

UNIVERSITY OF EDUCATION, WINNEBA

**TECHNOLOGY AND ITS EFFECT ON HUMAN CAPITAL WITHIN THE
FINANCIAL- SERVICE INDUSTRY IN GHANA: THE CASE OF
EJURAMAN AND ASOKORE RURAL BANK LIMITED**

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**UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI**

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DECLARATION

STUDENT'S DECLARATION

I **ASSAN PRISCILLA** declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and acknowledged, is entirely my own original work and that and that it has not been submitted, either in part or whole, for another degree elsewhere.

Signature:

Date:

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines and supervision of the dissertation laid down by the University of Education, Winneba

Signature:.....

Date:.....

PROF. GEORGE OSSEI ASSIBEY- MENSAH

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DEDICATION

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ABSTRACT

Technology transfer has brought about a revolution in the functioning of banks as it offers major opportunities to banks and their customers. This has made the transition to electronic banking a necessity for banks in order to be viable. Despite its benefits, developing countries still lag behind in the adoption of technology transfer. This study therefore seeks to examine technology transfer and its effect on human capital within the financial service industry in Ghana, focusing on Ejuraman rural bank and Asokore rural bank ltd. The study made use of questionnaires to collect data from staff of the selected banks. The study employed a descriptive research method, 75 respondents were consulted and primary data was used. The findings indicate that the banks have deployed various technology transfer, the staff does not have adequate training to assist customers who have problems with their products and services, The study recommends that the banks should train its staff on the use and the benefits associated with technology transfer adoption so that they can assist customers when the need arise, the banks should always update their information security systems to mitigate the occurrence of cyber-attacks. The banks should invest in cyber security infrastructure to safeguard their information system and the regulators should have robust legislation to govern all electronic transactions in the country. The bank management must organize seminars, to solicit the views of the employees when designing and deploying new technology to avoid some of the challenges identified.

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LIST OF ABBREVIATIONS

BOG Bank of Ghana

IS/IT Information System/Information Technology

ATM Automated Teller Machine

PIN Personal Identification Number

PC Personal Computer

ICT Information and Communication Technology

SMEs Small and Medium Scale Enterprises

SPSS Statistical Package for Social Science



CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section of the research chapter one presents in detail: the background of the study, the research problem statement, objectives of the study, the research questions, relevance of the study, scope and limitation, research methodology, as well as the organization of the study.

1.1 Background to the Study

Globalisation, technological change, market complexity, and the growing number of competitors in industries have put high premium on human capital development (Marimuthu *et al.*, 2009). Fisher *et al.* (2003) emphasis that production technology, financing, and marketing can all be copied by other competitors, but the strategy that is harder to copy is the unique ways an organisation optimises its workforce through comprehensive human-capital development towards the realisation of organisational goals, long-term survival, and sustainability. Marimuthu *et al.* (2009) describe human capital as the knowledge and training required and undergone by an employee that increases the individual's capabilities in performing activities of economic values.

Human capital has been generally accepted as the most valuable asset of organisations. It is an important variable that determines an organisation's competitive success and profitability in today's market place. According to Fisher *et al.* (2003), human capital well

managed is most likely to provide potential competitive advantage of one corporate business over another. Besides, its significance to a firm's success, human capital is key to an individual's employability and earning capacity.

According to Cho et al. (2015), the South-East Asia economic breakthrough was as a result of human-capital development. The expertise of workers was excellent in their ability to learn, adapt and adjust to world industrial trends. This was not without proper system of education. This industrial advancement in the South-East Asia was also due to technological advancement (Hamidu, 2011).

Technological advancement has been the advantage of the advanced world over the third-world countries in terms of industrialization. Technological advancement has been the source of livelihood of some individuals and some countries globally. It has also continuously modified the labour market. If this modification continues, low-skilled labour force will be at the disadvantage. This is because computing advancements and robots normally replace employees undertaking repetitive jobs. It is also worth noting that, despite the use of technology by most corporate entities, employment opportunities are on the surge for skilled labour to complement new technology.

According to Mayer (2010), technological transfer of the Least-Developed Countries (LDC) has increased, though the disparities between the countries are quite significant. However, the LDCs need human capital to absorb and integrate the improved access to technology, as well as adequate economic policies and supporting institutions that

encourage the amounts and types of modern technology they can import. Technology Transfer (TT), according to Nzumo (2010), is the process of transferring skills, knowledge, and technologies among governments or institutions to ensure that scientific and technological advancements are exploited in the development of new products, processes, applications, materials, or services. Some developing countries, including Ghana, have established Technology Transfer Offices (TTO) solely for identifying appropriate research and development strategies. Examples of such institutions in Ghana are the Technology Consultancy Centre (TCC) of the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, the Development and Application of Intermediate Technology (DAPIT) in the Greater Accra Region, and the Ghana Regional Appropriate Technology Industrial Service (GRATIS) in Accra-Tema, among others.

Ghana's economy is still cash-based with high cost of transactions. Ghana's banking system has not been fully automated to rake in the benefits of technological transfer. The Bank of Ghana, in its move to ensure that commercial, community and rural banks adhere to conventional ways of transacting finances, requires all banks to effectively adhere to new and innovative approaches of transacting business. A dynamic growth-oriented financial system must be underpinned by an efficient payment and settlement system. As a result, the Bank of Ghana is pursuing a major overhaul and modernization of Ghana's payments and settlement system infrastructure. For example, as part of this process, the Bank has implemented the Real Time Gross Settlement System (RTGS) for high-value payments. The RTGS has created an enabling environment for safe, sound, secure, and timely payments. It has also reduced systemic payments and settlement risks as payment

orders are settled almost instantaneously. All these new and modernized systems require improved human capital, which has been endorsed to be effectively achieved through technology transfer.

It is against this background that this study seeks to examine the technology transfer in the financial-service industry in Ghana and ascertain its effect on human capital. It is believed that a lot of potential still remains in terms of human resources that can enable Ghana to rise to the level of the advanced countries in Europe, North America, and that of the newly-industrialized economies of South East Asia.

1.2 Problem Statement

The Bank of Ghana (2014) admitted that liberalizing entry and encouraging foreign banks and investors in the financial-services industry has increased competition in that industry. According to the Bank, this has also helped introduce strong business practices, technology, products, and risk-management systems. The emergence of new players and new technology have created gaps in the financial-service industry. Gordon (2016) attributed it to lack of technical skills and professional knowledge on technology-innovative methods of transacting business. Zeto (2016) further reiterated that the rapid evolution of financial-services industry and the growing significance of financial institutions in Ghana cannot fully materialize without skilled human capital. This is because skilled human capital is the focal point in sustaining performance and competitiveness of financial-services industry.

A study by Batra and Tan (2012) found that institutions in developing countries do not invest enough in training of employees. Where they do, the training is relatively unequally distributed among employees. This has been a hindrance to the progress of technological advancement in developing countries like Ghana, which are trying to catch up with the skill level of the developed economies.

With new players and technology advancement, the problem Ghana faces such as unskilled human capital and low level of technology application in the financial-service industry is considered as a gap which needs to be seriously examined and bridged. This study is, therefore, set out to analyse the technology-transfer level in the Ghanaian financial-services industry and its effect on human capital. This study will not only fill the research gap but also serve as the foundational study upon which further research can be conducted.

1.3 Research Objectives

The primary purpose of the study is to examine technology transfer and its effect on human capital within the financial-services industry in Ghana, focusing on Ejuraman Rural Bank and Asokore Rural Bank Ltd. To achieve this purpose, the following specific objectives have been set:

1. To evaluate the technology-transfer process within the financial-service industry in Ghana;
2. To evaluate the human-capital development within the Ghanaian financial-services industry;

3. To determine the effect of technology transfer on human capital within the Ghanaian financial-services industry; and
4. To identify challenges with transfer of technology within the financial-services industry.

1.4 Research Questions

The following research questions have been asked to guide the study analysis and discussion:

1. To what extent is technology transfer being adopted within the financial-service industry in Ghana?
2. What is the level of human capital development within the Ghanaian financial-service industry?
3. What is the effect of technology transfer on human capital within the Ghanaian financial- services industry?
4. What are the challenges with transfer of technology within the financial-services industry?

1.5 Significance of the Study

The study presented empirical evidence of the effect of technology transfer on human-capital development in the financial-services industry. This provided a profound opportunity for financial services institutions to develop the required technology transfer strategy to improve on their human-capital development. The findings of the research would also equip the financial- services industry, especially those that were involved in

study, in terms of challenges facing the technology transfer and human-capital development.

Finally, the study is a contribution to the wide range of literature and scholarly works in the field of technology transfer and human-capital development. It will also provide the framework and set the stage for further empirical studies to be conducted into the technology transfer and human- capital development in the Ghanaian financial-services industry.

1.6 Scope of the Study

This study is limited to the financial-services institutions in the Ashanti Region alone. It is further limited to two particular institutions; Ejuraman Rural Bank and Asokore Rural Bank Ltd.

1.7 Brief Methodology

This study employs descriptive research approach. The study is quantitative in nature, with questionnaire as the main instrument for data collection. The study population is made up of all the workers of the three financial institutions. It also uses stratification as sampling method. Statistical tools to be used are frequencies, tables, percentages, charts, and, where appropriate, regression, Chi-square, and mean score analysis will be employed.

1.7 Organization of the Study

The first chapter presents the background to the research, as well as the problem statement, purpose, objectives and research question, and the significance and scope of the study.

Chapter Two presents the literature review, which explains the theoretical framework for the study.

Chapter Three presents the research methods that are used for the survey. The Fourth chapter presents the empirical findings. Last Chapter Five presents the findings, summary, conclusion, and recommendations for companies, as well further studies.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section of the thesis concentrated on the review of literature on the effect of technology transfer on human capital in the financial sector. The key areas of the literature review included the concept of technology transfer, human capital, the modes of technology transfers, effects of technology transfer on human capital, and so forth.

