ANALYSIS OF SKILLS MISMATCH IN NGAKA MODIRI MOLEMA DISTRICT IN NORTH WEST PROVINCE DEPARTMENT OF BASIC EDUCATION

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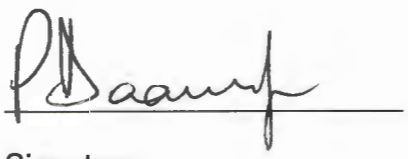
DECLARATION

I, **PAULINE DAANTJIE**, do hereby declare that this dissertation is the result of my investigation and research and that this has not been submitted in part or full for any degree or examination at this or any other University.



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Abstract

This study analysed the skills mismatch in the North West Province using the case of the Department of Education in Ngaka Modiri Molema District. This is based on the fact that the Government's human resource department does not take skills into consideration during the process of appointments. Both Quantitative and Quantitative methods were used. Data were collected using a questionnaire instrument developed through review of literature along with focus group findings. Survey data were factor-analysed to identify stable constructs for testing objectives. The findings on four objectives of the study identified personal characteristics of employees towards the skills mismatch in the Department of Education Out of 154 responses received, 94% of the respondents agreed that innovative and knowledge management competences are key to minimizing effects of skills mismatch, 90% of the respondents highlighted that the technical skills, such as basic computer skills, will be able to minimize the effects of skills mismatch in the Department, 87% of the respondents indicated that mobilization of human resources can minimize the effects of skills mismatch in the Department of Education and 86% of the respondents agreed that workplace-interpersonal skills are key to minimizing the effects of skills mismatch in the Department. Some 15% of the respondents were uncertain whether international competences are key to minimizing skills mismatch in the Department and the minority of 8% of the respondents disagreed that the willingness of graduates to relocate will minimize the effects of skills mismatch in the Department.

It has been recommended that Human Resource Section of the Department of Education should consider these skills as very important. Innovative and knowledge management competences; the use of ICT for information; mobilisation of human resources/workplace-interpersonal skills and the international competences are also very important in the context of multicultural work environments that become a reality worldwide.

Keywords: Skills, Skills Mismatch

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1. CHAPTER ONE: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

Skills mismatch refers to the situation where the workers' skills and education are not adequate for the demands of jobs in the current economy. There is a mismatch between the skills workers possess and what jobs require, what economists call an imbalance between the supply of and demand for human capital (Zimmer, 2012:222). A complete absence of skills is a problem too, but skills mismatches seem more relevant (Gallup World Poll 2010:4). High vacancy rates in the presence of large scale unemployment confirm the existence of skills mismatches and are especially substantial in South Africa (ILO 2011:311). Mismatches are not confined to university graduates but also strongly affect young people with secondary education (Gallup World Poll 2010:5). Skills mismatch point up a poor quality of education and the absence of linkages between education systems and employers as underlying problems.

Vertical education-job mismatch refers to a situation in which workers have an educational attainment that is higher or lower than that required by their job (Cedefop, 2010:14; Quintini, 2011:28). Therefore, in order to measure mismatch, it is necessary to compare workers' education with the educational requirements of jobs or occupations (Leuven & Oosrtebeek, 2011:284).

At the tertiary level, young Africans are confronted with a university system which has traditionally been focused on educating for public sector employment, with little regard for the needs of the private sector. Often a degree from a tertiary institution is an entry requirement for government employment, with little attention paid to a specific skills set. At the same time tertiary education in technical fields tends to be significantly more expensive than in the social sciences, which makes expansion of such faculties more challenging for public education institutions. Private providers of education could fill this void, leaving the government with duties of quality control and oversight (World Bank, 2011a:107). As a result African universities do not educate for African needs.

With the aim of narrowing the skills gap and thus adjusting supply of graduates of higher education to the current needs of the labour market, some countries have changed education curricula. The strategy is based on an assessment that graduates of medicine, engineering and technology generally have better employment opportunities inside and outside the country than graduates in the social sciences and, to some extent, the natural sciences (UNECA, 2011:111).

This chapter provides an overview of a skills mismatch analysis in the North West Department of Education with specific focus on the Ngaka Modiri Molema District. It covers the background of the study, the problem statement, research aim of the study, research methodology, and significance of the study and the structure of the dissertation.

