extension.

1.7 Purpose and Objectives of the Study

The intention of the study is to achieve the following objectives:

- To explore the perceptions of the alumni/graduates regarding different forms of experiential learning in the agricultural extension curriculum and the impact on imparting skills required by employers;
- To explore the relevance of agricultural extension curriculum, with a particular reference to experiential learning aspects and the impact on imparting skills required by employers;
- To establish the perceptions of employers regarding the skills required for an effective agricultural extension worker;
- To establish from the alumni/graduates how effectively skills were taught during their academic training and;

- To establish the perceptions of educators regarding the curriculum and the experiential learning of students.

The study links experiential curriculum to the more traditionally taught curriculum in which theory is taught in class and a student is required to master the hierarchical levels by comparing the experiences of the alumni who went through a structured process of experiential learning, with the experiences of those with an unstructured process of experiential learning. This is why the investigation of the effectiveness of different forms of experiential learning and the potential of integrating it into the curriculum is the focus of this study.

1.8 Rationale

As Universities of Technology have been associated with offering vocationally orientated education to a society experiencing a dire manpower shortage in the technical and managerial skills (Koen, 1996), they need to communicate better their value to society and inculcate a holistic problem solving approach. The universities of technology are in a prime position to provide skills in agricultural extension and sustainable development. They should also aim to provide professional training that will help learners acquire knowledge and skills in order to be capable of mastering situations that may arise in the profession they train for.

The South African higher education institutions are in the process of searching for relevant intervention strategies to improve the quality of their students. Experiential learning is receiving more emphasis than previously. This is the reason different institutions use different approaches to experiential learning. As a means of making Higher Education policy and practice more relevant to the community, the Education White Paper 3 (DoE, 1997) made it a requirement that the higher education institutions engage in partnerships with communities and service providers. Collaboration between the institutions is also important in improving the quality of education through research and engagement. Given the need for

higher education to transform their curriculum and to collaborate with other stakeholders in community engagement, there is also a need for research into the models of curriculum restructuring.

1.9 Importance of the Study

If all parties regard experiential learning as an investment in the future, it is important to analyze the impact of experiential learning. There are a number of reasons the analysis of experiential learning is important. Experiential learning requires time, money, resources and commitment from the learning institution, the providers of experiential learning, as well as from the students. The parties committed to experiential learning should be able to answer the question about the relationship between the cost of learning and the benefits each party receives from such learning. The tool usually used to track the impact of training is the Return on Investment (ROI). The returns need not be in monetary value. In this case, the returns may be in agribusiness or enhanced quality of life of the rural people due to the involvement of students from higher education institutions.

The aim of the study is also to establish whether stakeholders consider those skills acquired through experiential learning to be effectively taught during academic training. Research from other countries reveals that it can be difficult to sustain experiential learning over time, unless it becomes central to the educational purposes. After 1994, the South African higher education institutions had to respond to the call to transform their curricula. Experiential learning is seen as an important component of the curriculum development. Although there are different terms used to define experiential learning, the main aim is to try and describe a curriculum that will enable learners to become involved in activities that recognize human and community needs together with structured opportunities intentionally designed to promote student learning and development (Hay, 2003). There is also a need for applied competence and integrated assessment, both of which suggest a move toward preparing students for Mode 2 knowledge production (Lockett, 2001). In the field of agricultural

extension and rural development, there is also a need to develop an appropriate extension model for agricultural and rural development in South Africa (Düvel, 2004).

It is on the basis of this background that this study is undertaken and the findings will contribute to the improvement of agricultural extension and rural development. It is hoped that it will also assist higher education agricultural institutions to improve teaching and learning, thus advance the quality of graduates by integrating the appropriate model of experiential learning based on the students' needs.

The research questions for this study are:

- (a) What skills, knowledge and values do stakeholders consider extension personnel should possess?
- (b) What aspects of the curricula do new workers consider to have been useful/not useful?
- (c) How do practicing extension workers perceive experiential learning and traditional curricula?
- (d) How do the difficulties experienced by first year extension workers differ, depending on whether their diploma courses included experiential learning or not?

CHAPTER 2:

REVIEW OF RELATED LITERATURE

2.0 Introduction

The focus of Chapter 1 was to discuss issues and aspects related to the subject of my research, with an intention to construct the context of the study. In the process, it introduced a broad overview on issues around poverty, the contribution of agricultural extension to poverty reduction and transformation, in both agriculture and in higher education. Chapter 2 reviews literature relevant to the subject of this study and, in particular, the potential of integrating experiential learning into the curriculum as a means of improving the agricultural extension curriculum.

The current high food price increases are mainly a reflection of the world undergoing a process of rapid changes, all of which brings new, visible challenges to the broader society. In the context of this study, such changes in turn impact on the agricultural education curriculum. For Maguire (2000), however, change is a fact of life, and if we look around us, we notice right away that nothing remains static. Maguire (2000, p.29) further asserts,

change is also a fact of life in the world of academia, although the pace is slow. Agricultural education has reached a point where the demands for change from outside our institutions are numerous and strong and it is critical that decisions are made on how to respond.

Juma (2006) insists that a clue on how higher education should respond to these changes lies in realizing the fact that universities and other institutions of higher learning are key players in domesticating knowledge and diffusing it into the economy. He further calls for the universities to play a developmental role in the African continent. He warns, nevertheless, that little will happen unless governments realize the strategic role that the universities can play in harnessing the world's fund of scientific and technological knowledge of development. Schuh (2000) also believes that universities in Africa can play a role in many dimensions of rural human development, either through direct production of human capital critical to the development of agriculture and the rest of the economy, and also through the provision of leadership for lower level human resource development.

Emphasizing the importance of formal education, Schuh (2000) states that the cognitive skills developed by formal schooling contribute to production in a number of ways:

- It makes workers more productive in physical terms;
- It enables farmers to make more efficient use of resources available to them;
- It assists farmers to correctly decode new production technologies and;
- It improves the entrepreneurial skills and allow such entrepreneurs to take advantage of economies undergoing changes to garner personal gains in income.

Schuh (2000) further adds that vocational or applied skills development through vocational training is very important in raising the productivity of labor in agriculture. Therefore, an important way for universities to contribute to rural human development is by training the cadres or staff for modern agriculture. The important observation made by Schuh (2000)

about most African universities is that they have not taken the responsibility for being change agents in the society, like the land grant universities in the United States of America, although they have good potential.

Although the pace of responding to the changes is assumed to be slow, most tertiary educational institutions are also continuously reviewing their teaching and learning methods with an intention to improve their methodology in order to attract students to their courses (O'Brien and Hart, 1999). As Maguire (2000) indicates, most pressure for change comes from outside the institutions. Higher Education institutions in South Africa, as part of transformation, are required to facilitate the education of graduates who will contribute to social, cultural, and economic development of the country, and participate successfully in the global economy and knowledge society (DoE, 2007). Most universities seem to be taking steps towards this direction, as most begin to assume a social responsibility through service learning, work integrated learning, and other forms of learning, with the aim of improving the training of agricultural graduates. This they do, most importantly, as a way of complying with the South African Government regulations.

While the aim is not to adopt the United States of America models of extension and agricultural education, its contribution to development indicates clearly that education is a tool which helps societies to adapt to the new conditions. For instance, non-formal education has been used as a development tool in the past to teach people who are not registered at universities or colleges about ways to deal with their problems. "Historically, Adult Continuing Education has arisen as a response to particular needs, and Adult Education responds to societal change and tends to feed further change" (Rachal, 1989, p.3). Franz (2007) also asserts that the Cooperative Extension Service has played a transformative role, and has attempted a variety of transformations over the years in response to concerns from stakeholders about the effectiveness of extension.

Franz (2007) states that grounding extension's transformation in theory could help ensure a successful engagement of the institution with adult educators, learners and supporters, and further asserts that the goal of extension should not be confined to creating and disseminating knowledge. Instead, it has to be seen to be also contributing to a more equitable and just society. This transformative goal of extension will be realized only if it is informed by Adult Education theories. In line with Franz's (2007) argument, Apps (1989) insists that institutions extend their services beyond the university and contribute to transformation by making the curriculum responsive to the needs of the society.

The other important case where higher education made a remarkable impact on the needs of society was during the 1845 Irish potato famine crisis. During this crisis, the public was educated on the mitigation strategies of the outbreak of blight. The society was urged to appoint lecturers to travel around the districts most affected to inform and show farmers how to improve their cultivation and to grow crops (other than potatoes) which would be of nutritional value (Jones and Garforth, 1997). Beder (1989) also views the purpose of education, particularly Adult Education, as that of facilitating change in society to support and maintain the good social order, to promote productivity and to enhance personal growth. Taking stock of the situation in South Africa, Adult Education seems to take a lead in facilitating change in the society. For instance, in community development and agricultural extension policies, the main goal is to build the capacity of farmers and other rural people through training and mentoring of the small scale farmers (Lawrence, 2005). In this context, white commercial farmers are expected to act as mentors of the small scale farmers.

As much as it is the responsibility of the higher education curriculum to produce extension graduates with good skills, Coombs and Ahmed (1980) raise the issue of the importance of the primary education curriculum in preparing students for higher education. Coombs and Ahmed (1980, p.18) also state that "the structure of the rural primary education curriculum also contributes to a lack of skills in development because it does not cater for most of the

developmental needs of the population”. The reason given by Coombs and Ahmed (1980) is that the primary education curriculum is too generic and does not prepare the people who are ready to address the core developmental problems, especially hunger and poverty in rural areas. This means that the curriculum of primary education should be designed in such a way that it prepares learners for higher education. My study shares this opinion in that it argues that primary education curriculum should play an important role in preparing students for Higher Education. This fact is evident in South Africa due to the education system of the past. Underprepared students entering tertiary education have to go through a foundation programme in order to bridge the curriculum gaps. It is as a result of this that Coombs and Ahmed (1980) identify the following educational needs as important in rural development: general education needs, family improvement education, community improvement, and occupational education.

From the discussion that has ensued so far, it is clear that education is no longer viewed as preparation for productive adulthood only, but is increasingly seen as lifelong continuing education, necessary for personal and societal well-being. Even with the current food-related challenges facing the world today, Higher Education can facilitate change through increasing agricultural research and curricula that involve all the stakeholders, including the communities.

2.1 Agricultural Extension Curriculum and Change in Africa

Throughout the previous chapter, the inadequate contextualization of the agricultural extension curriculum content of most African higher education institutions has been constructed as a major problem within the African context (Chakeredza, et al. 2008). It is for this reason that, for Africa in particular, and developing countries in general, time has come for ownership of their development and creatively employ strategies that will make them part of the global economy. Although developing countries are part of the International Monetary

Fund and the World Bank, decision-making processes relating to them are still dominated by the developed countries (Karumbidza, 2007).

The African Renaissance and the New Partnership for Africa's Development (NEPAD), it may be argued, mark the beginning of visible steps toward Africa's own Green Revolution. What indicates the severity of the discrepancies in the patterns of past development efforts is the establishment of NEPAD, which Karumbidza (2007, p.31) describes as:

a pledge by African leaders, based on a common vision and shared conviction, that they have a pressing duty to eradicate poverty and collectively, at the same time to participate actively on a path of sustainable growth and development, at the same time to participate actively in the world economy and body politic.

Agriculture is one of the important resources that Africans need to realize this vision and take full ownership of her economic and natural resources. Chakeredza, et al. (2008) asserts that agriculture will continue to be the driver for economic growth in Sub-Saharan Africa for the foreseeable future. Thus, if change is going to be achieved in Sub-Saharan Africa (SSA), agriculture has to be made to work, and the production of agricultural graduates who will be relevant to the current socio-economic conditions prevalent in the greater SSA cannot be over emphasized.

According to Maguire (2000), there are a number of challenges facing agricultural education which, accordingly, has the huge impact on curricular. These challenges include:

- The isolation of the agricultural universities;
- Lack of communication with employers of graduates;
- Poor practical skills and;

- High unemployment rates of graduates from the university.

These challenges are often a consequence of the lack of relevant curriculum, weak connection with other parts of the agricultural education system-colleges, vocational schools, farmer training networks, and failure to attract quality students from secondary schools. HIV/AIDS further exacerbate the impact on agricultural education.

Chakeredza et al. (2008) point out that a number of seminars and symposia which have taken place in Sub Saharan Africa (SSA) have also noted similar problems regarding the training of extension workers. These include, among other aspects, the current curricular delivery that lacks practical training and the limited opportunities for students to come into contact with the farming community in order to team learn to work with farmers and their families, and to better understand the dynamics of rural development. The graduating students, furthermore, do not have the conceptual and practical skills related to initiating and operating an agricultural enterprise. Even more concerning is the fact that public sector employment opportunities are dwindling. Therefore, the relevance of agricultural extension curriculum in the African context should address these issues.

In the light of the problems of the agricultural curriculum identified in the preceding sections, Chakeredza et al. (2008) highlight some of the key elements which can ensure that progress towards the upgrading of agriculture, as identified by NEPAD, does in fact occur. The important elements recommended are the improvement of tertiary agricultural education, which includes elements of institutional management, faculty attraction and retention; and a selection process which needs to target those students with a vocation in agriculture. It is also pointed out that there is a need to review, change and re-contextualize the curricula content. Chakeredza et al. (2008) also assert that the adoption of delivery methodologies that ensure the delivery of constant contact with communities should be maintained with a strong bias in

favor of the participation of women, since they form the majority of farmers in SSA. Hazell and Johnson (2002) also indicate that providing sustainable support to women farmers will be a critical element of any new small holder development effort.

Women supply more than 70% of agricultural labour in Sub-Saharan Africa, and have historically been innovators (Hazell and Johnson, 2002). When women obtain the same level of education, experience and farm as men, they produce significantly higher yields in a range of farming systems. It is in this context that this study insists that it will be important to design gender sensitive agricultural projects (Hazell and Johnson, 2002). Access to land for women is still a challenge in most African countries, and it also impacts negatively on food security and environmental sustainability. The inclusion of women in mainstream agricultural activities, furthermore, is of utmost importance in the majority of the African countries. Women are critical for promoting agricultural growth and combating poverty in Africa. Women also contribute to the promotion of the performance of African agricultural production systems, sustainability, and ensure access and control over land for poor and marginalized rural households (Ngaido, 2004). One of the most important aspects of the agricultural extension curriculum is that it should address gender, land issues, food security and environmental sustainability.

A number of initiatives, in partnership with other stakeholders such as NGOs, have been pioneered and introduced by some agricultural universities in Africa to improve the curriculum of agricultural extension. These initiatives revealed that Higher Education needs to work in partnership with Industry, NGOs, the agricultural sector and other funding agencies. Most of the programmes developed by these universities, furthermore, aimed at exposing students to the field of agriculture and emphasized well planned experiential learning programmes. To tackle the problem of poor training of agricultural staff, for instance, the Sasakawa Africa Fund for Extension Education Program (SAFE) was launched by the SSA in 1991 (Naibakelao, 2000). The SAFE curriculum approach emphasizes experiential learning, the combination of theory, experience, critical reflection and practice. The belief of the SAFE approach is that experiential learning provides learners with the

opportunity to develop lifelong learning skills and builds their confidence and commitment so that they can work with farmers in participatory ways. To strengthen the experiential learning, the Supervised Experience Enterprise Projects (SEPs) were initiated as part of the SAFE. The main function of the SEPs is to supervise off-campus farmer focused programmes (Naibakelao, 2000).

The results of the SAFE initiative, however, reveal the opportunities and constraints of structured experiential learning programmes in the African context. The initiative reveals that the availability of qualified experienced extension teaching staff is a problem. Funding, furthermore, poses a limiting factor for staff and students involved in off-campus experiential learning. These constraints indicate that, for an effective and sustainable experiential learning programme, partnerships with higher education, funding agencies and all other stakeholders is important. The SAFE programme also revealed that the lack of extension training policy in many African countries contributes to the ineffectiveness of the extension training programmes (Naibakelao, 2000).

Chakeredza, et al. (2008) indicate that the University Escuela de Agricultura de la Region Tropical Húmeda (EARTH) also established an innovative agricultural training programme focused on improving the content delivery of specific courses. The approach taken by EARTH University emphasizes the selection process which seeks to admit students from rural areas, which possess the vocation of agriculture, social and environmental awareness, commitment and concern to return to their region of origin on completion of their studies. Week long fields trips to rural communities, for example, are organized in which faculty participate alongside students, and during which students have an opportunity to analyze production systems in their social, environmental and ecological contexts. The programme focused on improving the entrepreneurial skills of students by allowing them to study and apply business skills through an implementation of a small project. The reports from EARTH, moreover, indicate that since its inception in 1990, EARTH University has had 88%

student retention rate. The results also revealed that, as of 2007, out of 1,082 students from Latin American countries, Spain and Uganda, 68% have entered the private sector, 9% work with NGOs, and 10% have entered the public sector, 5% is carrying out postgraduate studies, and 3% whereabouts are unknown (Chakeredza et al., 2008).

The Botswana College of Agriculture participates on the Supervised Enterprise Project (SEP), and this is part of the SAFE programme. The SEP programme in the Botswana College of Agriculture aims at equipping agricultural graduates with entrepreneurial skills that make them better prepared for employment in the private sector or self employment. The results indicate that the first 12 graduates who undertook the programme made good profits in their chosen enterprise (Chakeredza et al., 2008). Since the development of effective agricultural extension depends on partnerships with government and other organizations, the curriculum should also integrate the eight United Nations Millennium Development Goals in the context of their cultures (Rivera, Qamar and Van Crowder, 2001). Other goals important for this study listed in the eight United Nations Millennium Development Goals are:

- To ensure environmental sustainability;
- Promote gender equality and empower women;
- Develop a global partnership for development and;
- Combat HIV/AIDS/Malaria and other diseases.

Although this study does not cover the issues of human diseases like HIV/AIDS, the United Nations recommended that the HIV/AIDS strategy should be part of every development project. Furthermore, as a concerned South African citizen, one cannot ignore the impact of the HIV/AIDS pandemic in Higher Education and all spheres of life, particularly in agricultural extension. Since there is also a recommendation that HIV /AIDS education

should be included in the Higher Education curriculum, one is obliged to consider HIV/AIDS in every part of living (Economic Commission for Africa, 2006).

2.2 New Trends in the South African Agricultural Extension Training

In South Africa, the unification of the agricultural sector and closing of the gaps in agricultural qualifications has been a priority since 1994. Despite this, South Africa and its legacies of apartheid and discrimination still haunt the agricultural curriculum. Although the Agricultural Extension Training (AET) Policy has been developed, it has a number of shortcomings. Mafunzwaini, Thabane and Worth (2003) point out that the challenges facing the AET Policy relate to its lack of coherence and coordination. Poor articulations characterize the programmes offered both between the formal and informal subjects, but also vertically within formal education. The research analysis also revealed that funding of programmes is skewed and uneven across sites of provision, with the former white institutions still better resourced than historically black institutions (Mafunzwaini et al., 2003)

Although the aim of the AET policy is to improve the curriculum of agricultural extension, the approach toward developing extension curriculum, however, seems to be prescriptive and follows the technocratic approach. The AET approach was a consultative process, although it appears as if there was not enough consultation with other stakeholders and Higher Education Institutions. Currently, there is an increase in experiential learning activities like cooperative education, service learning and problem-based learning initiatives by the higher education institutions. The literature on experiential learning reveals that there are more structured experiential learning programmes in historically white institutions than in black institutions (Nuttall, 2005). One of the reasons might be that white institutions have long been engaged in experiential learning, and it is easy for them to secure funding for their programmes. In one way or another, these imbalances perpetuate the inequalities between the institutions.