2.1 The Concept of Technology Transfer

The existing literature on the impact of technology transfers in developing countries concentrates mainly on large-scale indicators such as employment, income distribution, economic growth, and development. Berman and Machin (2000) study the impact of technology transfers on the composition of labour markets, while Djankov and Hoekman (1998) study its impact on TFP (Total Factor Productivity) growth. Hu, Jefferson, and Jinchang (2003) concentrate on how technology transfers are complemented by intra-firm research and development. Gemmell and Kneller (2002) analyse the post-war growth experience of developing countries as affected by shocks in the form of technology transfers. The most comprehensive analysis directly linking technology transfer to skill development is by Miyamoto (2003), but it concentrates on imports of technology and the accompanying training spillovers rather than direct skill sharing.

An important point that the literature concentrates on is the relationship between joint ventures and knowledge spillovers. Clarke-Hill and Robinson (1998) compare international joint ventures and buying alliances and find that joint ventures are characterised by a greater level of knowledge-sharing. In contrast, Smarzynska (2000) suggests that although developing countries tend to favour joint ventures over other forms of foreign investment, joint ventures in industrial sectors with a high degree of investment in research and development may present less potential for technology transfer than wholly-owned subsidiaries. However, in a later paper, Smarzynska (2004) finds that there are positive knowledge spillovers associated with projects with shared domestic and foreign ownership but not with fully owned foreign investments.

A contrary viewpoint is offered by research from Haddad and Harrison (1993). Using data on the Moroccan manufacturing sector, they find no evidence that foreign presence accelerates productivity growth in domestic firms. Similarly, Görg and Greenway (2004) find that empirical support for positive knowledge spillovers is at best mixed.

2.2 The Development of Human Resources in Technology Transfer

The most important interface in technology transfer is human resources. Therefore, the key point in technology transfer is how to transform human resources into an idea interface. The development of human resources in technology transfer can be conducted in two ways:

(1) From a microcosmic point of view, the training is done through project-based learning;

(2) From a microcosmic point of view, the training is done through self-development. Of course, self-development is still indispensable in project-based learning.

To conduct the technology transfer into technology exchange, the technology receiver has to organize a learning group to learn the ideas and methods of the technology provider. Without systematic learning, the receiver will find himself actually benefiting nothing from technology transfer.

Generally speaking, of the two ways of training, the more systematic way of training is through project-based learning, which undergoes five stages:

- (1) Confrontation. In this stage, some people may reject new technology because the shortcomings of their original technology will be revealed.
- (2) Identification of problems. The functions of the original technology are reviewed in terms of its effectiveness and efficiency.
- (3) Design of new functions. The functions of the new system either are integrated into those of the original system or replaced.
- (4) Simulation. The effectiveness of technology transfer is tested.
- (5) Evaluation. The effectiveness of technology transfer is appraised, and standards of similar technology are set.

Confrontation: The approach is to sort out the similarities and differences of the new and old systems in terms of their operating theory and rules. This can be achieved by:

Applying experience and rules to evoke technological principles and process methods of the production system; pointing out the meanings and shortcomings of the theory and

methods in practice; sorting out the principle and structure of the original operating system or functions.

Identification of the Problems. The approach is to analyse the themes. This can be achieved by: analysing the goals and mechanism of the production or operating system; analysing the process of the interaction of different mechanisms and writing them down as operation steps; elaborating under each step the approaches to handle a certain condition and their possible or definite results.

Design of New Functions. The approach is to adapt to the new principles and rules. This also can be achieved by: finding out the operating principles and rules of the new technology; and pointing out the effective parts of the operating system and production functions.

Simulation: The approach is to test the operating procedures and production functions. This can be achieved by: symbolizing the simulation of the new system to serve as the conditions; and examining whether the handling approaches and the production system comply with the goals and mechanism of the production system or the operating procedures.

Evaluation: The approach is to formalize the transferred technology. This can be achieved by: appraising the operating effectiveness of the new system and then analysing the conditions of its integration and application to select applicable themes; working out the practical procedures to apply the operating principles and rules of this system to other systems; formalizing the above procedures or principles of each stage,(i.e., making them serve as the standards of technology transfer).

The literature clearly shows that foreign investment has a significant positive effect on knowledge spillovers. Branstetter (2006) suggests that foreign direct investment increases the flow of knowledge both to and from the investing firm of country, which provides firms in developed countries with the incentive to invest in developing nations. As for the relationship between intellectual capital and knowledge spillovers from foreign trade or investment, Grossman and Helpman (1991) show that policies that restrict foreign trade or investment have an adverse effect on innovation. Engelbrecht (2010) confirms that human capital has a positive role in the absorption of international knowledge spillovers.

Mottaleb and Sonobe (2011) take a more country-specific approach in their in-depth analysis of the rapid growth of the Bangladeshi garment industry. They explore the process of continuous learning started by the initial infusion of knowledge by the technology transfer from South Korea in the 1970s, and provide evidence (at least for a particular industry) that technology transfer leads to rapid and continuous growth and development. However, a review of the academic literature reveals that it is mostly silent on the impact that technology transfer has on long-term human capital development: the issue this project attempts to analyse.

2.3 Empirical Review

In general, firms in developing countries do not invest enough in training of employees (Batra and Tan, 2002). This, coupled with the fact that this training is relatively unequally distributed among employees, may be a hindrance to progress, especially when developing countries are trying to catch up with the skill level of the developed

economies. Enterprise training is one of the most important sources of skills acquisition; studies have shown that enterprise training raises labour productivity substantially, especially in small to medium sized firms (World Bank, 2007).

Technology does not operate or use itself. To be useful, it requires skilled labour or human capital to employ, apply, and operate it in the production of goods and services. In this way, a change in human capital can explain a change in the technology, making the technological change an endogenous variable in a model containing human capital investments (Tallman and Wang, 1992). Studying the technology adoption in the case of computers, Casselli and Coleman (2001) found high levels of educational attainments to be an important and robust determinant for the adoption of computers. The endogeneity of technological change in a model containing human capital is further confirmed by Stadler and Wapler (2004). They find that “an increase in the supply of high-skilled labour can result in skill-based technological change”. This implies that countries can invest in high-skilled labour and expect to realize technological change following the high levels of educational and skill attainments.

Analysing the determinants of the rapid economic growth of United Arab Emirates, Alkhateeb et al. (2007) find that human-capital is a pre-requisite in order for the new technologies to be of any use. In an extensive study on the factors responsible for the technological divide between the developed countries and the rest of the world, Burns (2008) argues that the lack of technical skills or skilled labour in the developing countries to adopt and master new technologies cause the technology to diffuse slowly in these

countries. The role of human capital in diffusing new technologies is significant also in complementing another channel of technological transfer, such as research and development. Apergis and Economidous (2009) study the technological diffusion in 21 manufacturing industries in six European Union countries, and they find that the magnitude of R&D spill over increases significantly in the presence of human capital in the model.

It also complements the technology spillover effects of FDI (Zhu, 2010). Another important conduit for the technology diffusion is FDIs as evidenced in the economic transformation of China (Young and Lan, 1997), where FDI continues to play a key role in transferring technology from the developed countries, where it first gets innovated and adopted, to china, where it is diffused. Studying channels of technology transfer in 22 developed countries, Hejazi and Safarian (1999) find the FDI stock coefficient to be higher than that of trade, and that the relevance of the trade channel is weakened when FDI is included in the model. In the case of Venezuela, Aitken and Harrison (1999) find that FDI negatively affects the productivity of domestically owned plants, whereas foreign equity participation is positively associated with plant productivity. This raises a question for further study into the role of various types of FDIs. The current paper attempts to answer this question in the case of Saudi Arabia by using the stock of FDIs instead of its flow. The flow of FDI could be highly volatile, particularly in the case of high-risk developing countries, and hence this can result in negative association between FDI and domestically owned plants.

FDI in the technology diffusion is also supported by the presence of human capital. Ciruelos and Wang (2005) study the technology diffusion in 57 least developed countries, and find that FDI can only enhance the technology when it is supported by some threshold of human capital. The third important channel for the technology diffusion is capital goods imports, or intermediate goods imports. These goods are assumed to embody both the foreign technology and the spill over effects of foreign research and development. Casselli and Coleman (2001) find that manufacturing imports from developed countries are significant determinants for the technology adoption. The origins of the capital goods imports are relevant for the technology adoption.

Capital-goods imports from non-advanced countries appear not to embody technology or R&D spillovers (Casselli and Coleman (2001), and Veeramani 2009). Roy (2009) examines the impacts of capital goods imports on total factor productivity in 77 countries for the period 1975-1995, finding robust and significant effects of capital goods imports on total factor productivity.

The fourth channel is international and domestic research and development expenditures. It is found to significantly channel technology into domestic economy. Wei and Liu (2006) examine the productivity spillovers in 10,000 indigenous and foreign invested firms in china for the period 1998-2001, and they find positive productivity spillover effects from R&D expenditures between industries. Keller (2002) earlier studied the productivity effects of R&D for the period 1970-1991 in the industry data that covered 65 percent of the world's manufacturing output, and he found within industry R&D to contribute 50 percent of the productivity effects, R&D in other industries to contribute 30

percent of the productivity effects, and the foreign R&D expenditures to contribute the remaining 20 percent.

Finally, the other important conduit for the technology diffusion is the international trade. It is the least important channel as the literature indicates. In fact, Casselli and Coleman (2001) find no evidence for the relevance of trade or degree of openness in the technology diffusion. In analysing 20 technologies across 23 leading industrial economies, Comin and Hobijn (2004) find degree of openness to trade to play some role in the technology diffusion. For least developed countries, Ciruelos and Wang (2005) find strong evidence that trade serves as an important channel of international technology diffusion, and thus no conclusive evidence in the literature for the role of trade or economic openness in the international technology diffusion. Some researchers have looked for other characteristics of technology diffusion.