1.2 Definition of concepts

It is important to define concepts in this study for the purpose of understanding the impact of skills and skills mismatch in organisations.

1.2.1 Skills

According to Green (2011:12), a skill is an investment in human capital. Skills can be defined as abilities to perform productive tasks. This means that a skill is associated with a certain task or job and on the other hand that people who do not possess this skill will not be able to perform this task or will be less productive in this task compared to those who do possess the skill concerned. In this study the focus of skills will be based on the effect on productivity in different way as follows:

(1) People differ in their natural abilities

(2) Education and schooling will improve the skills people have

(3) Experience could increase skills

Green (2011:132) proposes the concept of skills as intended to be at once scientific, oriented towards human, social and economic progress, and relevant for a discussion of

social and economic action in 21st century settings; in other words to situate skills within the tradition of political economy. Thus skill is a personal quality with three key features:

i. **P**roductive: using skill is productive of value;

ii. **E**xpandable: skills are enhanced by training and development; and

iii. **S**ocial: skills are socially determined.

Gresty (2009:2) defines a skill as a learned capacity to do something useful. Such skills can be very situated and specific.

1.2.2 Mismatch

According to Cambridge Advanced Learners Dictionary (2014:5010) mismatch is to put together people or things that are unsuitable for each other: The study therefore will investigate and assess the mismatch between the capacity of the employees in the Department of Education in the Ngaka Modiri Molema District in the North West Province where a number of people want to work and use their ability, capacities, attitudes and knowledge in their working environment.

Allen and Van de Weert (2007:59) make a distinction between a formal mismatch between actual and required education (educational mismatch) and between actual and required skills (skills mismatch). Two kinds of skills mismatch will be considered in this study.

1.2.3 Skills Mismatch

Skills mismatch refers to the situation where the workers' skills and education are not adequate for the demands of jobs in the current economy. There is a mismatch between the skills workers possess and what jobs require, what economists call an imbalance between the supply of and demand for human capital (Zimmer, 2012:222).

The operational definition, according to Quintini, (2011a:18) is that a skills mismatch is due to over- education, under- qualification and unrelated skills. A rich literature defines

mismatch as the discrepancy between the characteristics of employed workers and the requirements of the positions they occupy (Quintini, 2011a:16). For example, several papers which compare the formal education qualifications held by employed workers with the requirements of the jobs commonly find large numbers of workers being more qualified than required by their employment. This study therefore focuses on skills mismatch where workers are more or less qualified than required by their employment. The study further analyses the job displacement where tenured workers are laid off or re deployed in the Department of Education. Mavromaras and McGuinness (2007: 279), define skills mismatch as persistent skills under-utilization, that is, employees not being able to use their qualifications and skills to their full potential.

1.3 Background to the problem of the study

Branson and Zuze, (2012:114) describe Mahikeng as the capital city of the North West Province in South Africa. North West Province was created after the end of Apartheid in 1994, and includes parts of the former Transvaal Province and Cape Province, as well as most of the former Bantustan of Bophuthatswana.

The North West Province has 4 district and 19 local municipalities, listed below.

Table 1.1 North West Province Districts

Bojanala Platinum District	Ngaka Modiri Molema District	Dr Kenneth Kaunda District	Dr Ruth Segomotsi Mompati District
Moretele Madibeng Rustenburg Kgetleng rivier Moses Kotane	Ratlou Tswaing Mahikeng Local Municipality Ditsobotla Ramotshere	Ventersdorp Tlokwe Matlosana Maquassi Hills	Naledi Mamusa Greater Taung Kagisano-Molopo Lekwa-Teemane

Table 1.2: Cities and towns

Population 100,000+	Population 50,000+	Population 10,000+	Population < 10,000
Klerksdorp Potchefstroom Rustenburg Ottosdal	Orkney Brits Schweizer-Reneke Stilfontein Mahikeng Lichtenburg	Zeerust Christiana Ventersdorp Vryburg Wolmaransstad Pampierstad Coligny Letsopa Koster Mogwase	Mmakau Mothibistad Reivilo

The province has the lowest number of people aged 35 years and older (5.9%) who have received higher education. Since 1994 the number of people receiving higher education has increased. The province originally had government supported universities: the University of North West, which was formerly called the University of Bophuthatswana (founded in 1979), in Mmabatho; and Potchefstroom University for Christian Higher Education (founded in 1869 which became a constituent college of the University of South Africa in 1921 and an independent university in 1951).These Universities have now merged and the new institution is called North-West University.