As a result of the inequalities in education, as part of the transformation process, South Africa has also placed the upgrading of university training as a priority in their curriculum agendas. One of the examples is the recent recommendations by the National Commission on Higher Education (NCHE) that an increased cooperation and more partnership between higher education and other social actors and institutions need to be forged (Ekong and Cloete, 1997). These partnerships are aimed at closing the gaps between institutions of higher learning in particular, where inequalities are most significant. These inequalities were also observed by Kraak (1997). Kraak point out that most former black institutions lack the capacity to adequately bid against other institutions for new course offerings.

Cognizance is also taken of the fact that things change rapidly. Therefore, information obtained is used as guidance because the information that is relevant today might be irrelevant tomorrow. Powers, Powers, Beltz and Aslanian (1998), who emphasize the importance of partnerships between Higher Education and industry, assert that changes in the industry sector have clear implications for curricula change of many universities and colleges. It is in this context that students cannot continue to be trained in the traditional manner through vocational courses that lead to specific employment. Students must be prepared for many different careers as they need to adapt to changes in the economy. The Higher Education sector should provide learners with skills without compromising their autonomy and their role as knowledge producers. This requires an effective teaching and learning strategy that will incorporate all the skills that are required, including technical and problem solving skills. To Higher Education practitioners like me, this means the beginning of hard work toward developing curriculum that will address the stated challenges.

The term curriculum used in this context is conceived as all the activities taking place in class between the teacher and students, society and also including other activities outside the university. This means that the new universities of technology need to be innovative in terms of the methods of teaching they employ. Methods of teaching and learning which are

compatible with the changes in the society may help in attracting students and to ensure the survival of these institutions (O'Brian and Hart, 1999). Cooperative education which is a partnership between Industry and Higher Education carries a lot of promise for improving the quality of graduates, thus attracting students to the institutions of Higher Learning. Powers, Powers, Beltz, and Aslanain (1988) also state that the benefits of cooperative education far outweigh the drawbacks over the long term. Powers et al. (1988) also emphasize the point that the balance between all three: Higher Education Institution, Business and Industry may be affected significantly by how well college and university faculty members understand the implications of the rewards and stresses of engaging in partnerships with business and industry. Based on the *ad hoc* community engagement activities that I have engaged in, I fully agree with Powers et al. (1988) that the commitment between the parties and understanding of the stresses involved is the most essential element if cooperative education is to yield fruitful results. In most cases, the curriculum structure is the most limiting factor in this process. Therefore, it is imperative for Higher Education teachers to engage themselves actively in the development of a responsive curriculum.

2.3 Responsive Agricultural Extension Curriculum

A relevant extension curriculum has long been the quest of South African agriculture. To develop an informed agricultural extension curriculum, the National Department of Agriculture has, in collaboration with one of the higher education institutions embarked on the training of Provincial Research officers (PRO) to carry out research in their respective provinces. The National Department has also appointed one of the Professors from the institutions of Higher Education to develop a national extension framework. The designed framework will in turn inform the provincial extension education strategies. Düvel (2004) also conducted a study aimed at developing and implementing a new extension model for South Africa. The study revealed that the sector and farmers had the following expectations from the higher education agricultural extension curriculum:

- (a) Greater emphasis on professionally qualified extensionists in the recruitment of extension staff
- (b) Greater selectivity regarding the quality rather than the level of qualification
- (c) Strengthening of the agricultural technical content at agricultural colleges by introducing some degree of specialization
- (d) Improving the quality of training at agricultural colleges through the involvement of subject matter specialists providing more focused and higher standard education

What is of interest in this study is that the author indicated that the ultimate scope and nature of change in the agricultural curriculum is dependant on the current effectiveness and efficiency of extension delivery. At that time, the author felt that it was difficult to measure the efficiency of extension with the current inequalities in the training of extension graduates. As the study emphasizes the recruitment of quality extension workers rather than qualifications, to me that indicates that there are problems that have been encountered when matching the level of the qualification with the performance of an individual. Rather than not considering the qualification, I would look into the reason why the level of performance of the qualification does not match with the performance of that individual. This also reinforces the importance of investing in the improvement of teaching of extension programmes in Higher Education.

As the priority in South African agricultural extension is the search for an appropriate approach to extension, Department of International Development (DFID) (1994) warns that care must be taken not to prioritize extension structures over functions and neglect the identification of how extension interacts with other services and information sources, and contributes to a broad process of rural development. In the developing countries, the Training

and Visit extension system was adopted. Nagel (1998) indicates that the reasons for failure cannot be reduced simply to incompetence or the ill-will of national governments but that the problems are complex and manifold. Some of the reasons for failure of extension in developing countries, like Africa and Asia include:

- An inadequate internal organizational structure;
- Inefficiency of extension personnel;
- Inappropriateness or irrelevance of extension content and;
- Dilution of extension impact (Benor and Harrison, as cited in Nagel, 1998 p.5).

On the other hand, Carson (2000) presenting the results of a Human Resource Survey of agricultural extension workers in sub-Saharan Africa reports the following results: (1) the number of agricultural extension staff was grossly inadequate in Africa and there was a need for each country in the sub-Saharan Africa to develop and implement strategic national policies of training extension staff, and (2) Agricultural faculties and colleges should be proactive in revising their curricula and teaching methodology to respond to the training needs of the country. Carson (2000) also stated that overcoming the many challenges facing the agricultural sector in sub-Saharan Africa is dependant mostly on well equipped and adequate numbers of agricultural extension workers who possess the technical knowledge and human relations skills. The study conducted by the National Department of Agriculture also made it clear that Higher Education institutions have an important role to play in the improvement of the extension personnel and in the search for appropriate model of extension for South Africa (Düvel, 2004). The study indicated that 74 per cent of the extension staff had qualifications lower than a Bachelor's degree. This prompted the need for a knowledge support system, but also a proposal in regard to the education and training of personnel (Düvel, 2004).

A study conducted in the Northern Province about the needs of Extension Officers, showed that more than 70 % of the officers who had been in the field for 10 years indicated that they needed technical agricultural information, better teaching methods, and improved communication skills (Bruening, Schrieffer, Bility, Mollel and Ngomane, 2002). This may indicate a number of issues with regards to the curriculum of agricultural extension. One may conclude that their curriculum did not cater for the need to integrate theory with practical exposure or the information they obtained during their academic training was inadequate and that they would need continually to update their skills and knowledge in various ways. The fact that the government has mandated some of the universities to investigate the training of agricultural extensionists in South Africa also indicates serious concerns about the training of extension workers.

The South African National Strategy developed in consultation with the National Strategy Formulation of the United Nations in 2003 also indicated that teachers of tertiary levels, while well-trained in the theoretical agricultural aspects are often inadequately trained in practical agriculture (Mafunzwini, Thahane and Worth, 2003) Thus the graduates have few practical skills to offer the agricultural sector. The research pointed out that the critical skills lacking in black graduates are: agricultural production, agricultural engineering, agricultural economics, agricultural development and veterinary skills. The results also from the national strategy research indicated significant gaps in the training of extension personnel, particularly with regard to the change in focus of agricultural policy to redress the historically iniquitous provision of support to farmers. Salvador, Countryman and Miller (1994) concur with this observation stating that there is an urgent need for students of agriculture and natural resource management to develop problem-solving competencies. This will enable them to solve problems in multiple-goal situations.

The literature cited indicates that South African agricultural extension is faced with a number of challenges regarding extension training. The improvement of the qualifications of

agricultural extension personnel who are already in the field is essential. The training of agricultural extension agents who are already in the field is not only a South African challenge, but also throughout Sub-Saharan Africa. It is therefore imperative for agricultural and development institutions to seriously rethink their approaches to extension and to revisit the assumptions, content, and methodology pertaining to their respective curricula. The aim should be to equip agricultural scientists and field practitioners with the skills needed to address exigencies of the South African agricultural reform (Worth, 2002). Mafunzwaini et al. (2003) indicate that the AET strategy is committed to operating in a paradigm of continual partnership based –learning through a conscious linkage of research, education and extension, referred to as extension. A number of forms have experiential learning which has been researched by institutions globally and locally with differing results to students and organizations that offer experiential learning to students. The research results in various studies come with many recommendations toward improving agricultural extension (Zinnah, et al. 1998; Carson, 2000).

Assessing the findings of Düvel (2004) which recommend improving the quality of training through the involvement of subject matter specialists is a good idea. However, what is not clear is the question of where the subject matter specialists will come from since the current extension personnel in the agricultural sector received the same kind of training from the historically black institutions with a few exceptions. Do we assume that they have improved their education further to be able to provide a higher standard of education? On the other hand if the subject matter specialists are assumed to have acquired more expertise in their fields through experience, is it possible to integrate these skills acquired through experience effectively into the curriculum during the academic training? In improving the curriculum for agricultural extension, the content should be revised and must also be in line with the National Qualifications Framework for accreditation.

It goes without saying that for the agricultural extension curriculum review to be relevant, it should include the seven Critical Cross-Field Outcomes identified by the South African Qualifications Authority (SAQA). This applies to all fields of training and education. These seven Critical Cross-Field Outcomes are:

- Identify and solve problems using critical and creative thinking;
- Work effectively with others as a member of a team;
- Organize and manage one and one's activities responsibly and effectively;
- Collect, analyze, organize and critically evaluate information;
- Communicate effectively using visual, mathematical and /or language skills in oral and or written form;
- Use science and technology effectively and critically show responsibility toward the environment and health of others and;
- Demonstrate an understanding of the world as a set of related systems and recognize that problem-solving contexts do not exit in isolation (SAQA, 1997, p.5).

The seven critical outcomes are assumed to help develop some of the competencies required from agricultural extension graduates, point of view for example critical problem solving and creative thinking. In the South African case, this calls for the integration of problem solving skills into the curriculum of Higher Education. There is hope that students will eventually acquire the problem solving skills as they have become a requirement and have been incorporated into the outcomes of the new curriculum structure. The role of the institutions and lecturers in particular is to find out the methods of incorporating these skills in their dealings with students. The other area of concern regarding the chosen elective or specialization within the degree is that having students specialized in certain fields is important but at the same time, in reconstructing the curriculum, care must be taken towards a multi-functional skilling which is a necessary response to market conditions of uncertainty

and volatility. Furthermore, the new modes of knowledge production when constructing a curriculum should also be taken into consideration. I think the irrelevance of extension content and inefficiency of extension personnel may be addressed through curriculum reconstruction in Higher Education which integrates the Critical Cross Field Outcomes outlined by SAQA.

A number of initiatives to improve the curriculum of agricultural extension programme involve experiential learning, which includes the interaction of students with the communities. Hansen (2000) states that in the formal education system, experience based learning has tended to be developed and regarded as somehow fundamentally inferior to those organized forms of knowledge which have been constructed as subjects or disciplines. Hansen (2000) asserts that the practical and the applied do not tend to have the same status as the academic and the abstract. When engaging in an experiential learning activity, it is therefore important to understand what constitutes an experiential frame of reference for learning and how this benefits students. Therefore, the following section explains the conceptual framework which underpins an experienced-based curriculum. Because experience takes place within a context, the conception of curriculum which underpins this study is explored.

2.4 Conceptions of Curriculum and Experiential Learning

This study positions itself within the critical curriculum paradigm. The importance of defining the paradigm is that the way you conceive the curriculum affects the way you teach it in class. It also affects policy implementation in schools. Even the experiential learning programmes we design will resemble the way we conceive the curriculum. The word curriculum does not mean the same thing to all people and it is interpreted differently by different people. Therefore the starting point is to ask ourselves, “What do we mean by

curriculum”. For instance, the original meaning of curriculum is the running/chariot races of Greece and it comes from a Latin root meaning “racecourse”. Curriculum is therefore regarded as the ground to be covered by students to the finish (Zais, 1976). The meaning of the word curriculum adopted by an individual is influenced by the curriculum paradigm adopted by that particular individual. For instance, the view of a curriculum as a set of performance objectives or students’ learning causes the focus of teaching to be on equipping students with skills and knowledge. The other views of curriculum include: (a) the view of curriculum as what is taught in school, (b) a set of subjects, (c) content (d) curriculum as a set of materials, (e) curriculum as what is taught both inside and outside the school, (f) curriculum is that which an individual learner experiences as a result of schooling and (g) curriculum is everything that is planned by school personnel (Marsh, 1997, p.3). These definitions of curriculum also influence the way in which modules are prepared and the sequence which they follow.

Hartman and Warren (1994) drawing from Cornbleth (1990), describe three curriculum paradigms or the main camps within the domain of curriculum theorizing. They are summarized as the traditional paradigm and are also known by other authors as the technocratic paradigm, praxis paradigm and the process paradigm (Cornbleth, 1990). Cornbleth (1990) further explains that in a technocratic conception of curriculum, knowledge is treated as an object that can be reproduced and given to students, and students are assumed to have learned when they have acquired the intended knowledge objectives. The possession of knowledge is verified through tests and examinations. “The technocratic paradigm is criticized for its preoccupation with the technical behaviorist research paradigm” (Schubert, 1997, p.173). The second paradigm is the practical paradigm which is also described by Hartman and Warren (1994) as having an affinity with hermeneutic inquiry, understood as the continuous, reflective interpretation of social interaction and influences, meanings and assumptions which underlies them. The third paradigm is the critical praxis paradigm which views curriculum as a process. The nature of this paradigm is varied and there are many contributors. “It is derived from existentialism, phenomenology, critical theory and personal theorizing” (Schubert, 1997, p.173). The process conception of curriculum is of great

importance in areas of the curriculum where understanding and criteria are central and they deny that knowledge can be defined by examination and rests upon the quality of the teacher.

The problem with most of the curriculum views is that they overlook the interaction of students with lecturers in class and exclude the teacher in the construction of the curriculum. As such it becomes a product that has been designed by experts. Aronowitz and Giroux (1987, p.25) state that “teachers should be viewed as reflective practitioners, not seen as merely performers professionally equipped to realize effectively any goals that may be set for them”. The other example is the term given to a curriculum design based on the technocratic conceptions by Stenhouse (1975) which is the “objectives model”. He points out that the weakness of the objectives model is that knowledge is treated as an object that can be reproduced and given to students, and students are assumed to have learned when they have acquired the intended knowledge objects. The teacher is excluded from the construction of curriculum because the preconceived objectives seem to dictate what the teacher needs to teach in class in order to achieve the desired outcomes. (Freire, 1972; Stenhouse, 1975; Cornbleth, 1990) refers to that concept of curriculum and teaching as a banking view of curriculum.

Based on these ideas this study is based on curriculum as contextualized social process which takes into consideration that change is inevitable, but the basic principles of education remain the same. However, Grundy (as cited in Smith, 1996, 2000) argues that a process approach to curriculum theory and practice tends towards making the process of learning the central concern of the teacher because it emphasizes interpretation and meaning making. It then treats the learners as subjects rather than objects. The greater concern with meaning making is that it can lead to very different meanings in the classroom and a high degree of variety in content. Curriculum as praxis is based on critical pedagogy which goes beyond situating the learning experience within the experience of the learner, it is a process which takes the experiences of both the learner and the teacher and through dialogue and negotiation, recognizes them both as problematic (Grundy as cited in Smith, 1996, 2000).

However, Cornbleth (1990) argues that economic, and gender relations for example, do not bypass the systemic or structural context of curriculum and enter directly into the classroom practice. They are mediated by intervening layers of the education system. The question about this statement by Cornbleth (1990) regarding the curriculum is whether it is practical that the social and economic issues are mediated. I think somehow they can enter directly into the classroom, and the pressure of these issues having become the hidden curriculum, forces the system to consider them as official part of the curriculum content. In practical terms, Cornbleth's view of curriculum as a contextualized social process and an ongoing social activity shaped by various contextual influences within and beyond the classroom is relevant to the current call to revisit the higher education extension curriculum and to the service learning and work-integrated learning legislation.

In my view curriculum as a process means that although there is a framework within which the teacher operates, and there are policies that guide the teacher, he or she is able to construct the curriculum with students in his or her own classroom through the interaction with students and the teacher is also able to contextualize the curriculum. The importance of the interaction of teacher with students in class is also emphasized by Vallance (1986) in his conception of curriculum as a personal success and depending on the professional development and enthusiasm of a teacher. Furthermore curriculum is influenced by society and culture and the nature of the individual, human organism.

This study is premised on a paradigm of critical praxis for curriculum inquiry, also referred to as the emancipatory paradigm because it is associated with the curriculum theorists who contest dominant empiricists and behaviorists epistemologies and who espouse emancipatory ideologies (Hartman and Warren, 1994). The critical paradigm is the one that promises to answer the fundamental questions of this study of whether it is possible to integrate the skills that are required by the industry during the academic training of the students. Although this

study has chosen the critical paradigm, the background of the three paradigms explored in the preceding paragraph reveal that no paradigm can be taken as the only one. Instead blending can occur since there are some good ideas even in the other paradigms that can be used to explain specific phenomena. Furthermore this study also recognizes the conception that curriculum is a process rather than a product and those concepts are acquired and developed so that we can gain meaning about persons and events and in turn communicate these meanings to others. As Marsh (1997) also notes, we make sense of our world by engaging in concept building and Cornbleth (1990) states that one's conception of curriculum and associated practices also carries implications for the knowledge made available to students.

The critical paradigm can address the concerns expressed by McKenna and Sutherland (2006) regarding the role of higher education in producing graduates who are not only vocationally skilled, but have higher order thinking skills, and also to develop graduates who can contribute to a workforce as both technically trained and capable of critical thought and self-development through innovative teaching and learning. The other concerns are the fears that the industry might end up dictating to Higher Education because of their influence and resources. These concerns were addressed earlier on by Powers et al. (1988). Besides the differing views between the industry and tertiary education, there are also problems that are experienced within the institutions. These problems include the curriculum structure within departments. In those cases where the experiential learning programmes are part of the curricula, it is often the case that the time available or allocated is too short to make experiential learning significant. As a result, experiential learning may become a series of short educational excursions to the field for observation. This is common, particularly with the semester course system.

Lecturers in Higher Education as reflective practitioners have been tasked with the duty of transforming Higher Education. It is believed that opportunities for integrating theory and practice will be brought forth by work-integrated learning (Osman and Castle, 2006) The

critical paradigm can be used to answer some of the key questions like how is knowledge produced. The critical question is what skills, knowledge, values do stakeholders consider extension personnel should possess, and whether the skills required by the employers can be effectively developed during the academic training of the student?

2.5 Theoretical Framework

The body of literature cited in the previous sections of this chapter reveal that skills are important for an effective agricultural extension worker. There are a number of skills that have been suggested, to mention a few: technical skills, multiskilling, problem solving, human relations and others. The case studies of the initiatives taken by certain African universities that involve experiential learning projects, indicates the potential of the usefulness of an experience-based curriculum in helping students acquire the skills, for instance the EARTH University and the Botswana College of Agriculture (Chakeredza et al., 2008)

Understanding the experiential curriculum theory forms the bases for understanding the usefulness of experiential learning. Hansen (2000) states that understanding how people learn is something that has propelled and detained education. At same time, trusting in one's own experience is another method of exploring the learning phenomenon. Roberts (2006) asserts that the theory behind experiential learning has received limited attention although the emphasis on experiential learning has existed for decades in secondary school curricula, and experiential learning is also a component of the curricula of agricultural education in many universities. In order for experiential learning to be meaningful, the theoretical framework that underpins all forms of experiential learning including, cooperative education, problem-based learning, and experience-based learning and others will be explored briefly.