For example, technology diffusion is found to be localized as it declines with increasing distance from its origin of innovation (Keller, 2002). The population density is found to be relevant in diffusing a new technology, as high-population density increases degree of interaction, network and exposure between the users and potential uses (Kladsen and Nestmann, 2006). The wider the technological gap, the faster the technology diffusion is found to be (Sjoholm, 1999; Burns, 2008). The higher the degree of market competition, and the better the market laws and regulations, the faster the technology diffusion is found to be (Zhu, 2010). Patents as a measure of technology apart of total factor productivity, has been entered in some researchers, but with mixed results. Sakakibara and Branstetter (2001) studies Japanese and US patents data on 307 Japanese firms, and he

finds no conclusive evidence that an increase in R&D or innovative output could be attributed to patents. But in the historical data of nineteenth century world's fairs, Moser (2005) find strong evidence that not only did patents determine the technological change, but they also determined the direction of the technological change.

Similar evidence has been recently found by Haruna et al. (2010) in the technological diffusion between four East Asian countries (South Korea, China, Taiwan and India) and USA, Japan, and other G7 countries.

Knowledge is seen as the key to controlling technology transfer performance (Li-Hua, 2004), and there is a vast body of quantitative research on the factors inhibiting and facilitating efficient knowledge and technology transfer. However, these works have examined only a few dimensions, such as the characteristics of knowledge, its suppliers and recipients, their relationships (e.g. Kogut and Zander, 1993; Rebentisch and Ferretti, 1995; Gupta and Govindarajan, 2000; Pak and Park, 2004; Sazali and Raduan, 2011), organizational learning (Jabar et al., 2011), and management practices (Nguyen and Aoyama, 2012b, c). Some studies have explored the importance of national culture, the obstacles stemming from cultural differences, and the conflicts and misunderstandings occurring in cross-cultural knowledge and technology transfer (e.g. Lyles and Salk, 1996; Mowery et al., 1996; Simonin, 1999; Lin and Berg, 2001; Evangelista and Le, 2009).

Few exploratory studies have investigated how cultural

differences affect knowledge transfer (e.g., Bhagat et al., 2002; Lucas, 2006; Chen et al., 2010; Nguyen et al., 2012; Nguyen and Aoyama, 2012a). Most studies on cross-cultural technology transfer which have aimed to explain the nature of international technology transfer have not adequately addressed how to achieve efficient technology transfer cross-culturally. The prevailing issue now is the question of what managerial activities significantly promote technology transfer implementation in the context of cultural difference. However, a fundamental understanding of cross-cultural technology transfer, and particularly of ways to minimize cultural difference's constraints on international transfers, has not yet been holistically achieved, as is shown below. Culture affects technology transfer through various sub-criteria, such as attitude, motivation, and complexity (Erensal and Albayrak, 2008). Both the partners' national and organizational cultures can affect all aspects of collaboration during cross-national knowledge transfer management within a business context (Tiemessen et al., 1997).

The partners' distance and cultural differences are major obstacles to inter-firm knowledge transfer (Mowery et al., 1996). Cultural conflicts, cultural misunderstandings, and communication obstacles rooted in cultural differences minimize flows of information and learning (Lyles and Salk, 1996) and have become issues that condition the success of organizations (Lyles and Salk, 1996; Simonin, 1999). Specifically, national culture affects the values, attitudes, and behaviors of an organization and directly impacts knowledge transfer and individuals' sharing behaviors (Pauleen et al., 2007). Additionally, the technology transfer process involves the movement of human capital, routines, practices, and technologies to be adapted and institutionalized in the new environment (Lucas, 2006). Therefore, the differences in national culture between the

transferor and transferee create bottlenecks that either impede or eliminate the potential for successful knowledge transfer and contribute to the failure of the international technology transfer process (Dussauge et al., 2000; Lin and Berg, 2001; Lucas, 2006).

Thus, inter-subsidiary knowledge transfers tend to be more effective when the subsidiaries are located in similar cultural contexts (Lucas, 2006). Organizations located in individualist cultures prefer to transfer and absorb more explicit and independent knowledge, while organizations located in collectivist cultures prefer to transfer and absorb more tacit and collective knowledge (Bhagat et al., 2002). Individuals with a high tolerance for ambiguity are better able to transfer and receive tacit, complex, and collective knowledge than those with a low tolerance (Bhagat et al., 2002).

Also, research on cross-cultural technology transfer has revealed interesting findings but has not yet attained a sufficient understanding of which managerial elements most effectively reduce the adverse impact of cultural difference on efficient technology transfer. This study takes the knowledge-based view – specifically, its organizational learning perspective – to investigate which elements of management practice should be seen as high priority and be implemented to deal efficiently with the cultural constraints hampering efficient technology transfer and business performance.

The results should be highly interesting to global companies, particularly Japanese manufacturing subsidiaries in Vietnam, as they search for intellectual management strategies by which to innovate for the sake of competitive advantage.

2.4 Theoretical Review

Research on technology transfer in the world focuses on two areas: (1) Making comparisons with technology transfer in different countries, and (2) Investigating the

effect of government policy on technology transfer. Reviewing technology-transfer theory is necessary before discussing the strategies. There are many contributions to this theory, the important ones here being:

2.4.1 Product Life Cycle

According to Vernon (1966), the product life cycle can be divided into three stages: new-product stage, mature product stage, and standardized product stage. In the new-product stage, the product is manufactured in the home country and introduced into foreign markets through exports. In the mature product stage, as technology becomes sufficiently routine to be transferred and a firm's export position becomes threatened, the firm is induced to produce abroad, generally in other advanced countries. Finally, as the product becomes completely standardised, production will be shifted to low-cost locations in developing countries. Vernon pointed out that, due to globalization, the environment has changed. This change has weakened the power of the life-cycle theory, although the age of technology may be correlated with the form of transfer, especially for large-scale projects. Firms invest large amounts of resources in research and development (R & D) with the intention of creating a unique competitive advantage. Their first move will be to export goods having the technology content of the latest generation. It appears that brand new technologies may be positively related to foreign direct investments and mature technology with licensing. From the theory of the product life cycle developing countries can mainly obtain standardised technology through licensing agreements. Dunning (1995) points out that the only way in which developing countries can obtain advanced technology is through foreign direct investment.

2.4.2 Eclectic Theory of International Production

Dunning (1979) developed the eclectic theory of international production. According to this theory, three conditions must be met for foreign direct investment through multinational enterprises (MNEs) to occur. First, MNEs must have ownership-specific advantage and be competitive. Second, FDI must be preferred over trading and licensing. This will be the case when market imperfections create additional transaction costs associated with trade and licensing. Third, the location advantages of particular foreign countries should make FDI into these countries preferable to making direct investments in other potential host countries. The eclectic theory contributes to building both necessary and sufficient conditions in which FDI can exist and be conducted.

2.4.3 Moving Back Up the Product Cycle

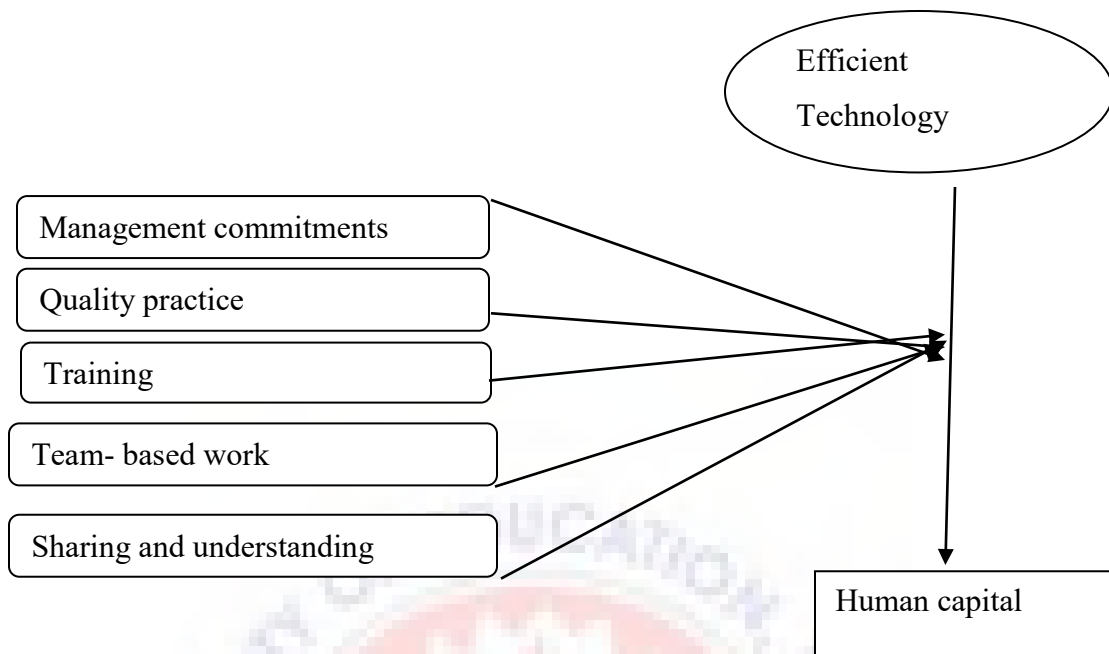
Amsden (1989) has pointed out that, if industrialization first occurred in England on the basis of invention, and, if it subsequently occurred in Germany and the USA on the basis of innovation, then it occurs now among "backward" countries on the basis of learning. Learners do not innovate (by definition) and must compete initially on the basis of low wages, state subsidies, incremental productivity and quality improvements related to existing products. The shop floor tends to be the strategic focus of firms that compete on the basis of borrowed technology. It seems that the product cycle in developed countries is along the route: research development design production. In developing countries, it is along the route: production design development research. The basis of the first route is innovation. It needs a large number of highly qualified scientists, engineers and technologists and is sustained by large R & D spending. The second route is a learning

and accumulation route, which is based on the transfer, absorption and adaptation of existing knowledge. Learning is also enabled to create new technology and new products to suit market needs. In this route, R & D is carried out mainly to facilitate learning, and focuses on the technology that is excluded by foreign firms.

Overall, technological progress in developing countries relies heavily on imported technology and thus on an internal capacity to absorb foreign knowledge. FDI (through wholly foreign-owned companies and joint ventures) and licensing agreements are major channels for importing technology.