There is also a private university found in Klerksdorp (Centurion Akademie Klerksdorp), which caters mainly to Afrikaans speaking students. Because it is a private institution, classes may be taught in Afrikaans and the foundation of education gained at Centurion Akademie is based on the Christian faith. It is also the largest institution of its kind in existence. During 2003, as part of Further Education and Training process, three mega institutions, Taletso, ORBIT and Vuselela, were established to provide technical and vocational training to the youth. These institutions have incorporated many of the former education and technical colleges and manpower centres (Cosser, Kraak, & Winnaar, 2011:20).

For decades, education in South Africa operated under the shadow of the Bantu Education Act of 1953. Recent reform has focused on creating a more equitable and accessible system of public education. There were many disparities in education and new policies are available to ensure that educational opportunities are becoming more equal and accessible. There are many different lenses through which to view the educational inequality that citizens face in South Africa. Given the historical context, the single most important area of attention is to what extent economically that skills become mismanaged (Branson & Zuze, 2012:114).

Since 1994, the government has worked to transform all facets of the education system. The fragmented and racially duplicated institutions of the Apartheid era have been replaced by a single national system including nine provincial sub-systems. Consistent and persistent efforts are being made to make education structurally accessible to all who were previously denied, or had limited access to it, and thus to realise the ideal of nine years of compulsory schooling. Marginalised or vulnerable groups have received particular attention in the form of inclusive education programmes and pro poor funding policies. Government policy on learners with special needs emphasises the mainstreaming of learners with mild learning disabilities into ordinary schools; and school fee exemptions and, most recently, "no fee" schools have assisted indigent learners to access schools. Moreover, education financing has been redirected

specifically towards considerations of equity, redress, accessibility and affordability. School governance has been decentralised, with greater autonomy devolved onto school governing bodies (including the right to charge fees). Educators' qualifications have been improved. This will improve the skills shortage as well as skills mismatch (OECD 2008:300).

A new curriculum on knowledge and skills and based on the values of the South African Constitution 1996 has been introduced and streamlined and procedures set in place to monitor educational quality. The higher education system has been reformed and rationalised, and a new further education and training system is being established. So far, a more equitable, efficient and better quality system of education has been created; nevertheless, Apartheid's many inequalities have not yet been eradicated, as will be noted in subsequent sections. Skills development is addressed in terms of the Skills Development Act No of 1998, and is the responsibility of the national Ministry of Labour, which administers a statutory National Skills Authority and 24 statutory Sector Education and Training Authorities (SETAs) covering all sectors of the economy, private and public. The ministers of education and labour have joint responsibility for an overarching Human Resource Development Strategy for South Africa (Department of Education and Department of Labour, 2001).

However, the possibility of a high skilled society also creates the opportunities for greater equality of opportunity as in principle more highly skilled jobs are created (Evertsson 2005:342). Evertsson implies that a skilled society addresses both the issues of economic competitiveness and social justice. Specifically, skills policies must proceed on the basis of assumptions that the societies benefit. It is important that the skills provision system is premised on an equal opportunity principle. This means that all citizens should have relatively equal access to basic and higher education. A further

assumption must be that there is reasonable correspondence between jobs in the economy and the skills produced by educational and training systems.

Conventional wisdom has it that economic growth leads to job creation, and hence, if an economy is on a growth path, there is no need to worry about jobs. At most, policies may be needed to ensure a smooth and efficient functioning of the labour market, so that bottlenecks and rigidities do not create problems of adjustment. Moreover, active labour market policies are expected to serve the purpose of aligning the supply side with the demand side. The reality, however, is different, and the relationship between economic growth and employment can vary (Islam, 2006:199). Estimates of elasticity of employment show considerable variations between countries and between different periods within countries (Islam, 2006:199). Economic policies as well as labour market policies are found to influence the employment outcome of economic growth (Islam, 2006:199). Hence, when one talks about employment policy, both types of policy need to be included. When the educational level of job-seekers does not correspond with the profiles sought on the labour market, or when there is a lack of geographic mobility there will always be a problem (Zimmer, 2012:18).