According to Andresen, Boud and Cohen (2000), a key element of experience-based learning is that learners analyze their experiences by reflecting, evaluating and reconstructing it in order to draw meaning from it in light of prior experience. The emphasis of this study is on the experiential curriculum theory based on the principles of John Dewey, and further expanded by other experiential learning theorists like David Kolb and his experiential learning cycle. The starting point for experiential theory is that learning is an experience on its own (Jarvis, Holford and Griffin, 2003). Andresen et al. (2000) also indicate that all learning involves experience of some sort, prior and or current. Boud and Miller (1996) point out that experience cannot be by-passed as it is the central consideration of all learning. In the University of Western Ontario, through group brainstorming exercise, students were asked to identify, based on their personal experiences, what they considered the characteristics of learning through experience to be when they themselves felt such learning took place (Hansen, 2000). Experiential learning was defined as involving mental, emotional and physiological stimuli. The results of the exercise indicated that students associate experiential learning with observing, doing, and practical knowledge. The other aspect of experiential learning indicated by students was that intrinsic motivation transcends extrinsic motivation; therefore, the learner in some significant respect is the initiator of learning. Analysis and reflection are significant parts of the learning and there is no time line associated with learning.

The findings from the study of Hansen (2000) indicate clearly that experiential learning cannot be equated with outdoor learning only and cannot be confined to a set of methodologies and strategies. Instead, it involves the whole person-intellect, feelings, and senses (Andresen et al., 2000). Experience is placed at the center of the educational endeavor. Experience is also equated with democratic living which means that problem resolution can frequently be best achieved through communication or group study in which transaction of experience occurs among persons (Schubert, 1997). “While the inclusion of the “real world” problems, local issues and community participation in school life are important, nowhere is the process of public schooling itself undermined or questioned. The difference between placing experience at the centre of educational endeavor and a “hands -on” or

“learning by doing” approach may be associated with the traditional pedagogy that tends to assume the acquisition of knowledge and understanding by the mind as passive (Hansen, 2000).

The main difference is based on the fact that experience is the foundation and the stimulus for learning, learners actively construct their own experience, and learning is a holistic process (Andresen et al., 2000). Roberts (2006) concurs that from an epistemological perspective, experiential learning aligns with constructivism, which posits that learners construct meanings from their experiences. Boud and Miller (1996) assert that while learners construct their own experiences, they do so in particular social settings, influenced by cultural values, economic and political circumstances. Learning is also socially and culturally constructed and is influenced by the socio-emotional context in which it occurs (Boud and Miller, 1996). Each experience is influenced by the unique past experiences of the learner as well as the current context. Therefore, placing experience at the center entails that the educative experience must be meaningfully connected to previous experience and ethically bound to future growth (Andresen et al., 2000). The educative experience must also be contextualized and note must be taken that experience does not happen outside the social context. Boud and Miller (1996) bring the aspect that learning is holistic and that there is continuity between experiences even though they may be perceived as separate.

Experiential learning goes back as far as Dewey’s *Experience and Education*, published in 1938 that grappled in depth with the role of experiential learning (Kraft, 1995). The cognitive development theories describe how students think and the process of thinking, but not the content of their thinking (Jacoby and Associates, 1996). Cognitive theorists like Piaget (1965) placed emphasis on how intelligence is shaped by experience. He realized that intelligence is not an innate internal characteristic. Piaget (1965) researched the four developmental stages of cognitive growth, namely: sensory motor, pre-operational, concrete operational and formal operational stage. The critical point with Piaget (1965) is that intellect

grows through an individual's interaction with things and people in his or her environment (Kolb, 1984).

The implication for learning in Piaget's cognitive theory is a specific recommendation for a given stage of cognitive development. For example, with children in the sensory motor stage, teachers should try to provide a rich and stimulating environment with ample objects for play. On the other hand, with children in the concrete operational stage, learning operations should involve problems of classification, ordering, location, and conservation using concrete objects (Kraft, 1995). He also stresses the point of interest in planned change. Piaget's work did not receive much attention, by Bruner, who was interested in examining the importance of instruction (Kolb, 1984). Jerome Bruner saw in the growing knowledge of cognitive processes the scientific foundation of a theory of instruction (Kolb, 1984). Bruner's idea was that knowledge of cognitive development stages would make it possible to design curricula in any field; in such a way that subject matter could be taught respectively to learners at any age or stage of cognitive development leading to the design of experience-based curriculum (Kolb, 1984). Experiential learning has become the method of choice for learning and personal development and experience-based education has become widely accepted as a method of instruction in colleges and universities (Kolb, 1984). Kraft (1995) argues that perhaps the reason for the growth in the interest in experiential learning is the growing understanding of the human brain, and the discovery that it is designed to learn best by experiential methods.

Experiential methods of learning encourage the learners to select learning strategies which suit their individual learning style compared with the traditional academic teaching and learning methods, which do not allow for whole-brain learning. Traditional learning methods promote the over-utilization of either the left-brain or the right brain (Kraft, 1995). While experience-based learning is important, Kraft (1995) cautions that experiential learning theories should be critically examined because there is no generic clone of experience which

applies to every one. Experience is situation specific and people may have been in the same situation but have different meanings and interpretations for the same situation (Kolb, 1984; Kraft, 1995). The main model is a simple description of how experience is translated into concepts that in turn are used as guides in the choice of new experiences (Boud, Keogh and Walker, 1985). Kolb (1984) describes his experiential learning model as a four-stage cycle involving four adaptive learning modes, which begin with a process of concrete experience, then reflective observation, abstract conceptualization, and active experimentation and the cycle ends with reflective observation (Kolb, 1984). As the model is cyclic, the stages feed each other, and that allows learning to take place because the cycle can be started all over again. Smith (2005) argues that in reality, if learning has taken place the process could be seen as a spiral. The action is taking place in a different set of circumstances and the learner is now able to anticipate the possible effects of the action.

Experiential education actively involves the individual in the acquisition of knowledge and skills (Kolb, 1984). The experiential learning cycle begins with a person carrying out a particular action and then seeing the effects in his situation. The ultimate aim is to encourage learners to utilize both hemispheres of the brain for maximum learning (Kolb, 1984). The experiential learning process views learning as a process rather than a product, therefore the emphasis is on the learning process rather than the outcomes. Kolb's experiential learning cycle also takes into consideration that ideas are not fixed but are formed and reformed through experience, students must also reflect on their experiences and create concepts. Kolb's reflective observation stage brings questions like 'what constitutes reflection' and 'why is it important for students to reflect on their actions'? Therefore, without ignoring the other shortcomings of the four stages of the learning cycle, Kolb's experiential learning cycle forms a good base for explaining the problems and questions raised in this study regarding experiential learning. Andresen et al. (2000) indicated that the distinguishing characteristic of experience-based learning is that learners analyze their experience by reflection, evaluation and reconstruction.

2.5.1 The Reflection Process

According to Andresen et al. (2000), experience-based learning has a primary focus on the nature of learner's personal engagement with phenomena, sometimes described as being more or less directly in touch with the realities being studied. As a result, most experiential learning programmes allow students an opportunity to participate actively in practical activities and after that they must reflect on their learning experiences. Without reflection, one cannot be sure whether learning took place or not. Reflection is a practice which expresses our power to reconstitute social life by the way we participate in communication, decision making and social action (Boud et al., 1985). Participatory extension methods are believed to encourage farmers and students to reflect on their experiences. The extension worker is not seen as an expert. He or she facilitates the learning process. Literature indicates that this mutual benefit for students and clients is possible in a problem-based learning set up. For instance, in Forestry and Agronomy courses at Iowa State University, students worked as teams in the community, assessing broader issues of development and environmental education affecting the community. Teams collected the necessary data, developed alternative solutions and presented a written report and an oral report of their findings at the client's place of business. Students rehearsed their presentations before making final presentations to prepare them to make a friendly presentation. Students felt a great sense of achievement.

Martin and Fleming (2006) indicate that learning from experience can be enhanced through reflection in the midst of experience (reflection-on-action). Studies indicate that learning through experiential learning also relies heavily on the supervision of students by an academic supervisor in order to facilitate reflection. In another case, sports management students were exposed to a cooperative education experience (Martin and Fleming, 2006). At the end of their cooperative education, students indicated their difficulties in understanding the instructions, like keeping a journal and a logbook. One student's reflective comment

goes, “At the commencement of cooperative education, I was struggling with the idea of having to keep a critical analysis journal. However, I have now found it to be an incredibly valuable learning tool. Actually writing the learning in a journal prevented me from reflecting on the same ideas repeatedly and contributed to a deeper learning”. The other student commented in the following manner: “The whole experience was an achievement and reward in itself. The combination of practical skills and knowledge I gained was priceless, and I am sure that will go a long way in helping me out in the future” (Martin and Fleming, 2006, p.79). In my view, these student’s reflections indicate that proper planning of experiential learning on the side of the academic institution and the industry is very important.

In an experiential learning process, experience alone is not the key to learning; the question is what is it that turns experience into learning? What specifically enables learners to gain maximum benefit from the situations they encounter? How can they apply their experiences in new contexts? Why do some learners appear to benefit more than others?

2.5.2 Benefits of Experiential Learning

Most studies equate participatory extension processes with experiential learning. For instance, Mtshali (1999) indicates that participatory extension processes are important in the teaching and practice of extension. Zinnah et al. (1998) suggest that experiential learning improves students’ chances of employment. Jones, (personal communication, March 9, 2001) concurs that 80% of students in internship experiential learning got employment either by the same company or by any other company. Some research findings have come up with positive results from Queensland University Rural Extension Center, Wolloongabba, and in Iran (King, Kelly and McIntosh 1997; Chizari, 1998; Fell, 1999). In Queensland and Wolloongabba, participatory learning and action research are recognized ways of improving professional extension practice. As the aim of Higher Education in South Africa is to

improve critical thinking skills, some of the ideas from Kolb's theory can form a good foundation for curriculum development.

Most of the literature that has been cited in this study focuses on student learning outcomes and very few studies have concentrated on finding out about the views of the communities, industries and other organizations that host internship or service learning students. Any intervention that aims at improving the curriculum should contribute to the quality of life of the community. Bringle and Hatcher (2005) advise that community service learning should not only be meaningful for students' educational outcomes but also to the community. Bringle and Hatcher (2005) describe the kind of service learning that takes into consideration the needs of the community as civic engagement. Civic engagement is described as an active, collaboration that builds on the resources, skills, expertise, and knowledge of the campus and community to improve the quality of life in communities in a manner consistent with the campus mission.

A study aimed at getting closer to the community voice in curriculum development was conducted by the University of Cape Town (Alperstein, 2007). The Public Health Primary Health Care fourth year medical students are placed in a homeless people's shelter. One of the responsibilities given to students is to create awareness on epidemiology of diseases like HIV/AIDS. The findings of the study indicate that the hosting organization found hosting students being beneficial to the organization because students come with fresh ideas and they keep the organization on its toes and raise awareness about HIV/AIDS in the community. The other finding was that the community-based service learning curricula faces some challenges. Some of the challenges expressed by the community are time allocation in the curricula. The hosting organization raised a concern that time allocation was too short for building trust and completing tasks accurately, and also the need for flexibility of tasks and outcomes in the curricula which fulfill community needs and student learning.

The hosting organization also indicated that a report written by students after the completion of their service learning period poses some ethical issues for community-based service learning. It is advisable to differentiate between writing a report for the community and for student academic reports. The other important finding was that the organization felt that clarifying the roles of the university and of the community is essential, especially the readiness of the university to embrace new forms of teaching and learning that are complex and challenging. The reflections of the pharmacy students exposed to community service learning revealed that students became aware that therapeutic approaches are not easily obtained from literature and that real context plays an important part in dispensing. Students also highlighted that they noticed an improvement in their professional skills and knowledge as they were able to link theory and practice. They indicated that they learnt that communication with patients is important if valuable service is to be provided (Bheekie, Adonis and Daniels, 2007).

2.5.3 Student Benefits

Besides the benefits that pertain to teaching and learning during the academic learning in higher education, research indicates that there is a social benefit to experiential learning for participating students. Studies assessing the effects of cooperative education on students have been conducted in a number of agricultural colleges and universities (Trede and Andreasen, 1997). Most of the results reported a change in perceptions and attitudes of graduates. Trede and Andreasen (1997) state that experiential learning improved team work, problem solving and allowed students to visualize the actual application of their knowledge.

In a study conducted by Jones (2002), students mentioned that they learned to build a portfolio, which improved their writing skills. Other students stated that the internship helped in realistic training and had an impact on the improvement of communication skills. On the other hand Kerka (1999) indicated that in California State University, students who participated in an experiential learning initiative reported that it had opportunities to explore career options, and enhanced employability skills such as communication, problem solving,

and leadership as well as awareness of community and social problems. White (1996) cites a case of students who participated in problem-based experiential learning. The student evaluation of the participants pointed out that students felt that it enhanced their ability to appraise problematic situations constructively and objectively.

At Iowa State University, another problem based learning experience case was undertaken. The program involved an experimental course, titled "Society and Agriculture: Confronting Modern Problems". In preparing for student's experience in confronting problematic situations related to agriculture and natural resource management, they employed a number of learning techniques that included examination of case studies. The students organized themselves into teams in order to analyze a specific problem, identifying competencies required by a team to analyze that specific problem and matching those needs with individual expertise and learning styles (Salvador, Countryman and Miller, 1994). Student response to the course was favorable and comments indicated that students perceived practical value in this learning focus. According to the lecturer; students displayed a natural ability to deal with complex situations in an holistic fashion. This tendency may be suppressed however, by standard curricula that seek to shape specialized scientific agriculturists. Students also appreciate the value of problem-based experiential teaching and feel that it enhances their ability to appraise problematic situations constructively and objectively (Salvador et al., 1994).

At the University of Kwa-Zulu Natal, Pietermaritzburg, an alternative curriculum based on experiential theory of learning was designed. The aim of the exercise was to integrate experiential learning into the curriculum. Experiential teaching and learning activities were developed for a Rural Resource Management course (Lockett and Lockett, 1999). The university believed that the curriculum would be more likely to develop "reflective" development practitioners. The curriculum attempted to integrate Kolb's experiential learning theory and Soft Systems thinking (Lockett and Lockett, 1999). The findings revealed that the prescriptive approach of an outcomes-based education model resulted in the view of learning as a product rather than as a process. Students could not describe how they

learned. Instead they were concerned about the outcomes they achieved in working with the communities (Lockett and Lockett, 1999). In most of the studies of students exposed to problem-based experiential learning and teaching, they have expressed positive comments about learning as a process rather than a product. Students also expressed that they experienced confusion at the beginning of the programmes.

Regarding exposing students to experiential learning, Peterson (2004) advises that it is best to begin with a description rather than starting with the content and providing clear-cut answers. Peterson also states that one must not be surprised if the best students are the most anxious. The reason for anxiety is that they feel that they are venturing into a learning jungle. A student in an experimental problem-based Agronomy course also stated that “at first I was a little confused as to what the class was about. However, I have learned to look at the situation more objectively rather than make a hasty decision” (Salvador et al., 1994, p.11). This reflection shows that the student was able to view learning as a process rather than a product. In another case study, experiential learning was conducted through use of composition with service learning. Faculty and students felt that this improved communication and motivation. Whether teaching, learning, planning and executing assignments, exploring the writing process, or even grading papers, students feel a great sense of purpose and meaning in that their work will have tangible effects in the lives of others (Addler-Kassner et al., 1995). In service learning projects where the faculty spent some time in the site with students, this helped to improve communication between students and faculty. This interaction between faculty, students, and community could help the college or university be part of the community rather than apart from it. This can serve as protection for the institution from vandalism and crime. This is the case where service learning takes place in close proximity to the community.

From the experiences of the institutions described in the preceding paragraphs, the argument remains about the best method that can integrate theory with practice to equip graduates with

technical and soft skills and also prepare learners for the world of work. This means that curriculum construction is an ongoing process, constructed on a daily basis in class and outside the classroom. Because the needs and the world are ever changing, the curriculum dialogue should also be an ongoing process.

2.5.4 Educational Benefits

The benefits of experiential learning are based on the conception of learning as dialectic and adaptive in nature (Freire, as cited in Kolb, 1984) and also that learning is the creation of knowledge and meaning which occurs through the active action and grounding of ideas and experiences in the external world and through internal reflection about the attributes of these experiences and ideas (Kolb, 1984). Fenwick (2000) concurs that experiential learning is understood as reflective construction of meaning with particular emphasis on critical reflection and dialogue. Peterson (1997) defines dialogue as a process that builds shared meanings and which enhances the ability of an individual to resolve problems. Therefore, effective experiential learning promotes dialogue. Peterson (1997) also states that dialogue is important for discussion. According to Rogers, (1996), the qualities of good experiential learning are: personal involvement, learner initiated, evaluation by learner and pervasive effects on the learner, as well as real-world training of students. Good experiences should benefit all partners. This is also reflected in the White paper 3 on Higher Education (DoE, 1997) which states that service-learning as a form of experiential training should stand on three legs which are: (a) Partnership (b) Reciprocity and (c) Reflection (Jacoby et al., 1996). The partners include students, employers or providers of experiential learning and all stakeholders

The University of Kwazulu Natal that participated in pilot projects for service learning in higher education community service partnership programme, thus implementing the mandate from the White Paper 3 on Higher education (DoE, 1997) reported that one of the key benefits of the Higher Education Community Service Partnership showed that increased

relevance of course material to real-world community issues were most important (CHE, 2001). The other key benefits of community-based learning include:

- Increased relevance of course material to real-world community issues;
- Engaging with community issues facilitated interdisciplinary learning;
- Enhancing the Higher Education Institution's relationship with neighboring communities;
- Opening up new opportunities for research based on community issues and;
- Enhancing student understanding and learning of course material (JET, 1999).

Although the results of the Higher Education Community Service Partnership (CHESP) pilot project of community-based learning showed some good results, more information is required in terms of student reflections on the process of learning and if results are to be consistent, experiential learning structure should be reviewed continually. To fulfill their mandate of transforming the curriculum of agricultural extension, such that it produces more job-ready graduates, provide education and training to develop the skills and innovations necessary for national development as well as successful participation in the global economy, Higher Education institutions need to engage in further research into experiential learning. The curriculum must also be structured to face the challenges of globalization (Subotzky, 1999).

CHAPTER 3

METHODOLOGY

3.0 Introduction

In the previous chapters, the topic was formulated and the problem statement defined. Chapter two reviewed the literature related to experiential learning and its integration into the curriculum. It was assumed that learners would be able to make sense of the theory that they learn in class if experiential learning could be integrated into the curriculum during the academic training of the student. This chapter outlines the methodology as Guba and Lincoln (1994) suggest that methods must be fitted to a predetermined methodology. The chapter also clarifies other qualitative research related concepts.

3.1 Research Paradigm

Henning, Van Rensburg, and Smit (2004, p. 3) “state that the qualitative paradigm differs from the quantitative paradigm in the sense that in quantitative research, the focus will be on control of all the components in the actions and representations of the participants” (the variables). They will be controlled and the study will be guided with an acute focus on how variables are related. On the other hand, in qualitative research, the variables are usually not controlled because it is exactly this freedom, the natural development of action and representation that we wish to capture. Neuman (2000) also states that social science researchers choose from alternative approaches to science to answer questions for which there are multiple answers. A researcher will generally have a preferred research paradigm. Denzin and Lincoln (1994, p.107) define a paradigm “as a set of beliefs (or metaphysics) that deal with ultimate, or first principles”. Each paradigm is based on its set of philosophical assumptions namely, ontological, epistemological, and methodological assumptions (Denzin and Lincoln, 1994; Neuman 2000). Neuman (2000) also believes that it is important for a researcher to define his/her research paradigm or approach, as they put it, because this, among other things, justifies why one should do research, relates values to research and guides ethical behavior.