2.5 Conceptual Framework

Previous research allows the study to identify the adverse impact of efficient technology transfer on human capital. This study develops a conceptual model (Figure 1) to determine which of the management practice elements in each management practice construct (i.e., management commitment, quality practice, team-based work, training, and sharing and understanding) can significantly alter the adverse impact of efficient technology transfer to human capital. In current study, technology transfer is defined as acquiring technological knowledge from partners, enhancing knowledge application, increasing the motivation for further study, and improving.



2.5.1 Management Commitment

Cultural differences between the technology provider and receiver are considered the main issue in the conduct of cross-cultural technology transfer projects (Lin and Berg, 2001; Ganesan and Kesley, 2006). These differences can be overcome through strong commitments from the senior management teams of both the host and the foreign organization (Devapriya and Ganesan, 2002). Although senior management levels may not be directly involved with the day-to-day activities of technology transfer, companies can still successfully achieve effective long-term technology transfer performance through their wholehearted commitment, as reflected through policies, commitment mechanisms, and the process of continuous management and evaluation (Gibson and Smilor, 1992). Specifically, their roles have been seen as important to the process of providing the needed resources for achieving the learning vision (Appelbaum and

Reichart, 1998) and developing mechanisms for performance evaluation and reward systems (Love and Gunasekaran, 1999).

2.5.2 Quality Practice

In the process of international technology transfer, the implementation of quality practice is important to both the technology transfer process and the assimilation of the transferred technology into the innovative cycle (Quazi and Bartels, 1998). Also, the practice of total quality management in a company not only affects international and intra-firm technology transfer but also imparts a competitive advantage to its practitioners (Quazi and Bartels, 1998). The kaizen activities at a factory helped it achieve a smooth technology transfer, during which communication was necessary (Elsey and Fujiwara, 2000).

2.5.3 Training

The majority of human-resources training in technology transfer occurs to supply knowledge, techniques, and skills regarding working practices; therefore, there is an unfulfilled need for professional training, including theoretical and practical knowledge and skills, in technology, communication, and management. In order to ensure that the technology is used successfully in developing countries, the transfer of technology is not treated as a simple matter of providing equipment or operating instructions (Yamashita, 1991). Rather, efficient technology transfer is influenced by several factors, such as the background knowledge of the local workers, transfer mechanisms, types of technology, and cultural differences. Therefore, through appropriate training approaches, partners can

exchange experiences face-to-face through common language and increase their mutual trust, thereby achieving an efficient technology transfer performance.

2.5.4 Team-Based Work

Team-based work, including projects done by both the host and the foreign project management teams, is a major concern in and an integral part of successful technology transfer (Devapriya and Ganesan, 2002). Moreover, teamwork is a critical factor in organizational learning processes, as it creates opportunities to interact during the collaborative performance of tasks (Solingen et al., 2000) and to work together toward a shared vision and mutual objectives (Evangelista and Le, 2009). The encouragement of interaction among members is also an important factor in enabling the coordination of efforts toward improved exchanges and knowledge creation (Love and Gunasekaran, 1999).

2.5.5 Sharing and Understanding

Sharing and understanding frequently deploy the human mindset through interpersonal social interactions to capture mutual trust, empathy, help, opinion sharing, a sense of togetherness, social ties, and quality of communication at non-codified levels (Chua, 2002; Cavusgil et al., 2003). Indeed, sharing and understanding are necessary for practicing technology transfer successfully within the context of cultural distance (Teece, 1998). Differences of culture can have serious implications for the relationships between parties and constitute a major concern during the performance of management in international technology transfer projects (Lin and Berg, 2001). Therefore, high levels of

sharing and understanding lead to stronger relationships and ultimately reduce the possibility of meeting obstacles to knowledge transfer during the establishment of cross-cultural alliances (Ding et al., 2009). Moreover, communication between leaders and employees, attention to detail, commitment, mutual respect, and a cooperative spirit drive the overriding lessons concerning the achievement of productivity outcomes (Appelbaum, 2005).



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the process through which data were collected. It outlines the choice of study approach, strategy, design, population, and sample, as well as the sampling technique used. The chapter also defines the sources of data and how data were analysed.

3.1 Research Design

A research design is considered as the basic plan for conducting the data collection and analysis. According to Saunders, et al. (2009), every research generally falls into the following three categories: Descriptive, Explanatory (causal), and Exploratory. The current research sought to examine technology transfer and its effects on human capital within the financial service industry in Ghana and, for that matter, the research design chosen for the study was descriptive research. Descriptive research design was chosen because the research aimed at revealing how technology transfer affects human capital within the financial service industry in Ghana. The current research is also a dual case study since the study investigated two organisations (Ejuraman and Asokore Rural Bank). According to Saunders, et al. (2009), a case study is defined as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context”.

These data were analyzed and incorporated into the discussions of the findings. The study is to a large extent quantitative. Therefore, the questions are designed to suit quantitative analysis. As a result, most of the questions are close ended. However, there are a few open-ended ones. There are separate questionnaires for the staff of the bank and the customers. Both questionnaires are structured into sections in which each object and other segments of the study are represented by a section of the question. The questionnaires are structured in such a way that it enabled researcher to derive the right responses to aid successful completion of the project work.

3.2 Study Population

The population for any research constitutes the total group or number of people from which a sample is selected. The target population for the current study was made up of the management and the staff of Ejuraman and Asokore Rural Bank Limited.

Table 1: Study Population

Category of Respondents	Population
Management	50
Staff	100
Total	150

Source: Field Data, (2017)

3.3 Sample Size and Sampling Technique

To obtain a representative of the population for the study, purposive sampling method was employed to select a sample size of 75 respondents, which is made up of 50 staff and 25 management members for the study. The purposive sampling technique was used in selecting the staff and management of the organisations as the sample size for the study.

3.4 Data Collection

For the purpose of comparison and generalization, both primary and secondary data were employed for the study. Primary and Secondary data are as follows:

3.5 Secondary Data Collection/ Primary Data Collection

Secondary data were obtained from the Financial and Annual Reports of the organisations. Other sources of secondary data included books, journals, and related research works from the internet.

Primary data were collected from the management and staffs of Ejuraman and Asokore Rural Bank about technology transfer and its effects on human capital within the financial-service industry in Ghana.

3.5.1 Data-Collection Instruments

The study used interviews and semi-structured questionnaire as data-collection instruments. An interview guide was developed and used in soliciting data from the management and staff of the company. The researcher served as the moderator for each interview conducted, and each interviewee was asked the same question. All the area/

district managers and the head of finance were interviewed in addition to some selected directors and staff. The interview helped in ascertaining detailed responses from the respondents.

On the other hand, 75 questionnaires were distributed to the respondents to collect data from them. Before the actual survey, the questionnaire was piloted at the Roman Hill branch of the Ejuraman Rural Bank among 5 staff who were conveniently selected. Choosing to conduct the pilot questionnaire at Adum branch was a matter of convenience. Through the pilot test, the researcher learned from the respondents that it takes more than 30 minutes to complete the questionnaire and this seemed overwhelming, considering at the deadline for the submission of the project and the number of respondents involved. As a result, the researcher dropped many of the open-ended questions in the questionnaire. The researcher also learnt that some of the questions were unclear to the respondents, requiring a thorough review.

The final survey consists of the administering of the research questionnaires. 75 questionnaires were distributed and self-administered. All the 75 questionnaires issued were received by the researcher, indicating 100% response rate. Systematically, the researcher administered an average of 10 questionnaires to the staff of each branch of the organisations.

The questionnaires for the study consist of four sections: A, B, C, and D. Section A concentrated on the demographic data of the respondents, while sections B to D contained questions that led to the answering of the three main research questions.

3.5.2 Data Collection Procedure

The data-collection procedure began with the administration of research questionnaires. The researcher distributed an average of 10 questionnaires to each of the branches of the organisations in the Ashanti Region. Hence, the researcher had to travel from one branch of the bank to the other. It, therefore, took three weeks in the distribution and the collection of the questionnaire. Each respondent was encouraged to independently fill the question at individual convenient time. After the administration of the questionnaire, interviews were conducted. The interviewees included the branch managers, finance officers, and some staff of the bank who were available and willing to be granted interviews. It took an average of ten minutes in each interview conducted. The researcher served as the moderator for each interview conducted also taking the interview.

3.6 Data Analysis

The primary data were analyzed with line graph, bar charts, pie chart and histogram. This was to enable the researcher to obtain the needed frequencies to facilitate the analysis and discussion of the primary data. The regressions were conducted using statistical package for social sciences (SPSS) version 23.

3.6.1 Testing the significance of the model

The results were examined for goodness of fit coefficient (coefficient of determination, r squared), the signs of the regression coefficients, and the significance. A positive sign indicated that deposits have a positive influence on Banks financial performance. A p -

value of less than 0.05 indicated that the variables have a significant influence on financial performance.

3.7 Chapter Summary

This chapter covers the research design, sampling procedures and techniques, population size, data collection, and tools and data presentation. In order to do this, a questionnaire was designed and validated. Finally based on the data which were gathered from the 75 respondents' answers to the designed questionnaire, the analysis was conducted, and the results and the relations among the factors are explained. As stated earlier, the response was 100 percent presumably because the questionnaires were purposive. The secondary data were also obtained from the Audited Financial Statement of the organizations.

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

4.0 Introduction

In this chapter, the data collected during the research was analyzed and reported. This study was executed to achieve the stated objectives. Both descriptive statistics and inferential statistics were presented.

4.1 Background of the Respondents

Basic factual data was collected relating to the personal data of the respondents and they included gender, age group, number of years they have been working with the banks, and the educational level. These data are presented in the sub sections below. The size of the response across available response categories is indicated in percentage (%) terms.

4.1.1 Gender Distribution of Respondents

All the 75 valid respondents provided information regarding their gender details. The responses are graphically captured on figure 4.1 below.