Job creation is a priority for all countries. Yet satisfactory job creation is an uphill battle facing this collective effort. Employment challenges have been mounting, but policymakers are faced with limited, and even reduced, fiscal resources. It means that policy interventions for job creation need to be highly effective (Islam, 2014:111).

1.4 Problem statement

Despite a number of education reforms, such as changes to the school curricula, the country still faces considerable skills shortages and skills mismatch. The media highlight this regularly and it causes criticism from social partners such as employer bodies, trade unions and the government. According to the Centre for Development and Enterprise

(2007b) and Kraak (2008:40), there seems to be consensus that skill shortages and skills mismatch are major obstacles to economic growth and job creation in South Africa. Skill shortages and skills mismatch are still very real in South Africa today.

Cedefop (2010:14) and Quintini (2011:28) argue that there are problems with the supply of skills available in the labour market which takes various forms. The most extreme complaint is the idea that there are widespread shortfalls in the basic skills of future employees. The cause is usually attributed to the failure of the education system, especially public education, to provide students with these basic skills. This is referred to as a *"skills gap,"* following its use in policy discussions. A second complaint focuses more on job-related skills of the kind associated with particular occupations, such as the common assertion that South Africa is short on engineers or information technology specialists. This is referred to as a "*skills shortage*." The final concern, which is much more commonly articulated in South Africa is the general idea that at any given time, the supply of skills and the demand for skills could be out of synch in either direction - oversupply or undersupply. This situation could occur in specific labour markets, although with respect to educational credentials it is usually considered at the country level. This is referred to as a "*skills mismatch*." A skill shortage is obviously a particular type of skills mismatch, and a skills gap could be a general form of mismatch. All these complaints can collectively be referred to as "*skills problems*."

This study therefore intends to analyse the skills shortages which eventually lead to skills mismatch, as Green and McIntosh (2007:2) argue that too many graduates in South Africa would naturally lead to: (i) a number of under-utilized graduate workers; and (ii) a decrease in the returns to university education, which would in its turn moderate the growth in the supply of educated labour.

1.5 Research aim of the study

The aim of this study is to analyse the impact of job-qualification mismatch on an organization's performance.

1.5.1 Research Questions

The study seeks to answer the following questions:

- What is the prevalence of skills mismatch in the Department of Education in the Ngaka Modiri Molema District?
- What can minimize the effects of skills mismatch in the Department of Education in the Ngaka Modiri Molema District?
- Which factors tend to decrease the productivity of employees having a skills mismatch in the Department of Education in the Ngaka Modiri Molema District?
- What impact does skills mismatch bring in the Department of Education in the Ngaka Modiri Molema District?
- What can be suggested to improve the situation of skills mismatch in the Department of Education in the Ngaka Modiri Molema District?

1.5.2 Research Objectives

The objectives of this study are to:

- Explore the prevalence of skills mismatch in the Department of Education in the Ngaka Modiri Molema District.
- Examine the effects that can minimize skills mismatch in the Department of Education in the Ngaka Modiri Molema District.
- Analyse factors that tend to decrease the productivity of employees having skills mismatch in the Department of Education in the Ngaka Modiri Molema District.
- Determine the impact that skills mismatch have on the Department of Education in the Ngaka Modiri Molema District.

- Suggest ways to improve the situation of skills mismatch in the Department of Education in the Ngaka Modiri Molema District.

1.6 Research Methodology and Design

1.6.1 Methodology

Research methodology considers and explains the logic behind research methods and techniques. It therefore has a much wider scope than research methods such as opinion polls, which in turn, have a wider scope than research techniques such as attitudes scale (Welman, Kruger & Mitchell, and 2010: 52). A mixed method was used in this study by combining the qualitative and quantitative approaches into the research methodology.