This research inquiry is based on an interpretive social science philosophy with its emphasis on experience and interpretation. Interpretive social science is the systematic analysis of socially meaningful action in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social worlds (Neuman, 2000). Henning et al. (2004) also state that the interpretive paradigm does not concern itself with the search for broadly applicable laws and rules but rather seeks to produce a descriptive analysis that emphasizes deep interpretive understanding of the social phenomena. Denzin and Lincoln (1994) concur by stating that qualitative research studies things in their natural setting and attempts to make sense or interpret phenomena in terms of the meaning people bring, which is the reason why qualitative research methods were employed in carrying out this study. The study also took cognizance of the fact that the interpretive practice of making sense of the findings is both artful and political, and there is no single interpretive truth because the qualitative research is endlessly creative (Denzin and Lincoln, 1994).

Ontology asks questions about the nature and form of reality and therefore asks what is there that can be known. The stand-point of interpretive social science is that human social life is an accomplishment. It is intentionally created out of the purposeful actions of interacting social beings. There is also sociality of constructed meaning systems. An interpretive social science assumes multiple realities and denies the existence of objective reality. Interpretive social researchers are therefore extremely sensitive to the context (Neuman, 2000; Henning, et al., 2004).

The context of this study is the field of agricultural extension curriculum specifically. The epistemological position is based on interpretive social science as Denzin and Lincoln, (1994) indicate that the investigator and the object of the investigation are assumed to be interactively linked so that the findings are literally created as the investigation proceeds. Therefore, people who are involved in the situation, such as those practicing as agricultural extension workers and community development personnel who experienced the current agricultural extension curriculum are the main sources of data. Again, the employers of agricultural and community development graduates as well as the educators of these graduates are in a position to provide relevant data in terms of what constitute effective extension and community development graduates.

3.2 Research Sample

The selection of participants for this study was based on the availability and willingness of respondents. The nearest individuals were selected to serve as respondents and the process was continued until the required sample size was obtained (Cohen, Manion and Morrison, 2000). The other reason for using convenience sampling was that the study wanted to collect data from individuals who were conveniently available (Welman and Kruger, 2001). The sampling method also considered the fact that it allows the researcher to choose the key

respondents who, on account of their position and experience have more information. As interviews can go from structured to unstructured, the researcher chose to use semi-structured interviews in order to be able to probe further the questions, at the same time avoiding leading questions (Welman and Kruger, 2001). The other factors that were taken into consideration were: expense, time and accessibility (Cohen et al., 2000). To complement convenience sampling and in order to trace additional alumni, snowballing sampling was employed in three cases. Snowballing is defined by Neumann, (2000) as a network, chain, referral or reputational sampling a method for identifying the cases in a network.

3.3 Locating Respondents

Based on the fact that in interpretive social science the phenomenon being studied dictates the methods to be used, the sample was selected. The sample comprised alumni from the two tertiary institutions in Kwa-Zulu -Natal offering rural development oriented programs. Institution A is an historically Black Institution which offers a multidisciplinary Diploma program focused on empowering students towards gaining skills in agriculture and community development required to promote resource management and sustainable development. The Diploma consists of a three year sequence of study and unstructured experiential learning. The experiential learning of institution A is not given marks. The core subjects that make up the programme are agriculture, community development and home economics subjects.

Besides the core subjects taught in institution A, there are a number of fundamental subjects that are taught at first year level in order to prepare students for subsequent levels. The Diploma is a valuable preparation for leadership and management in the areas of food security, community development and environmental sustainability. Most of the students enrolled in institution A are from the rural areas and peri-urban areas. After completion, the graduates work with communities motivating them to participate in self-help programmes.

Institution B is a Historically White institution which offers an interdisciplinary undergraduate program which allows students to obtain a Diploma in Rural Resource Management and they can then study for another year to obtain a degree in either Social Science or Agriculture. The fundamental subjects that are taught included agriculture, soil science, soft systems methodologies and students do a Rural Resources management project at third year. Institution B has a structured experiential learning component. The experiential learning of Institution B is also given marks. The qualification prepares students for a variety of career paths and for leadership and management in food security, research, and agriculture and community development. Most of the students are also from rural and per-urban areas

The programmes offered by these institutions are similar in the sense that they both teach agricultural subjects like Crop Production, Animal Production, Extension and Rural Resources Management. After graduating, respondents from both these institutions under study worked as community development and agricultural extension practitioners.

3.4 Demographic Factors

The sample comprised of ten (10) respondents from institution A, whose curriculum had experiential learning as a component but due to the structure of the curriculum, it was difficult to incorporate structured experiential learning. As a result, students engaged in holiday experiential learning where students would go and observe the activities in the field of relevant organizations. From institution B, which had a structured experiential learning component, ten (10) alumni were sampled. In addition, five (5) employers of agricultural extension workers, especially the supervisors who work directly with the newly employed alumni and with the students undergoing experiential learning were included. These were the immediate supervisors who worked directly with the alumni in one of agricultural and rural development organization which employs the alumni from both institutions. Lastly three (3) lecturers from institution A and two (2) from institution B were selected, which made the

total number of five (5) lecturers. The number of employers and lecturers interviewed was determined by the availability and willingness of respondents to participate in the study.

Both groups of alumni had 2-5 years of cumulative working experience. After completion of their degrees and diplomas, both worked in agricultural related fields. Both groups had a three-year basic qualification in Agriculture and Community or Rural development. The basis for comparison was similarities of the curricula of the institutions in question, in other words, the content of the syllabus up to the point they became extension workers. The common features were technical agricultural subjects and extension as well as experiential components of the course. The main difference was that in one of the institutions, there is a structured experiential learning component while in the other experiential component in the curriculum is less structured.

The reason why the alumni are important in the reviewing of the curriculum is partly because they have been through the curriculum and as practitioners they have seen the effects of the shortfalls of the curriculum in their working experience. They might have failed to meet certain work expectations. They might now want to emphasize the importance of certain aspects to the curriculum. Others have also become employers and they have specific skills they want and they also know the curriculum has not changed. The assumption is that their daily activities at work expose them to different situations where they are expected to apply certain skills. They are now able to say whether they are adequately equipped or whether they feel there is a gap in their training.

Appropriate permission was sought from the government department district officials since the department in question employs most of the extension graduates from different institutions. Eight employers from the agricultural sector were interviewed. Although most of the supervisors worked in the field, it was possible to secure an appointment with them

since they have office days for meetings and administrative work. They are the largest employers of extension graduates throughout the country and they also sponsor a number of students, and they also have employees who upgrade their extension qualifications in these institutions. The South East agricultural region, which is based in Durban and with its district offices located in rural areas surrounding Durban, was approached.

3.5 Access and Ethical Issues

Access to institutions A and B was negotiated with the institutions through the people in charge of the centers concerned. Although the study involved the former students of these institutions who are now independent, it was necessary to ask for appropriate permission from their former institutions to participate in the study in order to clear any ethical issues that may arise during and after the study. Permission was also important because the research would put their curricula under scrutiny. To get quality information from the participants, the participants were informed of the approximate amount of time the interview would take. The centers also provided a list of all the respondents. In this study, the researcher was conscious of ethical codes that respect the well-being of all individuals and the institutions participating in this study. As interviews concern interpersonal interaction and produce information about human condition, the consent of the interviewees was sought verbally. Again, there were also matters of administration and reputation of the organizations and the institutions concerned.

It was not only enough to get permission from the organizations but it was also important to ascertain the depth of interviewing, the relevance of the questions, to differentiate between the private and public information and the consequences of the research results (Cohen et al., 2000). The respondents were assured that the information gathered from them would be treated anonymously. Respondents were also assured that they were not obliged to answer every question particularly if they felt it was a personal question. The study was based around Durban, Pietermaritzburg, and surroundings. It covered a distance

of approximately 70 km. Most of the respondents from both institutions were based in the field and had to go to the office once a week, on a designated office day. This was when I arranged to meet them at their offices and others were interviewed telephonically.

3.6 Data Collection and Instruments

The central research task in data collection was to identify the effect of including a structured experiential learning component into the agricultural extension curriculum. In collecting data, a rigorous qualitative methodology of conducting semi-structured interviews with the respondents was followed. The researcher chose the interview tool for data collection because it allowed for creativity and flexibility. The interviews were in a semi-structured format and informal using an open-ended format. Open-ended questions do not restrict the respondent to fixed categories, which may result in the loss of the important information from the respondent. “Open-ended questions may also help the researcher to learn how the respondent thinks, to discover what is really important to him or her and to get several possible answers to a question” (Neuman, 2000, p. 260). Other advantages of open ended questions versus closed questions are that open ended questions allow respondents to: (a) answer in detail, qualify and clarify responses (b) discover unanticipated findings (c) permit adequate answers to complex issues.

On the other hand, open-ended questions do have some disadvantages for the researcher. The researcher was cautious about probing the questions further because ideas that respondents would not have could be suggested and or the respondents would be intimidated. The researcher was also aware of the fact that different respondents could give different degrees of detailed answers and coding responses would become difficult (Neuman, 2000). But the benefits of open-ended questions far outweighed the closed questions in this case.

“Qualitative methodology allows for a flexible research design because it is multi-method in focus, involving an interpretive, naturalistic approach to the study of the subject matter” (Denzin and Lincoln, 1994, p3). Qualitative research uses logic in practice, which is the logic of how research is carried and tied to specific cases and oriented toward the completion of a task. Again qualitative research uses the transcendent perspective, which implies that research questions originate with the standpoint of the people being studied, not that of outsiders. It also questions power or equality, and views social relations more as the outcome of wilful actions than laws of the human nature (Neuman, 2000). Qualitative research helps develop concepts, insights and understanding from patterns of data rather than collecting data to assess preconceived models and hypotheses (Taylor and Bogdan, 1998).

The tools used to obtain data included semi-structured interviews with an aid of an audiocassette, telephonic interviews with some of the alumni working in the field who could not be reached in their offices as well as informal discussion groups. Semi-structured interviews offered a versatile way of collecting data and allowed the interviewer to use probes without influencing the respondents to think in a particular way, and also allowed the interviewer to encourage the interviewee to proceed (Welman and Kruger, 2001). Semi - structured interviews proved to be flexible and allowed the interviewer to avoid sensitive issues. Because semi-structured interviews allow the interviewer to adapt the formulation of the questions, some of the issues that seemed to be sensitive could be rephrased. As the nature of work done by the respondents required extensive travel and fieldwork, telephonic interviews were much quicker and convenient.

Telephonic interviews also enabled the researcher to select respondents from a much more dispersed background than if they had travelled to meet the interviewer. Telephonic interviews also allowed the researcher to meet busy people at a reasonable cost. Several respondents could be reached with one call. Several other calls were made to try and reach the respondents. Although responses are difficult to write down in telephonic interviews,

that disadvantage is outweighed by the fact that you can always go back and verify the facts from the respondent because they are within reach. One important aspect of interviewing is to build rapport, which becomes even more important with telephonic interviews because people tend to be in different moods. This is the problem which is caused by lack of face to face interview; one can only sense the attitude from the other side that the person is saying “I am busy” or “I am not willing to talk”. That needed techniques of ending the conversation and ask the respondent politely to call him or her later when the conditions are conducive for the conversation. Timing of the calls was also very important such that prior arrangements had to be made in order to alert the interviewee of the proper time of the call and to ask for his or her availability (Cohen et al., 2000).

The audiotapes were transcribed and used as evidence of data. Raw data, defined by Denzin and Lincoln (1994) as essences of people, experiences and situations, was edited and converted into text. Information from audiotapes was also transcribed. The data from interviews was first transcribed verbatim. After reading all the relevant transcripts, the codes were developed according to the units of meaning. The codes were selected according to the open coding system, which is an inductive process (Henning et al., 2004). Data was also further processed by: reducing, summarizing, and coding themes, clustering and finally organizing and analyzing following the emerging patterns. This included raw field notes that were edited, extended and typed up. Because some of the data were indecipherable, they were also corrected and typed. I am aware that the way I asked the question about the relevance of the curriculum leads the respondents to answer yes or no., thus limiting the depth of the information I required from the respondents. Sub questions clarifying the relevance of the curriculum were asked in question 7.

3.7 Limitations of the Sample

Although the study concentrated on respondents around Durban and Pietermaritzburg, the sample was narrow. Narrow samples present problems on finding significant differences due

to inherent individual variation. Although the sample size was small, the tool used to gather information, namely, semi-structured interviews allowed in depth questioning and extension of the study through interpretation and sense making. In addition time, availability of the alumni, lecturers and willingness of the employers to participate in this study posed a limitation to the study. Although the research is limited by it being carried out on a small sample, it can be argued that generalizability is not one of the aims of qualitative research. Therefore, this is not a substantive limitation to the project. Further more the study used the alumni, employers of the agricultural extension graduates and lecturers but omitted the farmers and other rural communities who are also stakeholders.

CHAPTER 4

RESULTS AND DISCUSSION

4.0 Introduction

The introduction gave a brief overview of the food and environmental-related problems that contribute to hunger, deficiency in vitamins or minerals in the rural areas of the developing world. In the earlier discussions, hunger was identified as the most critical of the three forms

of malnutrition which lead to food insecurity. The literature cited indicated that the challenges facing the government and policy makers are to develop sustainable food security strategies. The literature also indicates that food production is seen as a sustainable approach to food security although food aid may be used as an emergency measure. An increase in food production may be possible if amongst other things, the training of agricultural personnel is upgraded and the curriculum is improved in order to cater to needs of the new amalgamated sector of agriculture. Hence the aim of this study was to explore the effects experiential learning having on extension workers and their later job performance and the possibility of integrating it into the curriculum.

In the methodology chapter, the sample, sampling method, research methodology, and the types of analysis to be done were covered. In this chapter, the data obtained from the interviews is coded and classified and patterns or themes identified. This was a descriptive study aimed at finding out the views and experiences of respondents about the benefits of including or not including a structured experiential learning component into the curriculum of agricultural extension. The perceptions of the employers were sought regarding the performance of recently employed graduates (alumni) and their recommendations on the improvement of the curriculum. Perceptions of the alumni and success in employment are pertinent to the maintenance and improvement of programs in tertiary institutions. The views of the lecturers were also solicited regarding experiential learning in the agricultural extension curriculum. The results of the study will be discussed in this chapter.

After transcribing and working with the data, ten (10) themes emerged. The themes that emerged were:

- Training experiences and occupation of the respondents;
- Concerns about the content of the curriculum;

- Perceptions of the respondents and employers regarding the skills, knowledge and values for effective extension work;
- Importance of an extension course in the curriculum;
- Attitudes of new graduates;
- Aspects of extension that need to be strengthened;
- Importance of supervision during experiential learning;
- The influence of experiential learning on the performance of new graduates;
- Support systems for new entrants in agricultural extension jobs and;
- Course relevance and changes needed.

4.1 Categories of Responses: Respondents' Training Experiences

4.1.1 Activities Performed by the Respondents

The type of activity performed by the alumni gives an indication of the skills, knowledge and values that extension personnel should possess. This impact on the training needs, scope and focus of the curriculum. Guided by the sampling method used, convenience and snowballing, the study indicated that eight (8) of the alumni interviewed from Institution A were employed by one of the Government departments which deals with agriculture and community development and were involved in the public sector extension as Development Technicians. Only two were employed by the private sector and were involved in private sector agricultural extension. These technicians were allocated to work in rural areas and in the

townships (peri-urban areas). It emerged from the responses that the expansion of the area of operation requires greater skills that higher education should impart to students. During the homeland era, extension workers operated only in rural areas under subsistence agriculture systems.

The changes in extension as indicated by the respondents open up a gap for new training needs of extension workers with a special focus on commercial farming and the ability to work in the new and ever changing political climate. Out of ten alumni that were interviewed from institution B, seven of them were employed by non-governmental organizations. Some of them were also employed by a university-based extension organization and were involved mostly in rural extension, mainly involved in research. There were also those that were employed by the department of agriculture. Many of the respondents from institution B were involved in community or rural development, especially agricultural and community project management, including internship coordination. This indicates that the nature of curriculum needs to change with changing employers.

Both groups of respondents worked with farmers, hand in hand with local government municipalities. Working with municipalities is a new trend in South African agricultural extension and it indicates a change in the nature of extension and agriculture. There is a change in the composition of stakeholders in agriculture. In the past, agricultural extension used to be confined to within the ministry of agriculture but today, a number of private and public institutions are involved in extension. In the past, agricultural extension was confined to rural areas, but nowadays local government authorities are involved in agriculture. It is no longer only the traditional leaders who have an interest in the issues of agricultural extension. As a result; local politics play an important role in extension. Therefore extension staffs need to be equipped to deal with these complex issues. I will be using the students' materials

verbatim to indicate the responses of the alumni. For instance, one of the respondents from institution A indicated that:

Respondent A: The training of agricultural extension should not focus on teaching us how to deal with traditional leaders like Induna (Headman and Inkosi only. Students must be trained to deal with the politicians like councilors and other political leaders in the community

It is true that a lot has changed in South Africa, especially in terms of politics and the administration of development has also changed. Therefore, the transformation and contextualization of agricultural extension curriculum content is essential.

4.1.2 Training to Become an Extension Worker

Commodity specialized extension of sugarcane was most common with the alumni from institution A because of their involvement with sugar cane farmers. Sugarcane is an important cash crop widely grown in Kwa-Zulu-Natal. As a result of the involvement with sugarcane extension, the results indicated that most of the alumni from institution A had undergone special in-service training specifically in sugarcane to equip them with special skills in sugarcane farming so that they could be able to work with sugarcane farmers and liaise with the sugarcane companies as well. These respondents were holders of a National Sugarcane Certificate. The training is offered by only one Sugar Company to its employees both in South Africa and throughout Southern Africa. It is not available in Higher Education institutions. A certificate is awarded at the end of a six month intensive training programme in sugarcane production.

Taking into consideration the changes in the stakeholders in agricultural extension, the training of students should equip them with knowledge and skills to enable them to work effectively in complex and rapidly changing agricultural environments (Zinnah, et al., 1998). Therefore this section will analyze the training and skills needed to become an extension worker which will include the skills needed. The information is drawn from the views of the alumni, employers as well as educators.

After working in the field for five (5) years, the graduates indicated that the following skills were needed: being computer literate, understanding agriculture, to working with people. The study revealed that a qualification to become an extension worker was valued by graduates and this could range from a diploma from a university of technology to a degree from traditional universities. Certificates obtained by graduates after attending short refresher courses were also valued by graduates. The respondents also revealed that these short courses offered by the employers help them to improve their skills. Other respondents mentioned experience as an important contributor to the skills. .

Agriculture and community development courses, as well as gender studies were regarded as important subjects to be included in the curriculum of an extension/ community development graduates. They also indicated that they needed courses like nursery management and nutrition. The respondents felt that lecturers should follow up to evaluate how their former students were performing on the job.

The respondents indicated that the training must also cover the technical and social approaches to study the technicalities of the work, as well as incorporating how to approach or involve communities in development work. Training in social science such as organizing meetings, bringing people on board, facilitation skills, organizational or institutional development and specific approaches such as Participatory Rural Appraisal (PRA) Participatory Extension Approach (PEA), Systems Thinking, and Stakeholder Analysis were seen as important. The training should also have courses that address the following areas:

conservation management, project management, agricultural science, soil science and rural resource management (B4).

Respondent A4 indicated that *you need to be able to adapt to changes, political and societal changes, as well as changes in agricultural extension approaches. We also need a tertiary institutional Diploma.*

Respondent A6 felt that *you must also have diverse information because these people ask all sorts of questions. They think you know everything.*

Respondent A9 indicated that *we need to know Hydroponics and nursery management aspects are essential since this is urban agriculture; peri urban farmers need advice in these.*

Respondent B1 felt that *the kind of training that one needs is courses that have to deal with the following: What is community development and sustainability; Project management and Organizations; Agricultural Economics, Business management and marketing; Rural resource management; Community resources management; Geography, Animal production, Poultry production, Sociology of the Rural S.A., Gender Studies.*

4.1.3 Relevance of Curriculum Content

The responses highlight diversity in courses.