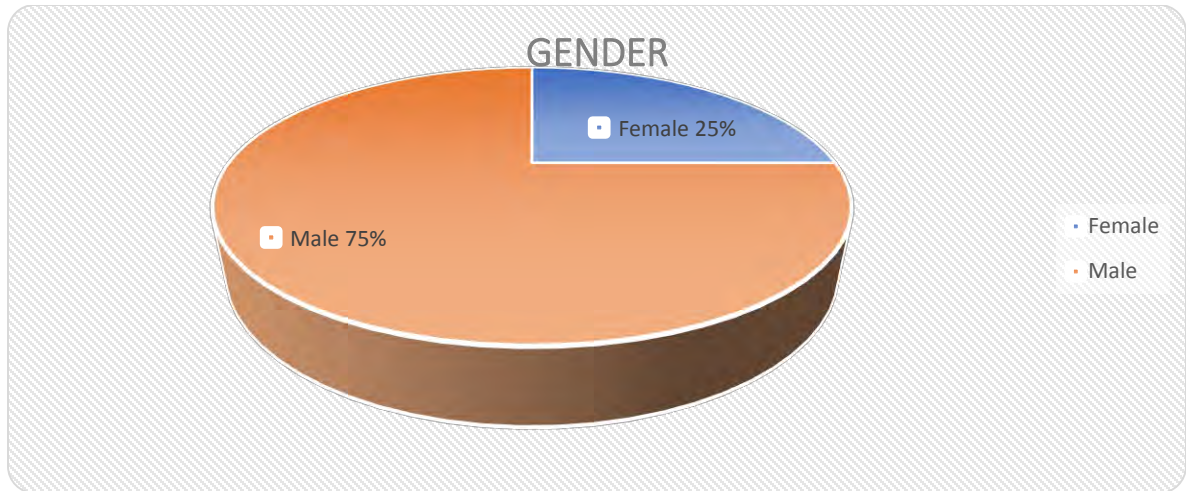


Figure 4.1: Gender Distribution

Source: Fieldwork, (2019)

The results from figure 4.1 shows that majority of the respondents represented by (75.00%) are males whereas (25.00%) are females. This indicates that the banks have more male employees than females. Moreover, it signifies that both male and female staffs of the six banks were captured in the study to help eliminate any bias that is attributed to gender distribution.

4.1.2 Age Distribution of Respondents

Details about the age distribution of the staff members were obtained and the result is displayed on figure 4.2 below.

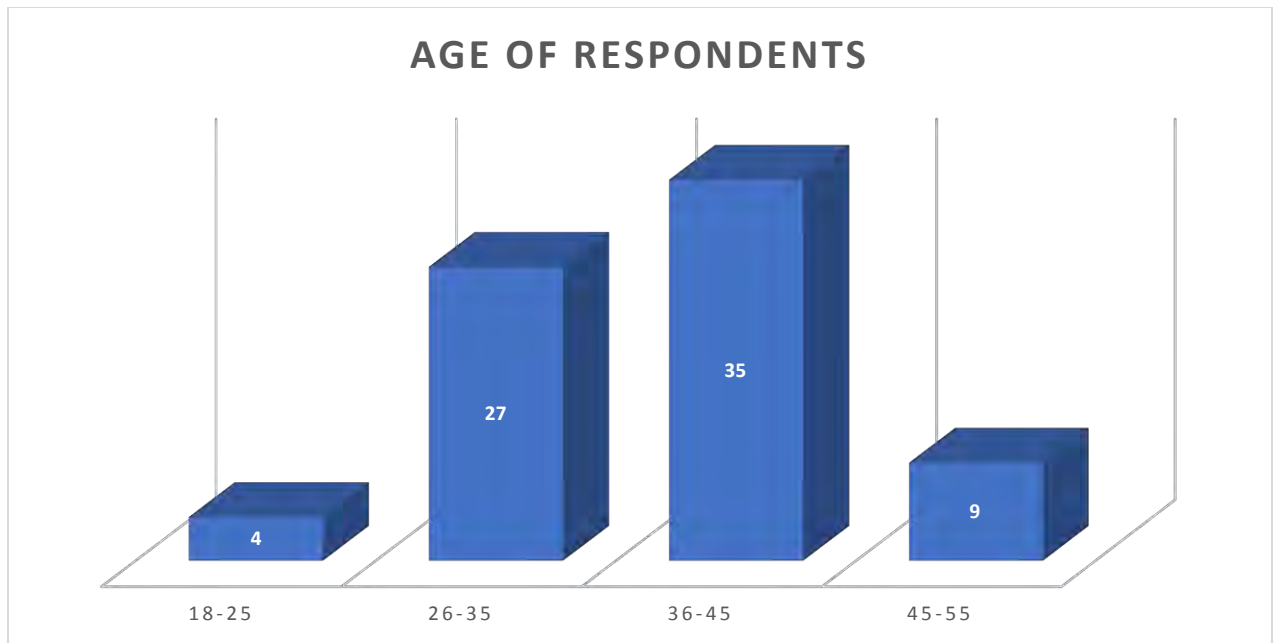


Figure 4.2: Age of Respondents

Source: Fieldwork, (2019)

As displayed on the figure 4.2, majority of the staff members which represent (35) are aged between 36-45 years, (27) between 26-35 years, (9) between the age of 45-55, then (4) falling between the age groups of 18-25 years. This means the banks has a balanced work force and for that matter succession would not be a problem to the banks.

4.1.3 Longevity of Service

The study investigated the length of service in years served by the respondents in their positions and the findings are presented on figure 4.3 below.

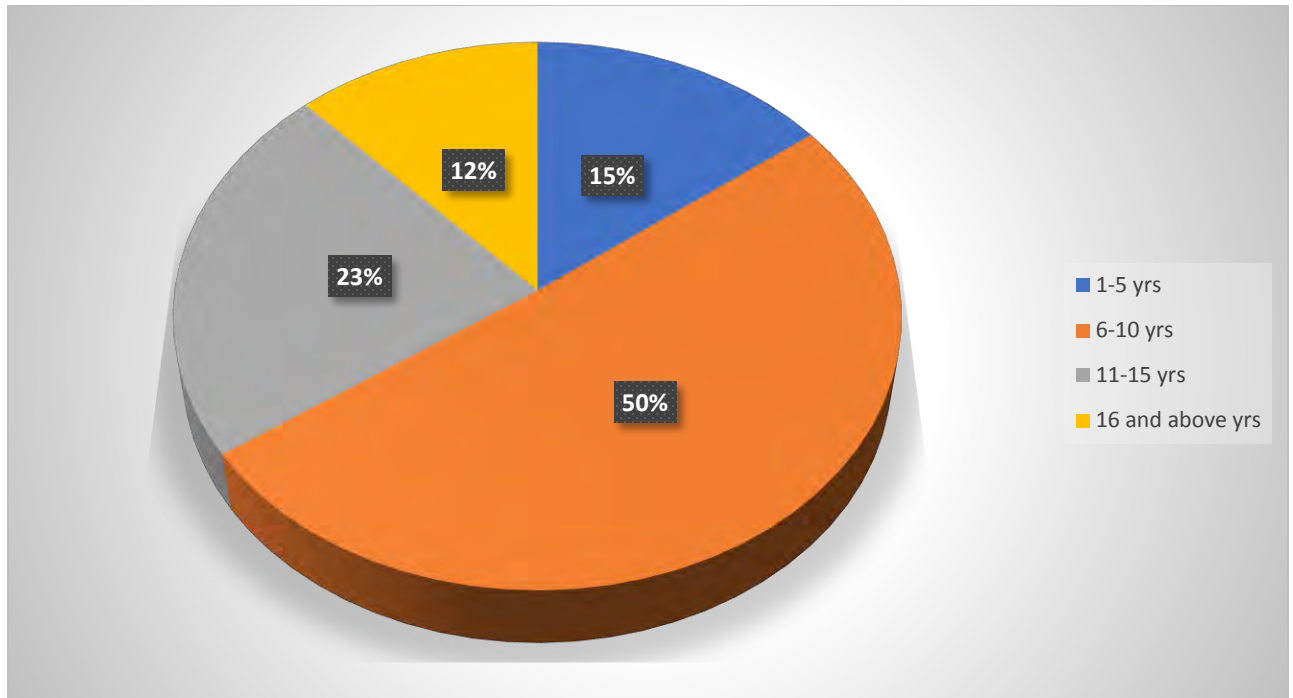


Figure 4.3: Longevity of Service

Source: Fieldwork, (2019)

Figure 4.3 above, revealed that majority of the respondents have occupied their positions in the banks for the period 6-10 years, followed by those who have served the bank for 11-15 years, then 1-5 years and finally over 16 years in the orders of (50%), (23%), (15%) and (12%) respectively. The finding is an indication that the respondents have gained work experience and because of that they are most likely to have in-depth knowledge about the subject.

4.1.4 Educational level of Respondents

The study sought and obtained details of the educational background of the study respondents and the responses are displayed on figure 4.4 below.