1.6.2 Research Design

Research design is a general plan for implementing a research strategy. A research design specifies whether the study involves group or individual participants, to make comparisons within a group, or between groups, and how many variables are included in the study (Welman *et al.*, 2010:52).

1.6.3 Sample population

Population refers to all constituents of any clearly described group of people, or events, and could be theoretically infinite or fairly small (Clifford, Michal & John, 2007:40). Target population refers to a group of individuals with a specific interest. Individuals in a target population share one characteristic carrying out a particular function, (Gravetter & Forzano, 2009:138). Aschengrau and George (2008:7) mention that the population also determines a group of people with common characteristics *inter alia* place of residence, gender, age and use of certain services.

1.6.4 Sample size

A sample is a small representation of a whole (Bless, Higson-Smith, & Kagee, 2000:39). The most basic considerations in sampling are size and representativeness. The

sample size must be adequate to allow estimates about the characteristics of phenomena with reasonable precision (Gravetter & Forzano 2009:138). Different strategies can be utilised to obtain the best possible sample, and a final decision in this regard must be taken (De Vos, Strydom, Fouché & Delport, and 2010:82). Each sample is randomly drawn from the population. In addition, when it is possible to do so, relevant characteristics of the sample such as age, race, gender and social class are compared to the population to provide evidence of similarity for inferring representativeness (Welman, Kruger, & Mitchell, 2010:55).

The sample size of this study is 32% from a population of 500 employees in the Department of Education in the North West Province.

1.6.5 Data collection tools

A simple questionnaire was developed. The researcher administered it and then collected the questionnaire from the respondents.

1.6.6 Data Analysis Methods

According to Hanuman (2006:63) data obtained through questionnaires, interviews and observation or through secondary sources need to be analysed for deductions to be made. Data analysis can be referred to as the conversion of raw data into useful information that will provide the most value to the organisation (Brassington & Pettit, 2003:10).

1.7 Ethical Consideration

Cooper and Schindler (2003:87) describe ethics as norms or standards of behavior that guide moral choices about behavior and relationship with others. The ethics of the research design has important implications for the negotiation of access to people and organisations and the collection of data (Saunders, Lewis, and Thornhill, 2007:104). According to Tshuma (2010:45), the goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from research activities. Unethical activities are pervasive and include violating non-disclosure agreements, breaking respondent confidentiality, misrepresenting results, deceiving people, invoicing irregularities and

avoiding legal liability (Cooper & Schindler, 2003:120). A letter of permission to conduct a research in the Department of Education was obtained. The response and results were treated as confidential. No respondents were forced to answer questions and were asked not to hesitate to contact the researcher for more information and clarification.

1.8 Significance of the Study

The analysis of educational occupational mismatch and the position of the Department of Education in the Ngaka Modiri Molema District in the labour market would be significant to the following:

- The government skills mismatch worsens the employment circulation of the labour market and brings negative effects to the workers in the labour market who face occupational downgrading in their careers as in the case of underemployment in which workers who are highly skilled work in low paying and low-skilled jobs. The research could help the government in addressing these problems.
- Department of Education: The study would be helpful to the education sectors as through the study, they can have knowledge about what field of study they should give more focus and attention according to what the labour market demands in order to solve the problem of underemployment and unemployment.

This study will give a clear view of what happens when organizations hire people having a skills mismatch. It will help organizations to understand the adverse effects of skills mismatches on organization's productivity. It will help to understand the trend followed by the labour market regarding job searches and skills mismatches.

1.9 Scope of the Study

The study was conducted in the Department of Education in the Ngaka Modiri Molema District North West Province.

1.10 Chapter Outline

Chapter 1: Introduction

Chapter one outlined the introduction to the study and consisted of the background of the study, problem statement, the aim of the study, research objectives, research questions, highlights of the methodology, significance of the study, scope of the study and ethical consideration.

Chapter 2: Literature Review

In chapter two skills mismatch on the research is detailed. The review consists of a few sections that provide insight and detail on skills mismatch in the Department of Education.

Chapter 3: Research Methodology

Chapter three describes the research design which includes the research methodology and design, sampling population, sample size, research instrument, questionnaire construction, and the administration of the questionnaire, collection of the questionnaires, data collection instruments, data analysis and chapter conclusion.