Respondent B10 felt that *the kind of training that one needs is the one which embraces agricultural practice as well as social development practice, the courses that deal with community development, sustainable development, conservation, participatory approaches to*

extension work, systems thinking and any course that would enable the extension worker to transfer knowledge to the relevant people.

Respondent B7 indicated that *you also need to know environmental education, and do leadership courses, participatory extension methodologies, which will teach you how to work with the people.*

It is interesting to learn that experience has taught the respondents that they need a good qualification in extension and to note the importance of the subjects that must be included in the curriculum of agricultural extension. The fact that the alumni from institution A were in possession of sugarcane certificates indicates that the importance of short courses cannot be underestimated. This means that the institutions should continually review the curriculum and keep in touch with the alumni in the field in order to keep up with the community development trends. Universities must also consider the role which can be played by continuous professional development, a role not traditionally taken up by universities but which they might well in the future consider.

4.2 Importance of the Names of Courses.

In agricultural extension training, there are a variety of introductory courses to introduce the students to a number of concepts. Some of them are not specific to agriculture but give a broad overview to the course. However, it becomes a problem if all the courses in the programme are labeled as introductory courses.

4.2.1 Introductory Courses

Fundamental courses play an important role of laying a foundation for students to understand the scientific concepts of the course. These courses are helpful especially to students who do not have a good background in science. However, the results of the study revealed that while courses included in the degree programme were seen as more or less important, the course label was often a cause for concern. Students worried about how employers perceive these labels.

Respondents from institution A expressed concern about the naming of the introductory courses as “basic”. This concern was expressed by respondents for instance about such courses as Basic nutrition, Basic skills and introduction to crop production. The reason given was that it degrades the course. The naming of the courses as Basics sounds rudimentary and appears as if students did not cover the course in detail. The respondents felt that the courses are done in detail and suggested the renaming of some of the courses. The respondents’ felt that these courses which are named as Basics cover a lot of work.

Respondent A1 felt strongly that:

The title of some of the courses should be changed from basics to sound more detailed. If a course is referred to as basic it limits the students learning and employment opportunities

Respondent A2 emphasized that *I would like to comment that our course is a good course; they must try by all means to give the strength to our course. Whatever course is done must be detailed, not basics. Another thing, they must make it a point that experiential training is included. I think that’s enough.*

Respondent A4 also stated clearly that there is a need to change *the name of the course or the title, introduce computers as a course: change the basic courses because other companies do not understand basic courses they think our course is shallow.*

It is good to note the multidisciplinary nature of the curriculum of both institutions A and B. The curriculum suits the nature of extension work and community development. In a real life situation, extension work may deal with destitute people. When they meet with an extension worker they think he or she is able to deal with all of their problems. You cannot afford to turn away needy people because you are not specialized in that particular field. At least, one must advise people on where to find help. The limitation is that farmers and other rural people were not interviewed. The information about the usefulness of the multidisciplinary courses is drawn from the author's experience. The AET recommends that the responsive agricultural extension curriculum content should address value adding, marketing and other business management skills. A multidisciplinary structure will be able to accommodate all these subjects. The naming of the subjects is also very important to students and employers.

4.3 Perceptions of Students on Skills for Effective Extension Work

4.3.1 Knowledge and Skills for Effective Extension Work

Agriculture draws on a wide range of scientific and practical skills and knowledge which are categorized into five broad areas: Agricultural production, agricultural engineering, agricultural economics, agricultural development and veterinarians (Mafunzwaini, Thehane, and Worth, 2003). Agricultural extension falls into the agricultural development category which covers agricultural extension, sustainable livelihoods, food security and resource management (Mafunzwaini et. al., 2003). In most universities, the agricultural extension curriculum is modular, with a variety of courses making up the degree. The alumni reacted differently. The categories of responses included the courses that the alumni felt helped equip them with necessary technical agricultural skills and knowledge. They also presented the subjects they felt are important in agricultural extension. The employers also shared their view on the attributes of a good extension worker. The following paragraph presents the findings from alumni and employers regarding the skills and knowledge for effective extension work.

4.3.2 Broad Agricultural Development Skills

Agriculture as a taught programme covers a number of fields like Animal Science, Plant Science and Natural Resource Utilization, and is the process of producing food, feed, fiber, fuel and other goods by the systematic raising of plants and animals. In general, the study indicated that 70% of the Respondents felt that agriculture, as a subject is important in their jobs as extension workers and community development workers. Since agriculture is a broad term covering a number of aspects. The respondents also registered interests in different aspects of agriculture. The range of courses that make up the agriculture program that were regarded as important were: animal production, plant production, agricultural economics, and home economics.

Animal production includes the production of both domestic and wild species of animals. Animal production as a subject taught in higher education deals with domesticated species of animals like cattle, sheep, and goats as well as pigs and poultry. In most tertiary institutions, wild species are studied as a separate field of Wild Life and Nature conservation. For the purposes of this study, the focus will be on domestic species. Domesticated animals can further be divided into small stock and large stock.

4.3.3 Poultry

Under the Animal science category, the respondents felt that the poultry module is an important component of the program.

Respondents A1, A2, A4, A5 and B5 rated poultry as an important subject in their careers as extension and development workers respectively. The reasons given were that the production cycle of poultry is short, especially meat producing birds, and it provides a cheap source of protein. Protein is a requirement in most rural areas because of prevailing malnutrition.

Chickens can also be kept in the backyard and be fed on the leftovers from the kitchen. In teaching poultry, the practical component is very important, although the scientific concepts form a foundation for understanding subsequent courses. In my view, to learn the practical production procedures, students should be given a real world project to manage.

Poultry also has no religious and cultural beliefs attached to it like other meat providing species like pigs. For instance respondent A1 indicated that pigs also have a short production cycle and are a cheap source of protein. However; the problem with pig farming is that there is a religious belief which acts as a barrier to the acceptance of pigs in most rural communities. In that way, these religious beliefs become a barrier to extension and community development where these religious beliefs are observed. This is common in the areas where a lot of Amakhosis belong to a religion that prohibits the eating and farming of pigs. The whole community will not be allowed to farm with pigs.

Respondent A1 indicated that: *In one of the areas in this district, the INkosi belongs to a religion which does not permit the eating of pork. Pig farming is not practiced in that area and the people do not eat it either. This is the influence of the religion of the area.*

Students are made aware of these problems during the academic training in order to equip them with skills to deal with these issues should they find themselves in a similar situation. With the transformation in agriculture, these problems are addressed and the Amakhosis are educated about the broader community development issues so that they do not allow religious issues to become a stumbling block in development. Changing the attitudes of the people is a major function of extension. That is why extension workers are referred to as change agents.

4.3.4 Sustainable Farming Practices

Sustainable food production is important in order to ensure that the resource base is not depleted and to ensure that the future generations benefit from these resources. The common way of producing food is through the cultivation of certain food crops that form staple diets for people. This requires students to be trained in crop production courses like Agronomy which is a subject that deals with the production of field crops, especially grains like maize, dry beans, groundnuts and Horticulture that deals with the production of vegetables, nursery management and herbs. The growing environmental awareness influences the perceptions of people about the use of inorganic chemicals in agriculture. Organic and indigenous agriculture are the methods of plant production that minimize the use of inorganic fertilizers and promote the use of natural resources. Organic agriculture is receiving more attention because of its promise of solving the environmental issues.

Respondent B1 indicated that *indigenous farming and organic farming has gained popularity as part of a strategy toward sustainable agriculture and sustainable development. It also promotes the recognition of indigenous farming methods, which are not detrimental to the environment. The lecture room instruction is important in providing the theory base of the course only.*

In order to get the practical know-how of the course, students also need to see and participate actively in the outdoor or field practical agriculture. Being involved practically in the field helps students to acquire the practical agricultural skills compared with the theoretical lecture in class.

Respondent A3 indicated that: *The course can be improved by including more practical, especially in agriculture, it should be provided in the course*

Agricultural courses that students felt need to provide background theory and which need a strong practical component include the following: Crop production, Animal Production, Agricultural Economics, Agricultural Engineering and Organic Agriculture. The feeling of all the alumni from institution A was that the practical component of the courses mentioned was inadequate. From institution B, respondents B1 and B2 also felt that the practical component of these courses was inadequate.

The promotion of an indigenous knowledge system would also improve the curriculum of extension and make it relevant to the African needs. As indicated by Chakeredza et al. (2008) that “without adaptation, the dairy, beef, pig, poultry, maize and horticultural production systems and models used have limited relevance to an isolated resource poor rural farmer in Africa”. African farmers had their own indigenous crops and livestock that were adapted to the African environment.

4.3.5 Home Economics

A small percentage of the respondents from institution A indicated that home economics, also known as value adding is important. Value adding or home economics are terms that embrace a number of subjects, several of which were regarded as important: cookery, sewing, nutrition, value adding and menu planning. These contribute to the broader aspects of extension work which include understanding of nutrition, health and rural wealth creation. The small percentage of respondents is not an indication of a diminishing importance of the course. The respondents interviewed were more involved in agricultural projects.

A cookery course is where people are taught about the ways of cooking such that all the nutrients present in the food are well preserved. The sole purpose is to educate the communities about healthy living with the aim of preventing diseases and improving the quality of peoples' lives. The most vulnerable groups are children and chronically ill people.

Home economics is especially important in female headed families. Nutrition courses help to educate people about different food groups and the importance of eating a balanced diet. The terms used by respondents were as follows: Respondent A1 indicated that home economics is important. Respondent A4 indicated that sewing is also an important home economics skill, but also indicated that the section of home economics that deals with sewing and crafts will be handled by the Department of Economic Affairs and the Department of Agriculture will focus on value adding. Respondent A4 also stated that menu planning and nutrition are important components in an extension course. Although there were only five (5) respondents out of twenty (20) who felt that home economics was important, their information is valuable because they are working in the field and they witness the real need of home economics in their daily dealings with the communities. Home economics contributes a lot to the food security issues facing the world today including the caring and nutrition for people living with HIV/AIDS.

Since the HIV/AIDS epidemic is having a debilitating impact on rural households and other livelihoods in Sub-Saharan Africa where more than 60% depend on small holder agricultural production as a major source of income, courses that promote healthy living should be incorporated into the agricultural extension curriculum. This will help to reduce the number of students who get infected with HIV in higher education and also equip extension workers with HIV/AIDS knowledge for the communities (Economic Commission for Africa, 2006).

4.4 Perceptions of Graduates of Extension Subjects

Extension is taught as a subject in the universities that teach agriculture. The results of the study indicated that the respondents regard university extension module as an important part of their work. The respondents rated it as important in helping them to communicate effectively what they would have learned. Respondent A1 said that *the knowledge of extension enables you to communicate effectively with people and respondent A2 also stated that extension is a very important skill if you want to do extension as a job. Respondents A3 and A9 also felt that understanding the background of the people and their language is important in extension as a job. The other important function of extension indicated by*

respondent A5 is the ability to facilitate meetings and manage practical agricultural projects. Extension is also believed to help individuals learn to approach different levels of people like councillors and traditional leaders using appropriate approaches commonly known as protocol.

Respondent A8 indicated that *extension is a good course; one can be employed in many departments and other organizations involved in community development*

Respondent B8 felt that *we really need technical agriculture and we also need to be equipped with social skills, which will enable us to work effectively in our communities with diverse cultures and political interest yet being sensitive enough to all these groups of people.*

Respondent B9 indicated that *I think this course is good, the only thing that we need is a more technical agriculture because it is needed outside. Sensitivity and working with the politicians is very important to agriculture and any community development worker.*

The results of the study indicated that the respondents regard extension as an important component of agricultural extension curriculum. The respondents rated extension as important in helping them communicate effectively what they would have learned at the university. The modules regarded as important include: participatory extension, culture and language, communication, leadership and technology in extension.

4.4.1 Use of Participatory Extension Approaches

The need for extension knowledge was expressed by both groups of respondents. The importance of extension was expressed in different ways like: to be able to work with people,

community development and others and facilitating projects and workshops. Owing to the democratization of extension in South Africa, there has been a shift from the technology transfer model of extension to more participatory approaches to extension. In a participatory extension methodology, the extension agent is not regarded as an expert, instead all stakeholders participate actively. However, Pretty & Scoones (as cited in Botha, 1996) caution against a tendency to use the term “participatory” to adopt a moral high ground, implying that any form of participation is good. They further state that the term participation should be used with great care and it should always be qualified by reference to the type of participation as most types will threaten rather than support the goals of sustainable development. As indicated in the previous chapters, there are different models of extension, and different models of participatory extension. They include: Farming Systems Research and Extension, Participatory Rural Appraisal, Rapid Rural Appraisal and Participatory Process or method (Chambers, Pacey and Thrupp, 1993; Düvel, 2004).

The results of this study revealed that most of the respondents from institution B felt that participatory extension methodologies are very important in their work as they deal with the changing communities. Respondents from institution B were engaged in projects that promote the participatory approaches to extension work. This serves as an indicator that there has been a shift from transfer model of extension to more participatory approaches to extension. Respondent B3 indicated that experiential learning activities included the use of PRA.

Respondent B3 *I am currently given a mandate to facilitate training of extension officers in the use of Participatory Rural Appraisal (PRA) methodology.* Respondent B3 further indicated that for conducting a situational analysis for new projects, they use (PRA) Participatory extension methods to encourage farmers and homemakers to be involved in solving their problems and to be innovative. The other indication for a shift from the transfer

to a participatory approach is the use of facilitation as an important skill, as indicated by respondent B1 who was working with the community as a facilitator, not as an expert.

From institution B, it also appeared that extension is important although the respondents from institutions A and B used different terms. Respondents from institution B used participatory extension methods and they felt that participatory approaches to rural development were important. Respondents B1, B2, B6, B7, and B10 from institution B also indicated that facilitation skills are important. Facilitation, including the understanding of participatory approaches for full community involvement and participation, were highlighted by respondents from institution B.

Respondent B2 stated that *to learn how to deal with communities by being a facilitator and a learner at the same time rather than an expert is also important*. Respondents B4 and B5 stated that facilitation skills were important for facilitating workshops and development projects, conduct needs assessment and other development activities. Respondent B6 said that: *It is important to facilitate workshops, and development projects, conduct needs assessment and also to know the participatory approaches to development*.

From this data, it is clear that the knowledge of extension is essential to both respondents from institutions A and B. The two groups used different terminologies to mean extension. For instance, *to understand the background of the people, their culture and language to be able to facilitate meetings, workshops and development projects compared with the facilitation of the projects, systems thinking methodologies and soft systems thinking*.

The use of project facilitation emanates from the new approaches to extension defined in Chapter 1 changing from the transfer approach to participatory extension approaches. Instead

of transferring information from the knowledgeable extension officer to the farmer, facilitation is used which means that there is capacity building of local people and recognition of their indigenous knowledge. Respondent B2 indicated that his course was flexible and allowed students to engage in practical work for testing the level of knowledge acquired and to learn how to deal with the community by being a facilitator rather than an expert. The extension worker can work in collaboration with, rather than just delivering knowledge – the extension worker can learn too.

4.4.2 Culture and Language

The study revealed that the respondents indicated that knowing about the culture and language of the people is very important for somebody who is working as a community development practitioner. A7 indicated that the understanding of the culture and language of the people is important in extension workers. A8 stated also clearly that understanding the background of the people and being down to earth is of vital importance to extension and community development workers. The respondents also felt that the knowledge of all aspects of community development is important if one desires to become an extension worker. B2 indicated that the skills needed to become a community worker include: *sound technical and social knowledge of natural resources management. Good facilitation skills to be in line with technology development, agricultural background, understanding of participatory approaches for full community involvement and participation. I can say, all aspects of community development are important*

For instance, the human aspects of development which includes the size of the population, age differences, sex, gender (demography) forms an important part of extension knowledge. The other important aspects include knowing the technical situation of the area, personal characteristics, social, economic, institutional and cultural factors of the community. The curriculum of both institutions covers the issues of culture and language in depth.

4.4.3 Communication

From its inception, the sole purpose of extension has been that of communicating new innovations to communities to improve the quality of life. The study revealed that respondents from both A and B institutions rated communication as one of the important skills in their work. Respondents A4, B1 and B3 felt that written communication especially report writing and writing business proposals and business plans was important to them as extension workers. On the other hand, respondents A1, A2, A5, A6 as well as B5, B6, B8 and B9 felt that oral communication enabled them to conduct workshops and meetings, and to effectively do oral presentations. The results indicate that communication and extension are intertwined. An extension worker must be able to communicate effectively with the people in order for him/her to make meaningful contribution to community development with the acquired knowledge.

Respondent A1 indicated that *the knowledge of extension enables you to communicate effectively with people* and A2 concurred that extension is a very important skill if you want to be effective in your job as an extension worker.

Supervisor E2 stated clearly that *practical knowledge for farming cannot be over emphasized as its importance is well known. While we need good communication skill from graduates, they are lacking in recent graduates. We also need good people skills and most graduates have poor interpersonal skills, we need group communication skills, which are accompanied by understanding and analysis of the audience in the context of communicating with rural people.*

4.4.4 Employers' Concerns about Communication in Graduates

Comments by employers who were supervisors of the alumni are referred to as E1, E6, and E7, meaning employer number one, employer number six and seven respectively.

The results of the study indicated that the employers emphasized that communication is one of the important skills in an extension job and is lacking in most new graduates.

According to the employers, the inadequacies in communication are mostly revealed during report writing and presentations as indicated by respondents E1, E2, E4, and E5. Reports form a major part of extension work. Some of the recent graduates, it was indicated exhibit poor presentation skills.

Respondent E1 felt that these employees do not take report writing as an important skill and that they needed to put more effort into it. Communication is the basis for agricultural extension and agricultural extension workers are also referred to as agricultural communicators. They communicate with a wide range of audiences whether directly or indirectly through the reports they write to their employers and sponsors of their projects. Therefore extension workers are expected to write good reports for the continued funding of their projects.

Respondent E1 indicated that: *for instance, employees are supposed to write monthly reports, but their reports are not compiled in a professional manner.*

The above quotes indicate the importance of good communication and respect for the societal values in extension workers. Extension and community development workers can have all the technical skills but it is communication, respect and good interpersonal skills that make a good worker. The curriculum of agricultural extension should inculcate the culture of respect and good communication.

Both written and oral communications were ranked as poor according to the employers. This might be caused by lack of communication skills, negative attitude toward work and the lack

of professionalism. The curriculum of most of the institutions of higher education offer communication as a course. It covers oral and written communication. However, it has been observed that although the intervention strategy that offers bridging courses in communication is in place, it does not work as planned. This was observed in class participation by the students.

It became evident that even though alumni are all regarded as being from the same disadvantaged backgrounds, some are more disadvantaged than others. They need more attention and access to resources. Some of the students may be poor in a second language but at the same time be able to understand the concepts. This has brought about a policy in the historically Black institutions that when a lecturer marks a script, he or she has also to consider the use of the language. This raises a popular question in most disadvantaged institutions: Is a lecturer concerned with the understanding of the concept by students or is one teaching the English language? This study partly answers this question today that, although one is not teaching English, English is important as a means of both written and oral communication so there is some responsibility for language teaching.