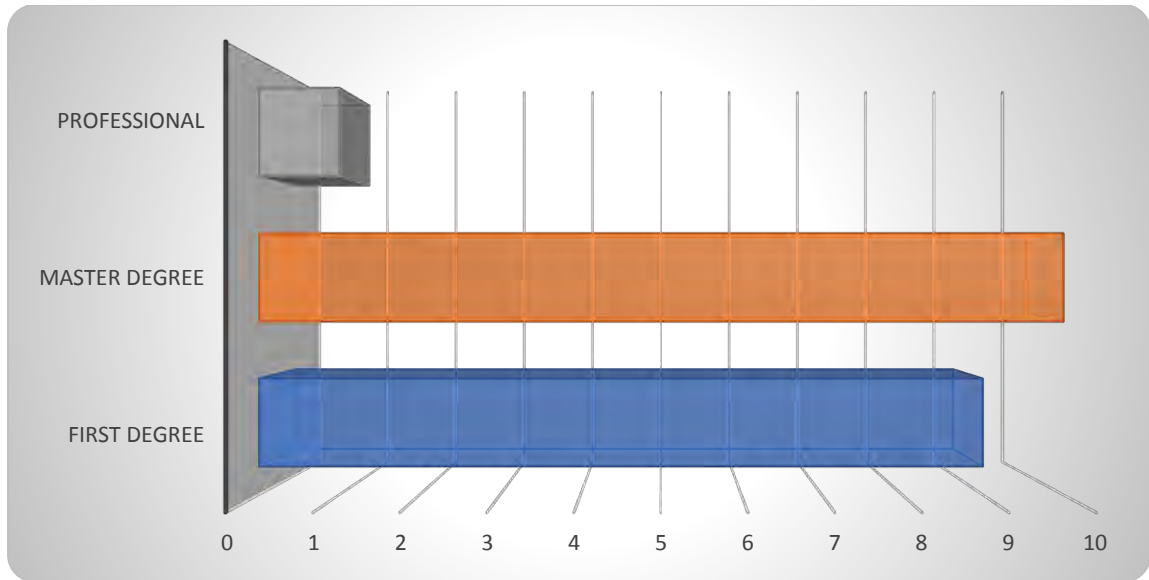


Figure 4.4: Educational Level of Respondent

Source: Fieldwork, (2019)

The analysis from the figure 4.4 shows that, (45.00 %) of the respondents hold first degree as their qualification, (50.00%) have master's degree, and (5.00%) of them possessing professional certificates. This means that the staff members of the banks have the required qualification to work there.

4.2 Assessment of the last training organised by banks (Supervisors)

The supervisors of the two banks were ask to assess the performance of their subordinates after the last training they attended. The respondents did so by using the perimeters below as indicated in table 4.1

From table 4.1 below it clearly shows that majority of the respondents (40%) strongly agree that the trainees put their learning into effect when back on the job, 28% and 12% disagree and strongly disagree respectively with this assertion. This means that there is gap with regard to employees putting their knowledge acquire into practice. On whether

the relevant skills and knowledge were used 52% of the respondents strongly agree, 20% strongly disagree, 16% and 12% agree and disagree respectively with this statement.

There was a change in performance most of the respondents represented by 72% strongly agree whilst same number 12% agree and strongly disagree with this statement. The change in behaviour and new level of knowledge was sustained 44% and 32% of the respondents strongly agree and disagree with this assessment. The trainee would be able to transfer their learning to another person majority of the respondents 36% strongly agree with this statement whilst 8% strongly disagree.

From the findings it is clear that the banks have issues with training of employees which requires immediate attention.

Table 4.1 Assessment of subordinate by supervisors

Criteria	Strongly Agree		Agree		Disagree		Strongly Disagree		Total
	N	%	N	%	N	%	N	%	
The trainees put their learning into effect when back on the job.	10	40.00	5	20.00	7	28.00	3	12.00	25
The relevant skills and knowledge were used.	13	52.00	4	16.00	3	12.00	5	20.00	25
There was change in their performance.	18	72.00	3	12.00	1	4.00	3	12.00	25
The change in behaviour and new level of knowledge was sustained.	11	44.00	5	20.00	8	32.00	1	4.00	25
The trainee would be able to transfer their learning to another person.	9	36.00	10	40.00	4	16.00	2	8.00	25

Source: Fieldwork, (2019)

Making inference from table 4.2 below the subordinates were ask to assess their training and software. The feedback from respondents are as follows, The training met my expectations 32% of the respondents claim that they strongly agree with this statement and 16% also disagree, I will be able to apply the knowledge learned here also most of the respondents 62% strongly agree and 6% strongly disagree, The training objectives for each topic were identified and followed 40% strongly agree and 16% strongly disagree, The content was organized and easy to follow most of the respondents 36% strongly agree whilst 20% strongly disagree. Finally, the materials distributed were pertinent and useful and new software implemented is more effective than the one previously used recorded 30% strongly agree and 14% and 26% strongly disagree respectively.

4.3 Assessment of the last training organised by banks

The subordinates of the two banks were ask to assess the performance of the last training they attended. The respondents did so by using the perimeters below as indicated in table 4.2

Table 4.2 Assessment of training by subordinates

Criteria	Strongly Agree		Agree		Disagree		Strongly Disagree		Total
	N	%	N	%	N	%	N	%	
The training met my expectations.	16	32.00	20	40.00	8	16.00	6	12.00	50
I will be able to apply the knowledge learned.	31	62.00	14	28.00	2	4.00	3	6.00	50
The training objectives for each topic were identified and followed.	20	40.00	10	20.00	12	24.00	8	16.00	50
The content was organized and easy to follow.	18	36.00	13	26.00	9	18.00	10	20.00	50
The materials distributed were pertinent and useful.	15	30.00	12	24.00	16	32.00	7	14.00	50
The new software implemented is more effective than the one previously used.	15	30.00	12	24.00	10	20.00	13	26.00	50

Source: Fieldwork, (2019)

The results of the study show an overwhelmingly positive response to leadership skill training. Leadership skills are transferable and underpin technical capability, as well as the capacity to learn, adapt, think independently and cope with technical advancements. Leadership capability is also linked to empowerment within the organisation. Since leadership skills play a key role in the development of human capital; therefore the training was effective for the purposes of this study.

4.4 Employees commitment to technology transfer

The employees were asked to express their commitment to technology transfer and 97% of the respondents said yes they are committed to technology transfer whilst 3% said no. Majority of the respondents are committed to technology transfer which is good for the banks involve with the study. The figure 4.5 below shows the result of the study.

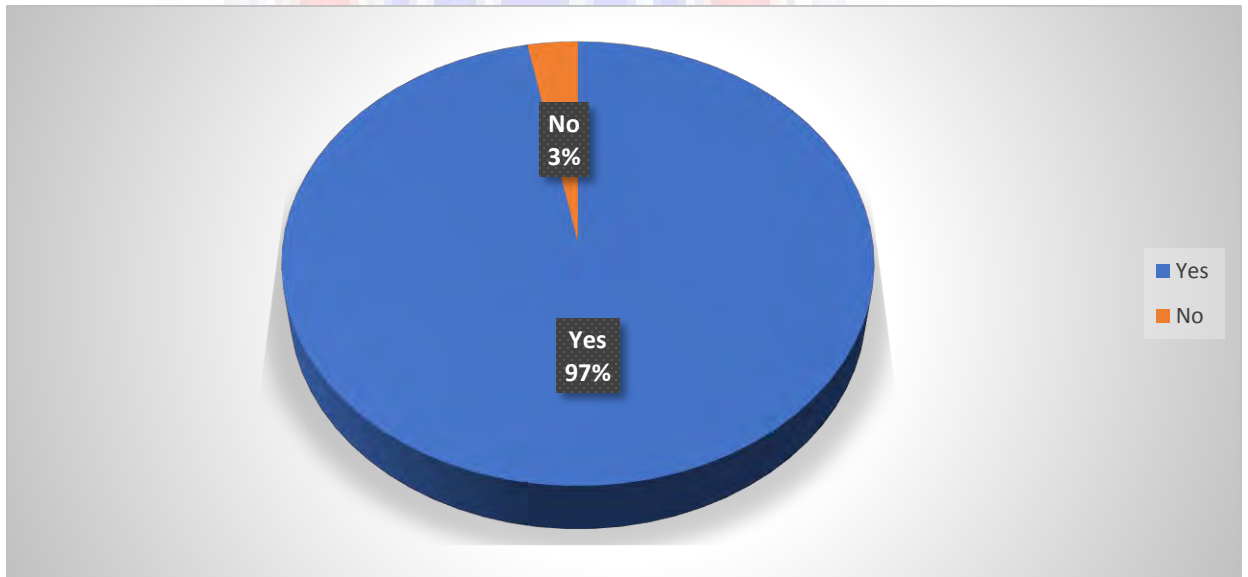


Figure 4.5 Employee commitment to technology transfer

Source: Fieldwork, (2019)

4.5 Technology Transfer executed within the last two years

The respondents were requested to outline some of the technology transfer executed at their respective organisations over the last two years and they gave the following signature repository, Temenos, Bank mail, Real time gross system, Customer relationship management (CRM), NCR portal, SSNIT OBS and HR helper are among some of the technology transfer exercise executed by the banks used for the study. According to the respondents the implementation of the software was accompanied by training to properly use the software. This training, unlike the others mentioned so far, was department-specific as each module is tailored to fit the processes of each department (for example, credit, operations and accounts have different modules). Interaction with human resources managers clarified that knowledge of Temenos (R14) modules was not necessarily bank-specific although it was department-specific, and could be counted as a transferable skill since certain department are present in every bank. Therefore this technical knowledge can be considered to encourage labour mobility and accumulation of human capital.

4.6 Future threat of technology Transfer

One of the key issues that the researcher wanted to find out was how the respondents see the future of technology transfer or how they feel about the subject. Majority of them represented by 80% said they do not see the future of technology transfer as a threat to their employment on the contrary 20% stated that they see the future of technology. This suggests that management needs to engage a section of employees to address their fears as

this has the potential to affect their productivity in the long run as they feel unsecure about their job positions.

The employees chosen for the study were additionally ask to confirm how frequently their employers organise training programs for them. Majority (95%) of the respondent's claim that trains are usually organise every quarter and 5% on annual basis. If the majority assertion is true then is good that trains take place at least every three months in their respective institutions.

4.7 Technology transfer process

The respondents were ask to rate the technology transfer process at the banks, the results are shown in figure 4.6 below:

From figure 4.6 it clearly shows that most of the employees (27) claims that the technology transfer process of the banks are good, 23 said very good, 15 said average, 5 confirm that is excellent, 3 bad and 2 respondents said the technology transfer process is very bad. From the feedback the process is okay since majority of the employees tend to suggest. But the banks needs to investigate why section of the employees said the process is very bad and bad so that the banks can take corrective actions on those setbacks. This will make the technology transfer process effective and efficient.