Chapter 4: Results and Discussion

In chapter four, the research findings are presented, analysed, interpreted and discussed. The findings are split into four sections. The results from the analysis are checked whether the primary research objective is met by the secondary research objectives.

Chapter 5: Findings, Recommendations and Conclusions

Chapter 5 discusses the findings, recommendations and conclusions. The results from the research are listed and discussed. This section determines whether the primary and secondary research objectives are in agreement. The research questions are listed and the results discuss whether the questions have been answered.

1.10. Conclusion

The aim and objective of a research is to ensure that the evidence obtained enables the researcher to answer the initial questions as unambiguously as possible. Having been provided with a theory the researcher needs to establish the evidence to test the theory in a convincing way. In research the issue of sampling, method of data collection using a questionnaire, document analysis, and data analysis are all subsidiary evidence about what needs to be established at the logical conclusion of the entire research study. The chapter ended with the eliminations of bias and ethical considerations. The next chapter presents literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The literature review addresses the objectives of the study in determining the extent to which skills mismatch affected the employee's performance in the Department of Education between 2005 and 2015. Naidoo (2010:8) argues that unless the impact of management style on job skills is assessed as well as investigating the manner in which skill match objectives of education, there will not be a successful organisational outcome. The literature review is an integral part of the research process and makes a very important contribution to almost every operational step (Naidoo, 2010:8).

This chapter discusses the views of various authors with regard to management of skills mismatch that always results in job dissatisfaction and insecurity of staff members in an organisation. Further to the above, this review is useful for managers to decide on which approaches best suit their organisations to promote satisfaction and security. The current discussion focuses on the importance of understanding the critical determinants and components of the skills paradigm. The process of employee turnover is highlighted to make managers aware of the recognition of the value of human capital by providing supportive interventions so that numbers of employees in the workplace can be retained.

2.2 THEORETICAL FRAMEWORK

A growing literature has investigated the impact of measurable skills on various labour market outcomes such as labour income (Green & Riddell, 2003:4), the distribution of the gender or black-white wage gap (Blackburn, 2004:555, O'Neill, Sweetman; Van de Gaer, 2006:343) or labour market status (Chiswick, Lee & Miller, 2003:165). While workers may differ in their skills, they may also differ in their opportunity to use them in the labour market. Individuals may be locked into jobs where their skills are misused for various reasons. For instance, skills and formal education may be imperfectly correlated. Thus, if employers screen their employees on the basis of formal education,

better educated individuals will get better jobs regardless of their actual skills level. Skills mismatches may also stem from labour market discrimination. One may think of women, whose wage penalty could be due to a limited access to skilled occupations. Testing this hypothesis is of primary importance as it could shed some lights on the unexplained wage deferential between genders.

2.2.1 Skills mismatch and its problems

Jensen and Kletzer (2010:126), point out that skills mismatch shows a poor quality of education and the absence of linkages between education systems and employers as underlying problems. The recruitment and temporary work agencies surveyed reported a general lack of targeted education and frequent major discrepancies between candidates' profiles and the skills required for a job. A shortage of technical and mechanical employees or electricians coexists with a surplus of workers in audits, sales and communication. In manufacturing, in particular, many of the positions that go unfilled are at a level that does not require tertiary education and does not pay the salaries that university graduates expect. What is required, rather, is the technical skills necessary to maintain equipment and supervise unskilled workers. Higher education systems in Africa need to become more diversified to meet the need for a variety of levels of skills and education. Training is important. According to Bodrogi, Cristea, Johnson and McAlister, (2012: 115) education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next through story-telling, discussion, teaching, training and research. Finn, Gerber and Boyd-Zaharius, (2005:214) further explains that formal education occurs in a structured environment whose explicit purpose is teaching students. A well- educated and skilled population is essential for creating, sharing, disseminating and using knowledge itself as an enabler of the knowledge economy (WBI 2007:8). Recent OECD reports indicate that human capital, as measured by the educational attainment of the working age population, has a measurable influence on economic growth (Bodrogi, Cristea, Johnson & McAlister, and 2012:115). Tertiary education can impart to people the ability to innovate, disseminate, and apply

knowledge economy (World Bank 2005). To higher education institutions, the employability of graduates is often used as a benchmark to measure the quality of education and skills (Teichler, 2009:111).