4.4.5 General Skills and Attitudes Expected from Extension Graduates

Besides communication and technical skills, the employers indicated that there are other personal attributes that contribute toward the success of extension personnel. Steyn and Stevens (2002) indicate that it is essential for extension workers to have the will to succeed in their work as they are mostly expected to work unsupervised, and they should also have a close relationship with the people. Respect and good interpersonal skills were rated as important by the employers. The other important skills needed that were mentioned by the employers are technical agricultural skills, computer, project management, business management, especially financial management and conflict resolution skills. The quotes below indicate a number of skills, attitudes and behaviors the employers felt were important.

Respondent E2 stated that *for an agricultural graduate, technical skills are very important. Skills in agronomy, horticulture, animal production, home economics. Business skills, for example financial management, record keeping, and budgeting skills are also important.*

Respondent E2 further asserted that *I don't mean to offend anyone, but these graduates display a nasty attitude toward work and being supervised, all they care about is furthering their studies toward higher qualifications. They don't care about work.*

Respondent E3 indicated that the other important skills that extension workers should have include driving, communication, leadership and computer skills for example: word processing, Internet e-mail and others

Respondent E7 felt that *the ability to work with people is also an important skill, as we work with people a lot, you must treat the people equally and you must not show disinterest in the people because they will reject you with all your skills and expertise. Project management goes with the ability to assess the needs of the community. The needs assessment skills are also very important because that is how you get to know the problems of the people, especially if you are new in the area.*

4.4.6 Technology in Extension

Bembridge (1993, p.264) stated that "Extension workers will in the future be using personal computers to calculate the effects of changes in the technology and inputs of a farm production system as well as to store farm technology information". This study revealed that all extension and community workers needed technology, especially computer skills in their

career. The respondents felt that cell phones were also important in extension work compared to using office telephones only. This is indicated in the following responses:

Respondent A1: Yes extension workers need cell phones for communication and dissemination of important information to farmers concerning prices and other things and for contact in case of emergency. With cell phones, lets say I am dealing with the work outside the office, the supervisor or any other person must be able to phone me in case in the office there is something that I need to do. They must be able to explain to me what I am supposed to come back to do or what I am supposed to do in the community or what I must do in the future.

They also felt that computers are important for access to Internet and e-mail for the ease of communication. Computers are also important for report writing, compiling of data files and storage of important information like proposals for projects. The following comments indicate the feelings of respondents about technology.

Respondent A2 indicated that, yes it is important to know how to use computers. The reason is that lets say I have been working on a field project, writing a business plan, I need to be able to save the information for future use. Project proposals need to be saved also so that I can remind myself at a later stage.

Respondent A3 felt that: we need knowledge in computers for writing reports and saving the information in the computer files, and need cell phones so that we can receive short messages through the short message system from the companies who supply farmers with inputs (seed, fertilizer, herbicides and pesticides) and for the information about the market

prices for agricultural produce, for instance the price of sugar cane per ton, price of potatoes, cotton etc.

Respondent B8 indicated that *we should be knowledgeable about computers, cell phones, internet and other new developments in technology because the world is advancing; rural people depend on us for teaching them and informing them about the changes in the agriculture and community development.*

Respondent B1 stated that *technology plays a very important role in agricultural extension, we are sometimes involved in research. All technology makes communication to be easy. Sometimes one need to make a presentation therefore technology e.g. PowerPoint will be useful in that regard.*

The findings from this study revealed that respondents from institution B were advanced in computers and the nature of their work involved a lot of computer usage. Respondents B1 and B2 indicated that they were advanced in computers and they also indicated that they knew a number of computer programs like power point which they used for presentations as well as Microsoft word and other programs. This was indicated by the alumni.

4.4.7 Employers' Views Regarding Technology in Extension

The employers emphasized the importance of technology in extension especially computers. They indicated a number of problems which affect extension work if computer skills are lacking. The findings revealed that the immediate supervisors of the alumni indicated that most of the graduates from institution A lacked computer literacy.

Respondent E1 indicated that *the evidence that proves the lack of computer skills in the newly employed graduates is that they are currently writing their reports manually, they do not type their work.*

Respondent E3 stated that *there are a number of skills that graduates lack, like Business communication and leadership skills. Some also lack computer skills and I think the reason for the shortage of these skills is that the curriculum set up in tertiary institutions does not cater for some of these skills. There are no leadership courses or extension subjects in some of the programmes in tertiary institutions. The curriculum only focuses on technical skills and leaves behind how technology is transferred to farmers.*

On the other hand, the employers admitted that they have a limited number of resources especially computers. It is not possible for all new graduates to have unlimited access to computers. Supervisor E1 indicated that *the nature of access to resources depends on the nature of the work. Unfortunately we don't have computers, and for instance 17 technicians share one computer.*

In some organizations, access to computers is determined by the hierarchical level at which the employee is operating. The lower the level of the hierarchy at which an employee operates, the scarcer the resources will be.

This means that the curriculum of extension should also impart adaptation skills, which will be important to different situations prevailing in the field of extension. Also even if you have learnt how to use a computer, you could easily forget it if you don't have access and don't use your new found skills.

4.4.8 Leadership and Extension

The results of the study revealed that leadership skills are important in facilitating participatory extension. The respondents mentioned it as one of the important elements of extension that an extension worker or community development worker should have. Leadership embraces all other skills. According to Smit and Cronje (1992, p.332), “leadership is one of the most controversial and researched subjects in management” As leadership is a complex subject, the component of leadership that pertains to extension will be used. In the extension context, leadership is a process of influencing people to direct their efforts towards the achievement of certain goals (Bembridge, 1993). Extension workers have the responsibility of leading the people toward a successful implementation of agricultural development projects. They are also responsible for developing local people effectively to manage projects, in order to ensure that the projects become sustainable. The importance of leadership was evident in the respondents from both institutions as they indicated that skills to enable them to interact with other stakeholders, resolve conflicts and work with the people were necessary.

Respondent A3 indicated that *you must be able to interact with governmental and nongovernmental organizations and other stakeholders.*

This implies that leadership skills are needed in order to enable students to work with people effectively. Respondent A4 also indicated that respect *is one* of the most important life skills for one to be successful in his or her career life. Respondent A8 felt that leadership is important since in extension you can work with different levels of people and respondent A10 felt that a good extension officer must be a down to earth and respectful person who understands the background of the people. On the other hand, respondent B1 indicated the importance of leadership by pointing out that conflict resolution and conflict management is one of the most important skills in extension. Conflict resolution can only be done by a person with good leadership skills. Respondent B5 indicated that her job includes facilitation, communication, leadership and community development skills. Respondent B7 felt that

conflict resolution which is part of leadership is important in community development. This also implies that leadership is an important skill in extension. Respondent B8: indicated that *I also need to have good leadership skills as a community worker and also to have good community development skills.*

4.5 Attitudes of the New Graduates

The school to work transition is a difficult experience for new graduates. Orientation of new graduates in extension is important. Steyn and Stevens (2002) assert that attitude, motivation, problem perception and level of knowledge of individual officers have a strong bearing on how effectively and efficiently an organization functions. Although new graduates may display unacceptable attitudes, a good support base for new entrants may help to orientate the new entrant into the world of work.

Regarding the attitudes that recent graduates bring with them to the work environment, employers reported that some graduates come with “know- it- all” attitudes because of their qualifications; only to find that they do not know how practically to apply the knowledge they have. Others with "not sure attitude," are not sure of what is expected of them. Others are passionate and determined, only to find that the job is different from what they expected. Some graduates involved in agriculture on their arrival discover that agriculture is not a lucrative job and they also do not feel at home because of the nature of the job. Some of them do not want to align themselves with existing structures. They do not show enthusiasm and determination for rural development. Their behavior somehow lets them down. Some of them do not fully understand agriculture and rural development or strategies to deal with the challenges. Some of the groups are good in extension and their behavior is acceptable. Good behavior is important for the success of an extension organization. This means that there will be no conflicts at work and the goals of the extension organization will be achieved. The leadership skill of an extension worker will play an important role in solving or perpetrating conflict among the people.

The extension worker needs to know the personalities of the people he or she works with and learn how to lead different personalities. The extension worker also needs to have group leadership skills and encourage team building. Where there are conflicts, there is usually a lot of negativity. Because of the negative attitudes of the members, projects come to a standstill because people cannot come together and make decisions about their projects. Others will just be in defiance and the project will come to a standstill. From a researcher's experience, conflicts have resulted in a number of projects being abandoned. Bembridge (1993, p.257) highlights some points to watch for when working with people that cause conflict among farmers.

- If the extension worker spends too much time with one or more local leaders, then the issue of jealousy may arise;
- Some local leaders may become over-confident and domineering and use their position for personal gain;
- Some local leaders may be less capable than others and give wrong advice to their fellow farmers;
- The flow of knowledge from the leader to local farmers does not always work and;
- Special attention needs to be given to make sure that information flow does not go through certain individuals.

This means that the work of extension involves good leadership, and building teams in order to avoid conflicts. Knowledge of the different personalities and the history of the area are very important because in other areas, conflicts are history related.

4.6 Aspects to be Strengthened in an Extension Course

Employers indicated that planning is very important for the success of any organization including the extension organization. They indicated that the teaching of programme planning should be emphasized.

4.6.1 Programme Planning

Program planning skill as indicated in the previous section was also indicated as one of the skills lacking in extension workers. Program planning is one of the important skills in extension and it is directly linked to project management. Without program planning, the extension worker will not be effective in his or her work.

Respondent A1 indicated that some extension workers lack practical skills on planning principles and communication. The evidence of the lack of these skills is that they still report manually, they do not type their work. Most of them do not have access to computers

4.6.2 Networking

A final skill that the employers said is lacking is networking. Networking is important in an agricultural extension worker because in rural areas, there are a number of development agencies, other extension providers and commercially-based extension agents. If the extension worker does not network with others, it creates problems for him or her and for the people in the area. Working in isolation where there are other people doing the same thing creates a spirit of unhealthy competition among the extension or development organizations. Farmers begin to compare the services provided and this might bring tensions among workers. Extension becomes ineffective if there is no cooperation among the development workers. The other problem is that lack of coordination deprives people of the knowledge and new ideas and synergy that are the driving force resulting from networking and cooperation. Knowledge of communication network in the area enables the extension worker

to reach many people. Usually, a communication network in the area is dominated by central figures termed opinion leaders. Opinion leadership is defined by Rogers (1983) as the degree to which an individual is able informally to influence other individuals' attitudes. Therefore opinion leaders are people who are individuals who lead in influencing other's opinions about the innovation.

Respondent E1 indicated that *they are not network linked, they do not network with the people and other organizations and that result in poor programming with limited consultation with the beneficiaries, and it also results in poor monitoring and evaluation of the projects.*

Respondent E 4 said *I think some of the reasons why these skills are lacking is because the holistic approach to development is lacking. For every service required, adequate resources should be made available at the right time; more practical means of technology transfer should be in place.*

Networking is one of the important steps for revitalizing the agricultural extension curriculum recommended by Zinnah et al. (1988, p.6) as they state that “forging strong networks among local and foreign institutions and agencies (both public and private) is intended to help stakeholders to recognize an ending and shared commitment and the need for of them to benefit from the diverse talents, resources, experiences and the perspectives within the partnership”. However, it is not possible for new graduates to form strong partnerships because they are still at an orientation stage. They can be expected to develop strong networks as time goes by and as they get exposed to different work environments. What new graduates need is support and induction to their new world of work.

4.6.3 Professionalism and Work Ethics

It is important for extension graduates to display professionalism in their work as extension professionals. Steyn and Stevens (2002, p.51) state that “professional commitment is a fundamental quality of an extensionist and, yet one that is glaringly lacking.” As indicated earlier, the scope of extension has widened and that it is no longer confined to certain groups of people like traditional leaders, but it includes a wide range of stakeholders including politicians and so additional professional skills are required to be able to account to politicians and other stakeholders. Therefore, a certain degree of professionalism is crucial in that regard.

Professionalism in extension is the demonstration of behaviors that reflect high levels of performance, a strong work ethic, and commitment to continuing education and to the mission, vision, and commitment to the goals of extension (Adams, Harrell, Maddy, and Weigel, 2003). Jiggins and Rölling (1994) assert that academic institutions, even those whose main purpose is to train students in disciplines relevant to agriculture and rural development, have been slow to train students in the emerging professionalism of systems management of participatory research and extension. Professional competencies as such and specific work practice skills in particular have been seen as best developed in the field during post-study apprenticeships and internships. Jiggins and Rölling (1994) noted that such a view is no longer sustainable. Professionalism according to Jiggins and Rölling means that training and practice in rural development, agricultural research and extension must move toward:

- An intellectual and theoretical understanding of the physical and social world as dynamic, interactive systems;
- An acceptance that exclusive world of the researcher and professional is widening to include many other actors and;
- The acquisition of skills to implement a soft systems process, in order to build partnerships with other actors, develop organizational capacities, and experience of multiple actors. This means that academic institutions with agriculture, environmental

or rural development interests must begin to develop intellectual and program domains informed by systems thinking and to turn out graduates with the understanding and skills to negotiate among multiple, potentially confrontational, actors (Jiggins and Rölling, 1994, p.6).

Regarding professionalism in the new graduates, respondent E5 indicated that senior extension workers are more serious with work than young graduates. The reason for their enthusiasm may be attributable to their good relationship and trust they have developed with farmers and the rest of the communities. It takes time to build trust with the communities, therefore the good relationship between the senior extension workers and the communities may be attributable to the time they have spent with the people and the fact that they have had a chance to deal with all groups of actors as mentioned by Jiggins and Rölling (1994). The fact that they have developed a good relationship with farmers indicates that they have devoted themselves into knowing and understanding the culture and the value systems of the people. In cases where projects are imposed by external organizations, farmers tend to be passive and they do not cooperate with extension workers. It becomes the responsibility of the extension worker to liaise between government and farmers. It is in this case that negotiation and conflict resolution skills play an important role.

It is imperative that the curriculum of agricultural extension be structured such that it inculcates work ethics and professionalism into the value systems of students in order to prepare them for the world of work. On the other hand, employers need to ensure that there must be a support system in place for entrants into the extension organization. This contributes to the effectiveness of extension work.

4.7 The Importance of Practical Engagement in the Teaching of Extension

4.7.1 Practical Involvement in Agricultural Production as a Teaching Process

The range of extension courses discussed in the previous section equips student with soft skills, for instance communication, interpersonal and planning skills. In order to manage practical projects like irrigation, crop production, poultry production and others, students need to be taught the actual production courses. These courses require students to learn the theory in class and then be involved in practical application of the concepts learned in class.

Students quickly recognize if programmes focus too much on theoretical or classroom knowledge and do not sufficiently integrate this with practical or applied agriculture. While the theoretical part of agriculture forms an important part of teaching agriculture, most of the respondents felt that the teaching of agriculture should not be confined to the use of textbooks and lecture halls only, but should also include students going out of the classroom and getting their hands dirty so that they understand the course better.

Respondents from institution A felt that the practical part of the training, where they could be involved in the actual agricultural production was inadequate. The concerns of students tend to concur with Kolb's experiential learning cycle which indicates that learning is a process which begins at any stage. Kolb (1984) believes that if learners are to be effective, they need four different kinds of abilities. These abilities indicated by Kolb (1984) are: concrete experience abilities, reflective observation abilities, abstract conceptualization abilities and active experimenting abilities. Although this is a cyclic model, that does not mean that there is a starting and ending point. Learning can start at any stage since this is a process of creating knowledge.

This means that students must be able to involve themselves fully and openly in new experience. Students must be able to reflect on and observe their experiences from many

perspectives. Students must also be able to create concepts that integrate their observations into logically sound theories and they must be able to use these theories to make decisions and solve problems. They recommended that the course should make students work practically in the field of agriculture. Respondents from both institutions emphasized that the practical component in agriculture is very important in their careers because they deal with big projects that contribute to issues like food security, environmental issues and broader community development issues.

Respondent B1 indicated that *indigenous farming and organic farming has gained popularity as part of a strategy toward sustainable agriculture and sustainable development. It also promotes the recognition of indigenous farming methods, which are not detrimental to the environment. The lecture room instruction is important in providing the theory base of the course only*

Respondent A2 commented that *what I can say, is that there was no experiential learning in my institution, me, as Nkosee...I used to do practical during holidays at an agricultural government department office. I went back and I worked as a volunteer Assistant Technician after graduation from 1997-1998 for 2 years after graduation.*

4.7.2 Employers' Views on Practical Involvement

Regarding the technical skills, the employers indicated generally speaking that the graduates lack practical skills in agriculture. Practical agricultural skills are important in extension. Respondent E1 indicated that technical skills are essential in extension workers

Respondent E1 asserted that *for every service required, adequate resources should be made available at the right time; more practical means of technology transfer should be in place.*

New graduates *lack technical skills, but what is good is that they are willing to learn when given a chance. Some do have good presentation skills. Most of them do not have computer skills that is shown when they write monthly progress reports, and after six months when they write their quarterly reports.*

Respondent E2 indicated that *I think these skills mentioned earlier on were not emphasized at their institutional training.*

Respondent E 5 indicated that *some new graduates do exhibit some of the skills but not all of them. Most of them become confused in the field where they have to apply the theory in practice, some graduates are passionate, but mostly the seniors are more serious than the young graduates because of their long-term relationship with farmers, they have developed trust, and the farmers like them because they trust them.*

Comments from two respondents from both institutions A and B indicate that practical involvement in the field of agriculture is essential in equipping students with production. The fact that respondent A2 volunteered to work in the agriculture sector of the community, indicates that being in the field exposed gaps in their training and they decided to close the gap through volunteering their services. Although experiential learning is a system of training in which academic study is continuously or periodically integrated with in-service-learning, practice alone cannot result in learning. Students must also reflect on their learning experiences. I think students studying towards extension should be exposed to the kind of work they will be doing once they complete their studies. This will help to familiarize the students with the working conditions so that they can make a choice while it is still early. Lecturers can also structure some kind of reflection activities to help students see the relevance and influence of what they are doing

4.8 Influence of Experiential Learning on Student Skills

4.8.1 Student Views on Experiential Learning as a Teaching Process

Experiential learning promises a system of training in which academic study is continuously or periodically integrated with in-service training. However, not all outdoor experiences lead to learning. There are certain criteria that must be met in order to make sense of experiential learning. The only guidance can be obtained from the experiences of students who went through an experiential learning programme.

4.8.2 Experiential Learning in Institution A

The respondents from institution (A) revealed a range of responses. There are some who indicated that they had experiential learning in the form of holiday observation and voluntary work during holidays which was organized by the institution. The differences are that there was no assessment or follow up after the holiday voluntary service and observation. The reflections of the respondents from institution A on their experiential learning showed that they had different conceptions of experiential learning. Some regarded holiday observations as experiential learning while others do not really take them as serious experiential learning programmes.

Respondent A2 indicated that he had *six months of unstructured and unsupervised experiential learning which he volunteered after completing the studies. During the academic training, the student used to go for observation during holidays.*

The dissatisfaction with the type of experiential learning is evident in respondent A2's comment which says:

What can I say, there was no experiential learning in my institution, me as Nkosee..., I used to do practical during holidays at an agricultural department office. I went back and I

worked as a volunteer Assistant Technician after graduation 1997-1998 for 2 years after graduation

Respondent A4 on the other hand said:

There was no structured experiential training, but as a bursary holder, I was working during the holidays. Activities including the planting of maize, bananas, dry beans, potatoes and other crops depending on the season of the crops. Assessment for experiential training was not provided. Respondent A5 also indicated that there was no experiential learning. On the other hand respondent A6 indicated that:

There was no experiential training, only observations during holidays but it contributed something to my education. This is indicated in the respondent's comment which goes, the contribution of experiential learning to my skills is that I learnt how to approach people in communities.