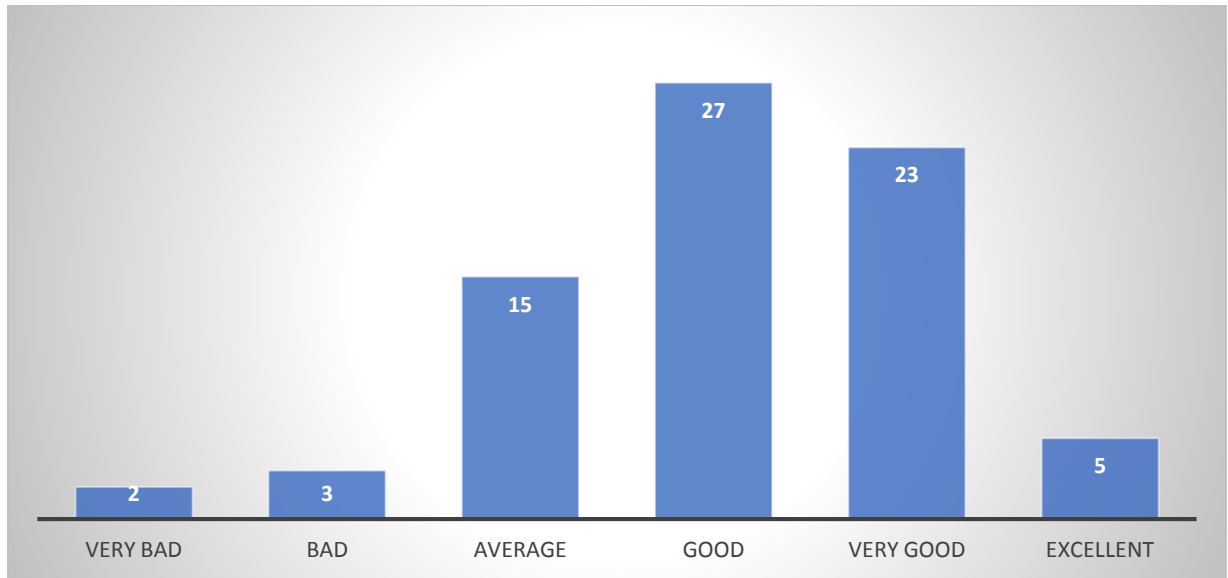


Figure 4.6 Technology transfer process

Source: Fieldwork, (2019)

4.8 Human capital development

The respondents were asked to state if human capital development is important, their human capital strategies, rate the strategies, team based work and the quality of practice by management. According to the findings of the study 96% of the employees said human capital development is very important whilst the remaining 4% claim is not important. On some of their human capital strategies they outline the following; competency development, learning management, leadership development, performance evaluation, job rotation, appropriate compensation scheme, job description and specification, comprehensive appraisal system, efficient job selection, placement system, continues employee's capacity building, succession planning and effective employee reward and promotion scheme. Per the rating of the current strategies of the two banks majority said 40% very good, 20% good, 15% average 13% bad and 12% very bad. This indicate that there are issues with the human capital strategy of the banks. The human capital

department of the banks needs to extensively engage employees to identify their concerns so as to prefer solution. When this situation is not address it will go a long way to impact on the overall performance of the employees hence reduce productivity at work. So this matter requires urgent attention. The respondents were ask to rate team-based work at their respective banks, 30% recorded very bad, 21% bad, 18% average, 15% good, 13% very good and excellent. This results shows team-based work is not efficient at banks and management needs to develop mechanisms to enhance the team building capacity of the workers as team based work is a necessary ingredient to ensure the require growth of any organisation. Employees should also encourage to work in teams to boost confidence and trust among themselves. Quality of management practice majority of the respondents said 42% very good, 18% good, 16% average, 10% bad, 8% very bad and 4% excellent. Ever though the results appears to be good the management still need to up their game on the quality of practice as segment of the employees claim that the quality of practice is not up to the standard. They need to do more than what are currently so as to ensure smooth operations at work place. With regards to sharing and understanding of employee's job and management all the respondents responded in the affirmative.

4.9 The effect of technology transfer on human capital

The respondent were ask to outline some of the effect of technology transfer on human capital within their respective banks and their responses are as follows:

Positive

First and foremost, technology transfer enhance the productivity of human capital available at a particular bank, this is because when employees are introduce to a new

system(software) it tends to improve their potentials as in incase where the rural and community were using manual banking in the 1990s and the 2000s against when computerization started around 2007. This dramatically increase the productivity of the staff.

Secondly, it bring effectiveness and efficiency in human capital development, technology transfer is the way to go in the twentieth century. Technology has come to help mankind perform it duties well. This implies that technology transfer makes the employees more effective and efficient.

Furthermore, as technology transfer has become increasingly recognized for the role it plays in the knowledge-based economy, it also has become more integrated into many banks. Along with that change, the role of the technology transfer also has evolved. It creates synergistic opportunities among employees and increases the success rate of commercializing these discoveries.

Also, it brings technological catching-up a bank with current technology transfer system can also equally boost of up to technology. This makes the human capital potential available more skillful and marketable.

In addition, it leads to growing complementarities among domestic banks. When there is adequate technology transfer mechanism it leads to human capital complementing each other both within same organisation and outside.

Negative

Per the responses of the respondents technology transfer has also got some negative effect and among them are:

One, adverse competitive effects with domestic banks, according to the respondents technology transfer increase adverse competition among banks and employees as well. This brings a lot of challenges among banks and employees.

Two, displacement of workers this is one of the greatest fear when one talks to employees about technology transfer. The fear of losing job. This normally create insecurity among workers when it comes to technology transfer.

Three, negative welfare implications, per the feedback it has welfare implication on human capital development at the banks.

Four, It is costly they also claim technology transfer is a drain on their resources.

4.10 Challenges of technology transfer

The researcher was also interested in the challenges associated with technology transfer in the financial institution. The challenges identify include the following:

One, technology transfer normally comes with bugs (error) most software once introduce have one error or the other. This one of the huge challenge associated with technology transfer or new software adoption.

Two, uncertainty surrounding the cost and infrastructure. Technology transfer usually comes with high expenditure and as such those firms without funds cannot embark on. This serve as a disincentive for regular technology transfer.

Three, it requires skilled human capital. One of the key requirement for successful technology transfer is the skilled human capital. A company will always require qualify and competent personnel to manage the technology transfer process or system.

Four, market, regulatory and cultural conditions. There are usually market, regulatory and cultural issues associated with technology transfer process. It meets to meet certain market criteria and comply with the data and legal regime in Ghana.

Five, Change management. One of the difficult process to manage in most organisations is change. People do not like change as such introducing new processes and systems become a challenge.

Six, the risk of cyber-attack are among the challenges associated with technology transfer. The organisation in question have to always develop strong firewalls to mitigate cyber-attack on their system.

4.11 Suggestions to the challenges identify

The respondents suggested the following to be adopted to mitigate the challenges identified above:

To start with institution that wants to embark on technology transfer programme should adequately prepare. The bank have to develop a budget for that exercise with clear timelines this will help to minimise the unexpected cost over runs in technology transfer programme.

Secondly, Banks should employed people with certain minimum information technology background. This will make the cost of training staff on new system less expensive since

it is critical that technology recipients have the prerequisite knowledge and scientific base to best exploit the information.

Thirdly, banks should only purchase try and tested software's this will minimise the cost associated with bugs (errors) which sometime affect the operation of the entity in question. As green technology is characterized by two market failures, the public goods nature of knowledge and environmental externalities.

Fourth, Management should always engage the employees on new technology transfer and let them know the benefits associated with the new system the will help to minimise the level of resistance.

Five, Technology transfer is enhanced by stronger levels of patent protection, while acknowledging the necessity of complementary factors such as infrastructure, effective government policies and regulations, knowledge institutions.

Six, like many new technologies, environmental innovations may require significant on-going support, training and assistance with maintenance. It is essential to consider the skills required for continued use and repair of new technologies at the onset of adoption.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The study examine technology transfer and its effect on human capital within the financial service industry in Ghana. The present chapter seeks to highlight the major findings, conclusions and recommendations of the study. The data for the study was solely primary data, seventy five (75) questionnaires were sent out to respondents. On the gender status 75% of them were male whist 25% were also female.

With respect to the age distribution 35 of the respondents were between 36-45 years, 27 26-35 and 45-55 9 of respondents. Working experience 50 % of the respondents had work with the banks from 6-10 years, 11-15 years 23% and 1-5 years constitutes 15%. Qualifications of the respondents 45% have degrees, 50% masters and the remaining also have professional certificates. Analysing the background data of the respondents from the above confirms they (respondents) have reasonable knowledge on the subject under consideration. This is good for the study.

5.1 Summary of Findings

This section of the study provides a summary of the main research findings. The section has been arranged according to the main objectives for the study.

5.1.1 The technology transfer process within the financial service industry

The study set one of its objectives to evaluate the technology transfer process within the financial service industry in Ghana.

The respondents were asked to rate their technology transfer process and most of the employees (27) claims that the technology transfer process of the banks are good, 23 said very good, 15 said average, 5 confirm that is excellent, 3 bad and 2 respondents said the technology transfer process is very bad. From the feedback the process is okay since majority of the employees tend to suggest. Respondents were requested to outline some of the technology transfer executed at their respective organisations over the last two years and they gave the following signature repository, Temenos, Bank mail, Real time gross system, Customer relationship management (CRM), NCR portal, SSNIT OBS and HR helper are among some of the technology transfer exercise executed by the banks used for the study. According to the respondents the implementation of the software was accompanied by training to properly use the software.

5.1.2 The human capital development within the Ghanaian financial service industry.

The study also sought to evaluate the human capital development within the Ghanaian financial service industry. The findings of the study shows that 96% of the employees said human capital development is very important whilst the remaining 4% claim is not important. On some of their human capital strategies they outline the following; competency development, learning management, leadership development, performance evaluation, job rotation, appropriate compensation scheme, job description and

specification, comprehensive appraisal system, efficient job selection, placement system, continues employee's capacity building, succession planning and effective employee reward and promotion scheme.

5.1.3 Determine the effect of technology transfer on human capital within the Ghanaian financial service industry.

The study reveals that, it bring effectiveness and efficiency in human capital development, technology transfer is the way to go in the twentieth century. Technology has come to help mankind perform it duties well. This implies that technology transfer makes the employees more effective and efficient.