2.2.2 Skills Typologies, Domains and Mismatches

The concept of skills has thus far been examined at its most general level. Warhurst and Nickson (2007:385) consider ways in which skills have been dissected and categorised, for the purpose of driving analysis and action. The dissection of skills has been an important feature of occupational psychology, notably through the idea of competence. Applied economic methodologies are also contributing greatly to the knowledge of the antecedents and effects of different skills types. The different components of competence are likely to be acquired in varying ways, and from different sources and contexts: home, school, work and elsewhere. Formal education and training, for example, is the main generator of scientific knowledge; while work attitudes are molded in multiple sites. An understanding of these different components is the bread and butter of human resource management.

The various ways in which skills are productive of value yield other typologies (Sala, 2011:1025). One important type is the domain of activity or job tasks in which the skills-type acts. Domains can be mapped at varying scales, with descriptions that summarize the complex functions involved in daily work. Such maps can resemble fractal graphs, where the description encompasses as much detail how far one drills down. Moreover, domain types are never pure single processes: even the simplest of tasks, such as the collection of garbage cans, involves multiple physical and mental faculties (Sala 2011:1025).

Several task domains are "generic": they can be described and captured with indicators that are commensurate across a wide range of occupations. Specific IT tasks, requiring the use of generic IT skills, are a prominent modern example. In contrast, technical skills that are used in one or just a few types of occupation cannot be described with general indicators. Technical skills in different occupations are commensurate only with

regard to the extent to which they are built on general education, training or work experience (Poletaev & Robinson, 2008:387).

According to Poletaev and Robinson, (2008:387) there are thus as many "occupation-specific" skills domains as there are occupations. The significance of the various generic skills domains is that they may be supplied from different sources and at different life stages, and that the drivers of changing skills demand may be affecting some skills domains more than others. Some domains have been more visible than others, owing to the social construction of skills. The domains may also have different effects. The contemporary favoured typology is between cognitive, interactive and physical skills. "Cognitive skills" is the term applied to areas requiring thinking activities, reading, writing, problem-solving, numeracy, IT, learning new skills, and so on. "Interactive skills" covers all forms of communication, including most types of management activities, and horizontal communication with co-workers, clients and customers, and other activities needed to elicit cooperative working and engagement with customers and suppliers, including emotional and aesthetic labour. "Physical skills" comprise forms of strength and dexterity. Cutting across these generic domains are further typologies relevant to policy and analyses. Focusing on the economic question of who pays for, and who benefits from, employees acquiring skills, the distinction noted in the previous section between firm-specific and transferable skills is significant. Generic skills are, *ipso facto*, transferable, but occupation specific skills may not be.

While the concept of skills gap applies to both workers and employers (Jensen & Kletzer, 2010:126), a skills shortage vacancy is a mismatch phenomenon that applies to the employer. It describes the situation where a job vacancy is hard to fill because applicants lack needed skills. Since vacancies depend on demand and rise and fall with the economic cycle, this concept is only a weak guide to whether there are any skills problems in an organisation or in a national economy. More relevant for that purpose is the notion of a skills deficit, where the level of skills supplied and used is below the desirable level. A common practical guide to what the desirable level should be is not

some absolute standard, but the level exhibited by similar organisations or economies. It is for this reason above all that policy advisers have a strong interest in the benchmarking that is made possible by inter-regional and international comparisons of skills. Unfortunately, direct measures of skills is rare, each nation's researchers usually benchmark educational achievements, which are not the same thing (Oreopolous, Page & Stevens, 2008:455).

There are cases where job seekers take jobs that require more than the skills levels associated with their educational background, the trend is pretty much on the over educated side. There are many people settling for jobs that are below their educational level. There are many horror stories involving especially natural science employees with a Doctorate degree living by moving from one post to another looking for a measly post -doctorate position. This is contrary to the popular claim that more scientists are needed, for the actual data and job market clearly show that there are way too many scientists (Barlevy & Gady, 2011:82).