Respondent A7 stated clearly that *there was no experiential training and I only went for observations during the holidays which I cannot take as experiential training.*

Respondent A 8 also felt that *there was no formal experiential training; it was just observations during holidays. I did voluntary work as an assistant Extension Technician but we were not even asked for reports when we returned to school after holidays.*

Respondents A9 and A10 indicated that they also went on holiday observations and did voluntary work as an assistant extension technician. Respondent A10 also concurred with the other respondents that there was no experiential learning, only holiday observations.

This means that observations are not taken seriously by the respondents as an experiential learning project. Comparatively speaking, respondent A1 did not regard observations during holidays as an experiential learning project. He had his own conception of experiential learning as a much more detailed and organized experiential training.

Unstructured experiential learning has serious implications for both students and employers. Students struggled to get experiential learning sites and to explain their intentions to the employers who are also committed to their businesses. On the other hand, structured experiential learning can make it easier for the provider to fit the student into the activities of his farm or business, and to allocate resources where necessary. This does not imply that service providers will always be able to accommodate students for experiential learning. They also have limited resources like all business undertakings.

4.8.3 Experiential Learning in Institution B

Contrary to institution A, the results of the study indicated that experiential learning offered to graduates in institution B was in the form of internships and work-based learning and the duration of the off-campus, experiential learning was six months where the respondents were involved in actual community work project. The experiential learning was well structured, supervised and funded.

The other important factor is that institution B's experiential learning was assessed and the assessment was in the form of reflection through a diary and the compilation of a report which was presented orally in front of a panel of external and internal examiners. Respondents from institution B also indicated that they were given time to reflect on their experiences. The following section highlights some of the comments made by respondents from institution B regarding their experience.

Respondent B1 indicated that *this was a six week internship to a rural community to do soft systems methodology (SSM). I was to approach the community, introduce myself and the nature of work. Then I stayed in the community with the people in the community trying to identify their problematic situation. After going through some stages of SSM, implementation was done.*

For assessment, I had to give a presentation to a panel of six people. They asked me a lot of questions and I was required to write a detailed report and to submit a daily journal with my personal reflection on things learnt each day.

Respondent B2 stated that *experiential training in Rural resource Management has both a theoretical aspect and a practical aspect. Courses that include PRA & RA techniques, are done theoretically, and then should be given two weeks for experiential learning in 2nd year. Third years are given six weeks to use participatory methodologies and apply them in a real situation. Students were to choose any project of their interest, organize their placements, and draft the budgets and other requirements for the field work.*

Respondent B2 regarding the assessment indicated that *“Assessment of my experiential learning entailed the preparation of a report including personal reflection and presentation using different methods, and yes I was satisfied with the assessment. The presentation was the crucial part for triangulating what was mentioned in the report. Also, it created personal confidence and to be able to express yourself. In work situations, presentations and report writing are crucial.*

Respondent B5 indicated that *the assessment of my experiential learning project comprised of the writing a report after the project was completed. The report was submitted to the lecturers for evaluation. I also had to write a personal reflection on what I was doing and also complete a journal. I also had to do a presentation in front of external and internal examiners.*

Regarding the level at which students should begin experiential learning respondent B4 indicated that:

for my experiential learning project, I had to do a preparatory module, linked to evaluators who would ask me a number of questions around a number of aspects on my project both theoretical and practical aspects of rural development. And at 2nd year, two weeks of experiential training in PRA Techniques was undertaken. At 3rd year, I was given six weeks to use participatory methodologies and apply them in a real situation. I had to choose any project of interest. I then had to go to the community and identify the projects. I had to work with the local leaders, communities and many other stakeholders.

Although some of the respondents indicated that they learned some of the skills from the universities and universities of technology skills that were applicable on their job like computers, application of participatory extension methodology and others, the study revealed that most of the respondents from institution B developed their skills through internship programmes and through interacting with communities. On the other hand respondents from institution A developed the skills mostly through in-service training in the form of short courses offered by their respective employers and some of the skills were developed through academic training.

The respondents who underwent a structured experiential learning indicated that it contributed to their acquiring of community development skills. They indicated that it helped them to interact with the people and other stakeholders and service providers. On the other hand, the respondents whose experiential learning was unstructured expressed a need to be

able to interact with stakeholders and other non-governmental organizations. The respondents felt that experiential learning would help them improve their learning.

From the experiences of the respondents from both institutions, it is clear that for experiential learning to have meaningful impact, preparation plays an important role. Students undergoing experiential learning need support from institutions and the providers of experiential learning.

4.8.4 The Importance of Supervision on Experiential Learning.

4.8.5 The Role of Educators during Experiential Learning

Responses from lecturers will be referred to as EA1 and EB1, meaning educator from institution A respondent number1 and educator from institution B number one. The differences between institution A and B is that experiential learning of institution A is unstructured compared to the experiential learning of institution B.

In the unstructured experiential learning programme, students do experiential learning during holidays in the organization of their choice, but the most commonly used organization is one of the departments which is involved in agriculture and community development. There is not much guidance and students are not guided on the reflection process at the moment. They are given letters of introduction to confirm that they are students looking for experiential learning opportunities. It appeared that the organization/government department which employs a large number of extension and community development graduates is utilized as an experiential learning site. The lecturers indicated that the experiential learning component is a requirement for the program and the department is working on ways of effectively incorporating a kind of experiential learning that will suit the curriculum compared to the current one where students spend time in the field without any supervision.

A more effective experiential learning is needed which can be assessed and contribute to the learning of students. The curriculum structure does have experiential learning components but the only problem is that with the current curriculum structure, it becomes difficult to have enough time to allow students to spend with the communities.

Respondent EA1 indicated that *it is difficult to have an effective experiential learning with the current structure of the curriculum which is content laden and a semester system. The semester seems to be too short with a lot of tests and examinations to be written at the end of the semester. There is really a competition of time amongst the activities.*

The lecturers indicated that students are taken for educational excursions which are related to specific subjects. It becomes difficult for a lecturer to spend time in the field. The semester programs seem to be short and a lot of work needs to be covered for the semester and with examinations on the other side (EA1, EA2, and EA3). The results also revealed that the lecturers themselves are aware of the fact that there is not much learning which takes place during an unorganized observation type of experiential learning.

Institution A educators indicated that they send their students to one of the government departments which employ a large number of agricultural extension and community development graduates to take part in the activities taking place during that time. The educators also pointed out the weaknesses of observations as opposed to a structured experiential learning process. They indicated that the advantage to the student is that, *Since the nature of the course is interdisciplinary, the department has a number of activities that are related to the curriculum at institutions of higher education (EA1).*

The Department also exposes the student to the real world which helps them to have an idea about project management. Besides the observations during holiday experiential learning that students engage in, their lecturers indicated that individual lecturers also organize course specific educational field trips with the aim of linking what s/he teaches in class to the real world by allowing students to observe and be part of the ongoing projects in the field. The individual lecturer will also design his/her assessment plan for the field trip undertaken. One can only take very few trips to the communities due to time constraints and the fear of inconveniencing other lecturers. There is also one field trip which combines the overall courses studied by students which is usually undertaken by the final year students to integrate the theory they have learnt to the real world of work. It gives them an idea of what they will be doing once they complete their studies. One of the lecturers also indicated that there is a final year course which is in the form of a project which is undertaken by the final year students where they simulate planning a project in the field. The simulated project planning is presented by student teams in the presence of other lecturers and one person from the industry (EA1).

Respondent EB1 indicated that they emphasized the importance of theory before taking students for experiential learning. The experiential learning is a workplace kind of experiential learning where students are placed in the field and spend time developing and managing a project. This experiential learning is linked to the module which is taken at third year level after students have developed enough theory from all the different courses they would have studied.

Respondent EB1 indicated that *the reason for carrying out experiential learning project at third year is that it is assumed that students have mastered enough theory. Students have to master and develop enough theory before going out for experiential learning. It is also important for students to develop critical thinking, not just to do things.*

Respondents from Institution B indicated that the practical agricultural skills need to be strengthened in the curriculum. Besides workplace learning, EB2 indicated that besides the formal experiential learning undertaken by students at third year level, students are helped to integrate theory with learning during the academic training by taking students to the field at 2nd year level 1st semester for a day in the community. This helps to expose students to urban and rural life. This is done to integrate the theory with the practical in one of the extension courses offered by the institution. Students are further exposed to the community during the semester for participatory extension methods and then at third year level, students undertake an experiential learning project where they are placed with an organization for an experiential learning project.

The lecturer acts as a project manager who is a link between the students and the institution through sessions on a one to one basis where there are problems. The interns are also given a living allowance, but they in turn are expected to give a report. The lecturers also monitor the learning and evaluate students at the experiential learning site. The lecturer indicated the challenges of having students in the field. Having international students going for experiential learning in the field also comes with challenges because of the language. The interpretation becomes a problem. Students also do not have access to computers during this process and no books for reference if they need more information. The intern is faced with different attitudes from the community members and other stakeholders. Some communities display hostile attitudes to the interns. Other problems arise with the interns pretending to be experts. Group work is also a problem. Some students are not willing to work and they do not understand group work which creates conflicts amongst the group. This also creates negative attitudes from the community and other stakeholders. The views of the lecturers are that practical agricultural courses should be strengthened in the course and it will be good to equip students with a driver's license before they leave the institution of higher learning. Sponsored driver's licenses would be ideal. The lecturers EB1 and EB2 indicated that experiential learning is time consuming and needs a lot of resources, financial, human resources, books and a lot more.

Teachers need to be like octopuses, they have to be involved in a number of activities as project managers of interns, teaching, academic research development, and keeping in touch with the trends in South African development issues. The procedures of the institutions seem to be rigid and that cripples the learning and the flexibility of lecturers. In most cases, lecturers spend time complying with the policies of the institution and of the government. Little time is spent on creative teaching and learning activities.

Regarding the experiential learning for students, the assessment consists of:

- (a) The reflection process in the form of a report for each day of field work (journal)
- (b) The project is written up and presented for assessment. The assessments of the overall course also include tests and examinations at the end of the semester. The case study questions in the examinations are included. Technical agricultural skills need to be improved

4.9 Influence of Experiential Learning on the Performance of New Graduates

The employers said that there are indeed noticeable differences between the respondents who have undergone experiential learning and those who did not.

4.9.1 Unstructured Experiential Learning

The first difference is that students without experiential learning battle to link the theory with practice in the field of work. For example, there is a difference between somebody who has prepared an extension program and applied it on the ground to a person who has learned about it in the form of theory. The person who learned only the theory has never come across

a farmer face to face. Although he or she may have the skills he or she may be easily intimidated by the farmers because their actions will tell that they are new in the field.

4.9.2 Structured Experiential Learning

Recent graduates who had undergone a structured experiential learning were said to have the following characteristics: reasonable understanding of the work environment, which means that they have been orientated to the working environment; they have acquired additional skills like practical skills in certain aspects of agriculture; they also have a better understanding of the extension process; and it is therefore easy to teach them the skills that are lacking in them. Regarding experiential training, it is also important to note that no single organization can cater for all the skills required by an agricultural graduate. The concern raised by one of the employers regarding experiential training was that no single training organization can provide all the skills needed by a student because of the diverse nature of agriculture

The concern expressed was that experiential learning depends on whether the graduate is a generalist or specialist. Specialists, for example, the Animal Scientist, Horticulturist, Home Economist, Agricultural Economist or Soil Scientist are easier to accommodate in experiential learning. Each of these groups will need experiential learning related to their kind of specialization. There are no such specializations in undergraduate studies in extension at the moment. The current training is for a trained graduate to work as an extension agent either in the government sector, or in nongovernmental organizations or to be self employed as a development consultant.

The lack of specialization also causes a problem for the new employee. He or she finds it difficult to adapt to the working environment. As government departments are the ones that

offer more experiential learning to extension and community development students from different tertiary institutions, the employers expressed the following problems that they experienced with unstructured experiential learning:

- Lack of direction and communication between the educational institution and the organization offering experience. As a result of poor communication, students end up doing activities which are not related to their field of study. Most of them end up doing administrative work or running errands;
- Some of the students lack commitment and determination and;
- There is also a problem of accountability. Students in experiential learning use the organizations resources like equipment, offices and others. Under normal circumstances, an employee will take care of the resources like cleaning equipment, but some experiential learning students are a bit negligent. This problem may also be rectified by a strong partnership between the experiential learning provider and the tertiary institution (E2, E3 and E5).

4.10 Support Systems for New Entrants in the Extension Job.

4.10.1 Programs to Assist Recent Graduates

Employers confirmed that there are programmes that are aimed at assisting recently employed graduates. Employers said that new employees in the department undergo an induction course to familiarize themselves with the working environment. The new graduate is assigned a supervisor who is going to assist him or her with what is expected of them in their field of specialization (E3, E4 and E5).

An in-service training programme helps all new graduate entrants to find their feet in the working environment and to provide continued support. The activities assigned to graduates

are in line with the vision of the department concerned and also according to the duty sheet of the graduate. There is no specific duration for the program as it is not assessed directly. The graduate will be under the supervision of a senior staff member or an experienced extension worker. He or she writes quarterly reports, which are assessed by their supervisors.

The employers felt that it is their responsibility to provide an enabling environment for the graduates to perform as expected and underutilization of graduates should be avoided. During the discussions with some of the employers, they suggested that besides intervention by the government departments, other stakeholders could play a role in the training of agricultural graduates. The employers suggested that different stakeholders could influence the curriculum in a positive way and provide relevant experiential learning opportunities. All tertiary education institutions are charged with responsibility of producing good extension graduates.

4.11 Course Relevance and Changes Recommended

4.11.1 Institution A

The respondents from institution A suggested a change in curriculum structure and content. This will require the renaming of some the courses and the courses should portray what a student has mastered in the course. The respondents from institution A also felt that they have mastered some technical skills in crop production, soil science, poultry extension and other courses. Their concern is that the current curriculum structure does not show all their achievement. While the material they learn at the institution covers a wide range of important information and skills, it is undervalued because of the naming of courses. The suggestion is therefore that the naming of the courses should not make the course to appear if it deals with the basics. I should indicate that the course covers real issues and the structure of the curriculum should clearly indicate all the courses that have been completed by a student.

The educators also felt that computer literacy is important but they put the onus upon students to take their computer skills from fundamentals to higher levels. This is so because one can improve computer skills through practice. There are short courses in computers where students can enroll and get a certificate. These courses are organized by the departments of Information Technology and there are also other private service providers who offer accredited computer courses. Respondents from institution A also suggested that there be specific major courses (EA1 and EA3). They also suggested that computer applications should be taught as a course, not just computer literacy in order to enhance their employability. The structure of the course should also allow enough time for experiential learning. The alumni from both institutions felt that the courses related especially to extension should address new political and global changes. Extension workers should be able to deal with the changing community leadership structures. One alumnus felt very strongly that extension should prepare somebody who will be able to deal with "Councillors" not only the head man (Induna) in rural areas A1. This is not to undermine the traditional leadership structure. The fact of the matter is that with the former extension training, the focus was on serving the former homelands. There were no councillors in the traditional leadership structure. With the new political climate, the councillors and other politicians play a major role in development.

4.12 Conclusion:

The preceding discussion indicates that learning and teaching is not only about imparting the knowledge and skills to students who after completing become extension workers. Learning is a process of creating knowledge as well as developing attitudes and approaches. Therefore the cycle of teaching is incomplete without experiential learning. That is why students indicated that they needed to get involved in the practical application of their courses. The employers have their own limitations in terms of resources.

CHAPTER 5

INTEPRETATION AND DISCUSSION

5.0 Interpretation and Discussion

The main objective of this study was to establish the skills, knowledge and values that extension personnel should possess as well as to find out the aspects of the curricula that new workers consider to have been useful or not useful to them. The study also tried to establish how practicing extension workers perceive experiential learning and traditional curriculum. The study also aims at determining whether the difficulties experienced by new extension workers in their field of work differed depending on whether their course included experiential learning or not. The findings of this study have implications for both the lecturers and the development of curriculum as well as course reviews.

5.1 Findings from the Research Data

The literature review in chapter 2 indicated the conceptual framework which underpins this study which is that learning is an experience in itself and curriculum is everything that happens around teaching, including what happens in class with the students. Therefore curriculum is not a tangible product, but is a social process and does not take place in a vacuum, therefore it must be contextualized. Furthermore, it is conceived that for effective learning to take place, students must be exposed to the stages of the learning cycle described by Kolb (1984). The curriculum paradigms affect our practice. The critical social conception of curriculum helps to ask the relevant questions for this study like, whose interests are being served by the curriculum? The questions will be answered by the interpretations contained in the research data where the voices of the respondents will be heard.

5.1.1 Skills, Knowledge and Values Required in Extension Personnel

The findings from this study revealed that extension personnel should have technical agricultural skills, knowledge of extension and community development, administrative skills, technological skills like computers and internet and be abreast with technological developments. Besides technical skills like agriculture, agricultural engineering, agricultural economics, computers and advanced technological skills, the research revealed that interpersonal skills play an important role in any successful and effective extension work. Respect, conflict resolution and other interpersonal skills are very important to extension workers. This means that the curriculum of agricultural extension should inculcate a culture of respect in graduates during their academic training. Professionalism and work ethics also need to be strengthened in the curriculum but it can only be practiced and it generally takes time to develop. Technical skills are important, but without respect and work ethics, one cannot be effective in his or her profession as an extension worker. Because students are also identified with their institution even in the world of work, it is important for institutions to strengthen professionalism in their curricula. The curriculum should also take into consideration the social responsibility of building responsible citizens. Therefore, besides the technical skills, soft skills are important.

5.1.2 Skills Lacking in New Graduates

This study revealed that there are some skills that are lacking from the agricultural extension graduates in general and not from a particular institution. The skills that are lacking include communication, technical skills in agriculture, programme planning and networking. The shortage of these skills adversely affects extension service delivery. Communication is very important in the workplace; therefore, language centres and other foundation programmes teaching languages should be strengthened in higher education institutions. Regarding networking the argument is that it is unfair to expect a new graduate to be networked because they will still be new in the job. It is the responsibility of the employer to support new employees and orientate them to the new environment.

Some graduates lack computer skills, therefore computer skills need to be taught and students should be encouraged to practice computers continuously because it is an important skill for work. One can have a certificate in computers, but if they are not committed to practising and using it, they will soon forget what they would have learned during the academic training. It also became clear that although some graduates lack computer skills, sometimes limited access to computers in the work environment is also experienced. Therefore the graduates should learn to adapt to different situations.

5.1.3 Support Systems for New Graduates

The results revealed that there are some measures in place to help the newly employed extension graduates. For instance, the induction programmes which help to orientate the new employee to the world of work. There are also in-service training courses that provide continued support to newly employed graduates. The newly employed graduates are not left alone to find their way or to prove to the employers what they know. It is a mutual relationship where employers provide an enabling environment for new graduates and the graduates prepare themselves to enter the world of work. It also became clear from the employer's comments that good people skills go a long way, even if graduates may be lacking in a number of skills but respect and willingness to learn can help the employee learn on the job.

5.1.4 Relevance of the Curriculum to the Work Environment

The research results revealed that respondents from both institutions felt that their programmes were relevant to the needs of the society and the employers. They expressed that the program is good. Extension course seems to be the core of all the courses because it is the

key to communicating with people and taking the skills to the people. Plant production, animal production, agricultural economics, and organic agriculture, environmental management are other important courses that the respondents found useful in their academic training.

5.1.5 Differences between Structured and Unstructured Experiential Learning

The results of the study revealed that respondents from both institutions were exposed to different types of experiential learning. The results indicate that there are noticeable differences between the respondents who underwent unstructured or structured experiential learning. The respondents who underwent unstructured experiential learning indicated that they would like to have a more structured experiential learning component in their curriculum. The respondents who had a structured experiential learning indicated that it helped to familiarize them with the working environment.