Furthermore, as technology transfer has become increasingly recognized for the role it plays in the knowledge-based economy, it also has become more integrated into many banks. Along with that change, the role of the technology transfer also has evolved. It creates synergistic opportunities among employees and increases the success rate of commercializing these discoveries.

From the analysis one can conveniently say that displacement of workers this is one of the greatest fear when one talks to employees about technology transfer. The fear of losing job. This normally create insecurity among workers when it comes to technology transfer.

5.1.4 Identify challenges with transfer of technology within the financial service industry

One of the aim of the study was to identify the challenges with technology transfer within the financial service industry and the study reveals that technology transfer normally comes with bugs (error) most software once introduce have one error or the other, high budget cost and skilled human capital.

5.2 Conclusion

While Ghana is in its ultimate stages of technology development, the banks have been fruitful with technology transfer. The study revealed that the banks have made extensive focus on System availability, Information security, various forms of product and services to its customers.

This study was aimed at assessing technology transfer and its effect on human capital within the financial service industry in Ghana, focusing on Ejuraman rural bank and Asokore rural bank ltd. The study concludes with the following findings:

First and foremost, the study therefore concludes that the banks have embark on a number of technology transfer activities among them are signature repository, Temenos, Bank mail, Real time gross system, Customer relationship management (CRM), NCR portal, SSNIT OBS and HR helper This means that banks in Ghana especially the selected banks are doing well with respective technology transfer development. This is

good for the industry as it brings efficiency and serves as a source of revenue generation, players should keep up with this innovation drive.

Secondly, the study concludes that technology transfer has implication on human capital according to the studies some of the implications are that it provides competition advantage, improves bank's image, offer innovator's advantage, bring minimization of querying at branches, increase sales, improve customer satisfaction, enhance the organisations reputation for innovation, gives the opportunity for service differentiation, improve market transparency, provide advantage of time for the bank, offer faster and efficient service, attract young customers. It means that technology transfer has a lot of benefit for financial institutions if it is implemented effectively and efficiently as reveal in the present study.

Furthermore, the study concludes that more needs to done in the area of training of staff and security with regards to technology transfer. That is to say that the employees are not able to handle some of the challenges associated with technology. This suggest that the selected bank do not embark on enough training for its staff with respective to technology transfer of which the banks management should take steps to ratify going forward to mitigate the challenges associated with this outcome.

In addition, the study also concludes that, employees' perception towards the technology transfer has an impact on their job performance/satisfaction. It confirms that perception

of technology transfer has enormous impact on employee's performance with the selected banks.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made:

- The process of technology transfer at the selected banks. The study recommends that for the banks to remain competitive in today banking environment. Banks need to manage it technology transfer well so that it can effectively close the seemingly knowledge gap that exists among the employees. The entire banks' staff and officials should be adequately trained on regular basis on technology transfer (products and services) so that they can address customers' needs and challenges as and when it arises. The banks have a duty to ensure customers have confidence in the electronic banking services/products they provide. By so doing the banks should invest in robust cyber information security infrastructure in order to mitigate the occurrence cyber-attack and privacy related issues. The banks should also continuously develop innovative and demand drive e-banking products and service to meet the changing needs of customers, this will make the banks more competitive thereby generating revenue.
- Employees' perceptions of implications of e-banking adoption, on organizational Commitment in the selected banks. As it is clear from the findings that e-banking adoption have an impact on affective, normative and continuance commitment. The banks need to work on these variables as it recorded the least scores: this organization is not like a part of my family, I cannot do important duties and I

have no obligation for this organization. The human resource managers and the unit heads should put in place measures to boost the commitment of employees on these attributes such as involving staff in all decision making, regular training, award schemes for best performing staff and employee share option plan.

- Technology transfer implication on human capital in the selected banks. Again from the findings of the study it confirms that technology transfer adoption has an impact on human capital. It is therefore recommended that the human resource managers and unit heads should create conducive and enabling environment to boost the morale and confidence of employees. Again the human resources managers should use human capital perception of technology transfer adoption implication as part of the job satisfaction and organizational commitment application and appraisal; this will help address some of the lapses in the system.
- The central government and the regulators should support by way of introducing effective legislations and infrastructure provision to pave the way for the enabling environment for technology transfer to thrive successfully. Since technology transfer can only succeed in countries where there is enough legislation to govern electronic transaction and adequate infrastructure.

5.4 Recommendation for Further Studies

The study suggests that further studies should be done with in-depth analysis on the critical success factors for the introduction of technology transfer in the Ghanaian banking industry.

Another study can be done on the impact of technology transfer on banks performance; this will allow policy makers to appreciate the importance of technology transfer to the banking industry.



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APPENDIX A:

PROJECT QUESTIONNAIRE FOR MANAGEMENT (SUPERVISORS)
TECHNOLOGY AND ITS EFFECTS ON HUMAN CAPITAL WITHIN THE
FINANCIAL- SERVICE INDUSTRY IN GHANA: THE CASE OF EJURAMAN
AND ASOKORE RURAL BANK LIMITED

This research seeks to find out the effects technology transfer has on human capital within the financial-service industry in Ghana. The intention is strictly for academic purposes, and not, in any way an attempt to assess individual' institutions. You are assured that all information supplied will be held confidential.

Please answer the following Questions Correctly and Tick (x) the Appropriate Boxes Where Applicable.

Section A

1. Age of respondents: 18-25 () 26-35 () 36-45 () 46-55 () 56 and above ()
2. Gender status: Female () Male ()
3. Educational Level: HND () Degree () Masters () Professional ()
4. How many years have you worked with this organization? 1-5 () 6-10 () 11-15 () 16 and above ().

Section B

- 5. Assess the last training organised by your organization based on the criteria below**

Question	Strongly agree	Agree	Disagree	Strongly disagree
The trainees put their learning into effect when back on the job.				
The relevant skills and knowledge were used.				
There was noticeable and measurable change in the activity and performance of the trainees when back in their roles.				
The change in behaviour and new level of knowledge was sustained.				

The trainee would be able to transfer his/her learning to another person.				
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Section C

6. Are employees committed to technology transfer at your organisation? No []
Yes []

7. If NO why?
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8. What are some of the technologies transfer executed within the last two years?
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.....

.....9. How often do you organise training for your employees? Weekly []
Monthly [] Quarterly [] Semi-annual [] Annually [] Other
.....

10. Do you see the future of technology as treat to number of employees the organisation is going to retain? No [] Yes []

11. If “YES” why?
.....
.....

12. Briefly describe your technology-transfer process
.....
.....
.....

13. How will you rate your technology transfer process? Very bad [] Bad []
Average [] Good [] Very good [] Excellent []

14. Is human- capital development important to your organisation? No [] Yes []

15. What are some of your human- capital development strategies?.....
.....
.....

16. How will you rate your human capital strategies? Very bad [] Bad []
Average [] Good [] Very good [] Excellent []

17. How will you rate team- based work in your organisation? Very bad [] Bad []
Average [] Good [] Very good [] Excellent []

18. How will you rate the quality of practice of employees? Very bad [] Bad []
Average [] Good [] Very good [] Excellent []

19. What are the effect of technology transfer on your organisation?.....

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.....
.....

20. How will you rate sharing and understanding of employee's job schedule? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

21. What are the challenges your organisation is facing with regards to technology transfer and human-capital development.....

.....
.....

22. How can your organisation mitigate the challenges identified above?.....

.....
.....

Thank you.



UNIVERSITY OF EDUCATION WINNEBA

KUMASI CAMPUS

**EXAMINING TECHNOLOGY AND ITS EFFECT ON HUMAN CAPITAL
WITHIN THE FINANCIAL SERVICE INDUSTRY IN GHANA, FOCUSING ON
THE EJURAMAN AND ASOKORE RURAL BANK LIMITED
PROJECT QUESTIONNAIRE FOR STAFF (SUBORDINATES)**

This research seeks to find out the effect technology transfer on human capital within the financial service industry in Ghana. The intention is purely for academic purposes, and not, in any way attempt to assess individuals' institutions. You are assured that all information supplied will be held confidential.

Please answer the following Questions Correctly and Tick (x) the Appropriate Boxes

Where Applicable

Section A

1. Age of respondent? 18-25 () 26-35 () 36-45 () 45-55 () 56 and above ()
2. Gender status? Female () Male ()
3. Educational Level? HND () Degree () Masters () Professional ()
4. How many years have you work with this organisation? 1-5 () 6-10 () 11-15 () 16 and above ().

Section B

5. Assess the last training organised by your organisation base on the criteria below

Question	Strongly agree	Agree	Disagree	Strongly disagree
The training met my expectations.				
I will be able to apply the knowledge learned.				
The training objectives for each topic were identified and followed.				
The content was organized and easy to follow.				
The materials distributed were pertinent and useful.				

The new software implemented is more effective than the one previously used.				
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6. How often does your organisation organise training for you? Weekly [] Monthly [] Quarterly [] Semi-annual [] Annually [] Other []

.....

7. 6. Is Management committed to technology transfer at your organisation? No [] Yes []

8. If “NO” from above why?

.....

9. What are some of the technologies transfer executed within last two years?

.....

10. Do you see the future of technology as threat to number of employees the organisation is going to retain? No [] Yes []

11. If “YES” why?

12. Briefly describe your technology- transfer process

13. How will you rate your technology transfer process? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

14. Is human- capital development important to your organisation? No [] Yes []

15. What are some of your human capital development strategies?.....

.....

 16. How will you rate your human capital strategies? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

17. How will you rate team- based work in your organisation? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

18. How will you rate the quality of practice of management? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

19. What are the effects of technology- transfer on your organization?

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.....

20. How will you rate sharing and understanding of management? Very bad [] Bad [] Average [] Good [] Very good [] Excellent []

21. What are the challenges your organisation is facing with regards to technology transfer and human capital development

.....
.....
.....

22. How can your organisation mitigate the challenges identified above.....

.....
.....

Thank you.