The results revealed that employers felt that structured experiential learning is beneficial to both students and the employers who are providing experiential learning. However, if experiential learning is unstructured, it makes it difficult for the employer to help students because the outcomes are not clearly defined and there is no communication between the institution and the industry. The study revealed that for experiential learning to be a learning experience, proper planning is essential from the side of the institution sending out students for experiential learning. Proper supervision of the students in the experiential learning site should also be ensured.

The results also indicate that a well planned and assessed experiential learning helps students to learn through reflection, taking into consideration that by experiential learning we do not mean only outdoor experiences or students only getting their hands dirty. Well planned experiential learning helps to guide students to reflect about their own experiences, not just to get actively involved. Well planned experiential learning is based on the assumptions

highlighted by Andresen, Boud, and Cohen (2000) which assert that experience is the foundation of and the stimulus for learning. Learners actively construct their own experience and learning is a holistic process. They further state that learning is socially and culturally constructed, and is influenced by the socio-emotional context in which it occurs. Andresen, Boud and Cohen (2000) also assert that the distinguishing feature of experience-based learning is that the experience of the learner occupies a central place in all considerations of teaching and learning. Experience-based learning is based on a set of assumptions about learning from experience which include that problem-based learning provides an environment where the student is immersed in a practical, on-going activity in which he or she receives feedback from other students and the instructor. The student receives guidance and support from his or her friends and peers, and, as a result, learning becomes multidirectional instead of being unidirectional from teacher to students (Peterson, 1997). From this background, it is clear that a structured experiential learning curriculum contributes to students learning and that is why there are differences between structured and unstructured experiential learning.

5.1.6 Curriculum Structure

5.1.6.1 Lecturers

Based on the conceptions of curriculum and the basic assumptions of experiential learning adopted by the researcher, curriculum cannot be separated from the context within which it operates. Experiential learning must also be contextualized in order to contribute to students learning. The study revealed that the lecturers believed that experiential learning can enhance the learning of students, especially in the courses like agriculture and community development. However, the kind of experience that students should be exposed to should be relevant to the needs of students and the communities they serve. The findings also indicate that an integrated curriculum which is relevant and needs driven is essential in higher education especially in the agricultural extension and community development fields. The reason is that higher education is expected to play a role in the economic development of the

country through the production of graduates who form part of the poverty alleviation strategy and improved food security in the country. This became evident in respondents from both institutions and from employers and lecturers. The curriculum of both institutions is multi disciplinary in nature, and they deal with a number of real world issues like hunger, poverty, food security, and a number of development issues. A focused kind of experiential learning is suggested for institution A.

5.1.6.2 Alumni

The respondents also felt that the names of the courses have an impact on their identity and make it difficult to compete effectively in the job market because the potential employers think that they have done elementary courses. Students want to be confident of their achievement. The naming of the courses must indicate the strength of the course as the respondents from institution A indicated. The study revealed that the naming of courses in tertiary institution has an impact on the students. They want something that will give them confidence and which they can also identify with. The naming of courses as basic courses give an impression of rudimentary skills in the course. When they look for employment, the employers employ somebody with an advanced knowledge of the course. Competition is very high out there. Institutions should also keep in check on the employability of students and find ways of making the qualification more attractive to the employers.

5.1.6.3 Constraints Owing to the Curriculum Structure

The study also revealed that the current structure of the curriculum in institution A is a limiting factor. The programme is semesterised. This makes it difficult to allow students enough time to spend in the field with the industry players. The curriculum is content laden and students spend a lot of time in lecturers and preparing for tests and examinations. The amount of the content contributes to time becoming a major constraint when it comes to implementing effective experiential learning programmes. The lecturers indicated that the curriculum is being restructured and the process of restructuring has been in progress for some time. The study also revealed that the concerns of alumni from institution A about the

curriculum structure and the naming of courses as ‘basic’ was also a concern to the lecturers as they were also concerned about the employability of students and thus the way the courses were named was also being reviewed.

The current structure limits the implementation of effective experiential learning programmes in institution A. However, the restructuring of the curriculum is an active ongoing activity in institution A. The process includes all stakeholders, including the alumni. A partnership between the institution and the industry has been forged and is an important part of the curriculum review in institution A. The advisory board consists of people from industry, communities, farmers and former students.

Although experiential learning is unstructured at the moment, students get exposed to experiential learning that is course-based. There are courses that require specific kinds of experiences for instance, exposure to community-based projects, field crop production and others. The lecturers concerned take students out on those field trips either on a day’s trip, from morning to the afternoon, then the students write reports based on their experiences. Other lecturers take three days or a week’s trip going out with students to specific areas where students are required to learn specific aspects about the course they would have learned in class and where they must link the theory with the practical aspect. For example the lecturer teaching students about the climatic requirements of pineapple production. After lecturing to students about all the effects of climate on pineapples, he organizes a trip which will have students going to the pineapple producing areas like Hluhluwe. When students are able to see the real pineapples, the theory they would have learned in class will make sense to them. To make the field trip a learning experience, students are required to write reports. Students are also advised beforehand that what they learn from the field trip is part of the examination. In all these community learning activities with students, it becomes clear that time and the structure of the curriculum are limiting factors. It puts pressure on both students and lecturers. One will find that students will be under pressure because they also need to

prepare for other courses and they may end up not reflecting on their experiences when they write their reports. It is therefore important to have structured experiential learning in order to provide effective experiential learning that will lead to effective learning and create good partnership between the industry and higher education. The curriculum review that is in progress is also looking at finding a suitable structure of experiential learning that will suit the needs of the students and promote reflective learning, not just involving students in a practical situation.

5.1.7 Responsive Curriculum

A responsive curriculum which is in line with SAQA which takes care of the new knowledge production with appropriate technology and training was suggested in the previous chapters. Experiential learning interventions were also discussed. The findings suggest that experiential learning has the potential to improve the learning of students if it is well planned and monitored by both the lecturers in the tertiary institution and in the experiential learning site. It appeared that experiential learning exposes the learner to the real- world because it allows students to interact with people. That experience of interacting with real people in the field cannot be achieved in a classroom.

From the responses it became clear from all respondents that it is important that students are assisted by the academic institutions at some point to integrate the theory they learn in class into the practice. This integration will help to eliminate the confusion which affects graduates during their early days in their employment expressed by one of the employers.

The findings also indicate that an integrated curriculum which is relevant and needs driven is essential in higher education especially in the agricultural extension and community development fields. The reason is that higher education is expected to play a role in the

economic development of the country through the production of graduates who form part of the poverty alleviation and food security strategies. This became evident in respondents from both institutions and from employers and lecturers. An integrated curriculum that embraces experiential learning equips students with technology, especially computer literacy and is linked with the relevant industry.

5.1.8 Experiential Learning

The findings suggest that experiential learning has potential to improve the learning of students if it is well planned and monitored by both the lecturers in the tertiary institution and in the experiential learning site. It appeared that experiential learning exposes the learners to the real world because it allows students to interact with people. That experience of interacting with real people in the field cannot be achieved in a classroom as they indicated that the textbook knowledge is not enough.

Those respondents who went for a structured form of experiential learning, learned better in their situation. The reason for better learning is that the way in which experiential learning was structured enabled the processes of reflection to take place. To enable reflection, the process consisted of journals, reports and the final assessment through presentation. The respondents were able to make sense of their experiential learning as indicated by Kolb (1984) in his experiential learning cycle. Jarvis (1992, p.11) also asserts that “learning is of the essence to everyday living and conscious experience. It is the process of transforming that experience into knowledge, skills, attitudes, values and beliefs.” Having resources like time set aside for experiential learning also makes it successful compared to when experiential learning competes with other activities. Availability of financial resources also facilitates the running of experiential learning. Students usually experience accommodation and living allowance problems when they go for experiential learning without funding.

The study also revealed that there is poor linkage between the organizations providing experiential learning and the institutions sending graduates for experiential learning. The problem with the coordination of experiential learning in higher education is that it takes a lot of time and lecturers are also bogged down with their day to day lecturing loads. The courses are semesterised in the case of institution A with tests and assignments to mark in order to accumulate the semester course marks for students. Coordinating and follow up of students on experiential learning adds another load to lecturers. Therefore the suggestion is that there must be a person assigned to coordinating experiential learning. The person coordinating experiential learning should have fewer subjects to teach and the experiential learning should be given full recognition as a subject and must be properly assessed if it is going to be regarded as a learning experience. Having someone coordinating experiential learning will not mean that other lecturers are not part of the experiential learning, but he or she will work with other staff members but take a lead when it comes to visiting and making sure that there is proper communication between the industry offering experiential learning and the academic institution.

5.1.9 Strengthening Partnerships with other Stakeholders

The results of the research indicate that there is also a need for strong partnership between the institutions of higher learning and the organizations offering experiential learning in order to make experiential learning experience. Supervised experiential learning, and strong partnerships with other organizations involved in extension will help students acquire the skills that will make them effective extension workers. A strong partnership between higher education and the industry will make them reinforce each other.

The other finding is that most of the respondents from institution A developed their competencies through short courses in their employment while most of the respondents from institution B developed some of their competencies through experiential learning in the form of internships and in-service learning. The study also revealed that the employers indicated

that experiential learning helps to orientate the students to the work environment and also help employers to have a pool of employees.

As the aim of experiential learning is to integrate theory and practice, it appeared that it is a necessity for higher education as both respondents from institutions A and B stressed the importance of the practical component of agriculture and community development. The employers also indicated that students find it difficult to apply what they would have learned in the real world of work. Therefore workplace learning serves the purpose of integrating the theory with the real world only if it is well coordinated between the higher education institution and the industry. Again, the curriculum structure seems to limit the effectiveness of most experiential learning endeavors.

As one of the employers indicated, some students discover some fields are not lucrative after being employed and exposed to the work situation, this means that if they had been exposed to experiential learning, they would have been able to make up their minds and change the career early. Earlier exposure to the profession is also important to enable students to make informed decisions regarding their career choice.

5.1.10 Mentoring of Graduates during Experiential Learning

The study also revealed the importance of mentoring in education. Mentoring students in experiential learning by the lecturers is very important if it is to contribute to the learning of students. A workplace mentor is essential. A workplace mentor will act as a link between the industry and the institution. The presence of a mentor also helps to guide the student and familiarize him or her with the workplace environment. The mentor should also be somebody who is knowledgeable in the field of the student and be willing to support the student in all respects in order to maximize learning. In other words, it must be someone who can motivate the students towards the achievement of the outcomes and also make the environment conducive to learning and to ensure that the student has access to resources that

the mentee is supposed to get. The workplace mentor should also be able to assess the work of the student and be fair and not just allocate marks.

On the side of the institution, there must also be a mentor who ensures that students are doing what they are supposed to do in the experiential learning site, supporting students in terms of the learning materials as well as the information they require is important. For instance, you can issue study material to students related to a particular course but they will read it for tests and exams and then forget it. Once they are in the field they will call and ask you to supply them with the very same notes you gave them. Therefore, the support of the lecturers is very important to students in the experiential learning site. Students will be able to make that experiential learning programme a learning experience. They will know what is expected of them and know what will be assessed. In turn the workplace supervisor, lecturer or experiential learning coordinator will know what to assess. Without mentoring, it will not be possible to make experiential learning a rewarding learning experience.

5.1.11 Challenges

While the results about the contribution of experiential learning are positive, the challenge still remains of whether experiential learning can be integrated into the curriculum. The results reveal that the major constraint to effectively integrating experiential learning is time. This is a problem because of the structure of the curriculum which seems to be rigid and inflexible. The results revealed that experiential learning is time consuming and requires that the teachers become “Octopuses” which mean that they have to have to know a lot of things in order to manage students teach and engage in experiential learning. The study revealed that students find it difficult to work in groups. This suggests that students should be educated about the importance of working in teams as most employers encourage team work.

It appeared that to the employers, having interns in the organization requires extra responsibilities for the managers. It became clear that some of the employers are passionate about cooperative education and they are prepared to accommodate students.

5.1.12 Conclusions

From the responses of all the respondents, it is clear that experiential learning is important in helping students to integrate theory and practice and familiarizing the student with the world of work. Students acquire workplace skills through experiential learning. Although work integrated learning has been promulgated by law through the Higher Education Qualifications Framework, this should not be regarded as the final solution, but should stimulate institutions to engage in ongoing research for the type of experiential learning that meets different contexts. The process of engaging in experiential learning should aim at developing students who are reflective learners and at the same time develop reflective practitioners, not just implementors of the policies. For effective experiential learning programmes, partnerships with the industry will be important, which means that advisory committees should be actively involved.

5.2 Recommendations

Institution A in particular needs to fast track the process of curriculum development in order to facilitate the integration of experiential learning. The type of experiential learning should be upgraded into a more structured learning program compared to an unstructured one. It is also important to strengthen the relationships with the industry by engaging the advisory board members, experiential learning providers and other stakeholders in order to increase the chances of experiential learning sites or students. Supervision of experiential learning should also be strengthened.

As part of the process of curriculum development, the courses should be renamed to accommodate the concerns of the respondents and to improve the image of the course for marketability purposes. Good marketing of the programme will also improve the employability of students. There is a need to rename some of the courses in order to give the employer and other people a picture of what the course actually covers. The naming of the course also serves as a sense of pride to the student about the course he or she has studied.

There is a need to reinforce the technical skills of students in terms of computer programs and applied agricultural skills. More practical experience in agriculture is very important to boost the confidence of the graduates about theory work and their former institution of higher learning. The study revealed that the graduates needed advanced computer programs, not computer literacy, as technology is advancing. There are many similarities between institution A and Institution B alumni in terms of the courses offered and the nature of work that a student performs after graduating. It became clear that improving the curriculum of agricultural extension is important because of the significant role and the demand of these graduates in the society. They are involved in a range of health education, agricultural development issues.

In any training program, the higher education institutions should aim at developing the whole person rather than concentrating on technical skills. Other skills like team work, attitudes, problem solving and interpersonal skills also contribute to the success of an individual in his/her career path. In other words, emotional intelligence is also important in the agricultural extension and community development graduates.

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RESEARCH OFFICE (GOVAN MBEKI CENTRE)
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14 NOVEMBER 2007

MS. BT MASUKU (991240791)
ADULT & HIGHER EDUCATION

Dear Ms. Masuku

ETHICAL CLEARANCE APPROVAL NUMBER: HSS/0691/07M

I wish to confirm that ethical clearance has been granted for the following project:

“The possibilities of integrating cooperative education into the curriculum as a means of improving the agricultural extension curriculum in higher education”

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years

Yours faithfully


.....
MS. PHUMELELE XIMBA
RESEARCH OFFICE

cc. Faculty Research Office (Derek Buchler)
cc. Supervisor (Ruth Searle)

2007 -11- 2 2

(All three interview schedules are included in this document)

The purpose of this study is to ascertain essential elements that can be used to improve extension personnel training in higher education. The findings will be used by teachers and lecturers responsible for planning experiential learning projects, by students, and by employers of these agricultural students.

My name is Bongiwe Masuku, and I work at Mangusuthu Technikon. I am currently studying for my Masters degree, working with my supervisor Mrs Ruth Searle. This interview will take approximately 30 minutes of your time. Your participation in this study is voluntary and your participation will help to determine the role of higher education in the training of personnel and strengthen the partnership between agricultural extension industry and tertiary education institutions. The information collected from you will be treated with strict confidence. No individual will be identified, and there is no way that any of your responses will be traced back to you.

Thank you for your cooperation

6. Please describe any additional training you have undergone to become an extension worker or a community development worker. [“Additional training” means any training you underwent AFTER you graduated from your institution.

7 7a. Do you think the courses in your study at your institution are relevant to the kind of work you are now doing?

7b. If you answered “Yes” above, please name or describe these courses that are relevant to what you are doing now.

7c. If you answered “Yes” above, in what ways do you think are these courses relevant to your work now, that is, how are they relevant?

7d. If you answered “No” above, in what ways can these courses be made relevant to what you are doing now?

8 **8a. As agricultural extension/community development workers, do we need to know more about using technology (computers, cell phones, internet, etc.)? Please explain below your answer .**

8b. How equipped or prepared do you feel with respect to these skills?

8c. Please explain in what ways you need any specific technology in order to carry out your duties in your job.

9. 9a. Describe the nature of experiential training you received and how it was structured (how long was it?).

9b. How did this experiential learning contribute to your gaining of skills?

10. Considering the theory part of your training at your institution, how helpful has this been in your day-to-day job ? (Please give some examples.)

11. Did you have any personal objectives about what you wanted to achieve at the end of the experiential learning project?

If “Yes”, please describe what these objectives are.

12. 12a. What role did the teachers from your learning institution play in your professional development and how effective were they?

12b. How did they contribute to the skills that you feel you now need?

13. 13a. What role did the people you met at the experiential learning play in your development, and how effective were they?

13b. What kind of activities were you asked to do?

13c. How did they contribute to the skills that you feel you now need?

13d. How was your experiential learning assessed? Are you satisfied with the method of assessment used?

14. Do you think that the skills you could have been taught more effectively at your institution?

Please give suggestions on how they could have been taught more effectively.

PART 2: EMPLOYERS

- 1. What skills does your organization require from agricultural extension graduates? Please be specific as possible.**

- 2. Do you feel recent agricultural extension graduates exhibit those competencies when they first assume their duties with your organization?**

- 3. 3a. Do you think there are any skills which these graduates lack?**

3b. Please indicate the specific skills that are lacking.

3c. Can you suggest any reasons why such skills are lacking?

- 4. 4a. Do you offer experiential learning opportunities to students?**

If “Yes”, please describe these opportunities in you offer to students.

4b. What problems have you encountered with the experiential learning process?

5. Are there any noticeable differences in skills with students who have undergone different structures/forms of experiential learning?

Please explain.

6. How long do you think the experiential learning should take to benefit the students most? Please also explain.

7. What attitudes do recent graduates bring with them?

8. **8a. What tasks or activities do you typically assign recent graduates who join your organization?**

8b. How are these new graduates assessed in terms of performance?

9. In your organization, who mentors recent graduates during their first encounter with their job?

10 What problems have you experienced with recent graduates who work for your organization?

11. Do you know of particular programs to assist recently employed graduates?

Please describe this/these program(s): -----

12. 12a. What role do you think different stakeholders can play in the training of agricultural graduates?

12b. Considering yourself as an employer, what do you think is your role in training recent agricultural graduates who join your organization?

13. Describe the nature of access to resources for their professional development that you offer to recent extension graduates working for you or your organization. For examples: workshops, conferences, and short courses _____

14. What are the benefits that your organization has gained out of recent extension graduates?

PART 3: LECTURERS

1. What skills does the content of your curriculum provide to equip agricultural extension graduates with in order for them to be effective in their work?

2. Thinking of real world working conditions, what skills do you think are lacking in your students in order for them to be effective in their work?

3. How do you help students integrate theory with practice?

4. How long is your experiential learning project?

5. At what level are students assigned an experiential learning project?

Why at this level?

6. Do you feel this time is adequate? (please give reasons for your answer)

7. What tools do you use to monitor student progress during experiential learning project?

8. Please describe the kind of support that you provide to students during experiential learning.

9. What role do you think different stakeholders can play in the training of students?

(a) What role do you play as a teacher?

10. What problems do you encounter with the experiential learning process?

11. Does the institution provide any living allowance to students on experiential learning project?

13. What specific goals you want to achieve by sending students for an experiential learning project?

14. Do you feel the goals were achieved?

15. How did you assess students?

16. What changes can you suggest on your curriculum?