Apart from the meaning of education, this brings an important question to mind (Shimer; 2007:12) do so many people need to spend their time and money to get degrees where there is no monetary value in the near or foreseeable future? Obviously, any type of education has an immense social and personal value regardless of whether a job is obtained as a result. Society need to be educated. However, this type of education can easily be achieved without making people go through many years of degree chasing. Barlevy (2011:82) is one of the first studies which argue that excessively qualified workers settle for jobs that do not require a degree.

Theoretically, there are at least four reasons why displaced workers experience such difficult transitions: (i) the skills specific to the old job may not be useful in the new one (Poletaev & Robinson, 2008:389), (ii) incentive contracts that raised earnings beyond market wages are lost with a job separation (Gathmann & Schönberg, 2010:11), (iii) there is a search cost associated with ending a new job (Kambourov & Manovskii 2009:63), and (iv) workers who were laid off may be stigmatized on the labour market

(Biewen & Stees, 2010:188). However, thus far, it is still a puzzle why most displaced workers never manage to return to their previous conditions.

However, despite the relatively favourable macro-economic conditions, earnings of displaced workers do not appear to recover during the years after displacement. Several empirical studies give support for the theory of specific human capital, which predicts that job switching causes wage penalties proportional to the loss of specific human capital (Kambourov & Manovskii, 2009:63). These findings suggest that to maximize long-term earnings workers should avoid switching to skill-unrelated jobs during their careers. This argument also seems to hold for involuntary job losses, as the relative earnings losses of displaced workers have been found to be higher for organisational switchers than for workers staying in their pre-displacement organisation (Gathmann & Schönberg, 2010:12).

The recent additions to the skill-biased technological change literature, for instance, Goos and Manning, (2007:118) and Autor, Katz and Kearney, (2008:300) give rise to the idea that displaced workers with occupational skills that are easily substituted by technology or prone to outsourcing may face a labour market that demands quite different skills than they provide. At the same time, these workers have the highest hazards of unemployment and occupational change (Gathmann & Schönberg, 2010:11). Workers displaced as a result of technological change or production outsourcing are likely to have difficulties in finding a good skills match, and thus may experience larger and more persistent earnings losses after displacement.

In a structurally changing economy where job reduction mainly takes place in different organisations and jobs are mainly created in services, many displaced workers may find it difficult to remain in skills-related occupations. Moreover, in the long run, the benefits of staying in skill-related jobs might be cancelled out by the disadvantages of working in a downsizing sector. The decision to change the occupation after displacement, even when causing immediate wage penalties, can therefore be optimal if it serves as an adjustment mechanism entailing lower long-term displacement cost. Against the background of a structurally changing economy, this study therefore investigates the

skills mismatch in the Department of Education to see whether the initial wage losses of displaced workers may be mitigated, or even reversed in the long run, by occupational change. More specially, it sets out to analyse whether there are certain types of occupational switches, for instance, changes to more skills-demanding occupations that are particularly favourable for displaced workers (Galasi, 2008:22).

Although there is extensive literature on education job mismatch in many countries, little research can be quoted on the subject for the new South Africa. While recent studies report various rates for the "amount" of over-education (McGuinness, 2006: 387), less evidence is available on the graduate labour force from the South African side. For this reason education, occupation, employability, skills match, skills mismatch, effect of wage production and skills mismatch in organisations will be the main discussion.

2.2.3 Education

According to Bodrogi, Cristea, Jonson, and McAlister, (2012:115) education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next through storytelling, discussion, teaching, training, and/ or research. Education may also include informal transmission of such information from one human being to another. Education frequently takes place under the guidance of others, but learners may also educate themselves (autodidactic learning). Any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. Education is commonly and formally divided into stages such as preschool, primary school, secondary school and then college, university or apprenticeship. The science and art of how best to teach is called pedagogy.

Finn, Gerber, and Boyd-Zaharias, (2005:214) further explain that formal education occurs in a structured environment whose explicit purpose is teaching students. Usually formal education takes place in a school environment, with classrooms of multiple

students learning together with a trained teacher. Most school systems are designed around a set of values or ideals that govern all educational choices in that system. Such choices include curriculum, physical classroom design, student-teacher interactions, and methods of assessment, class size, and educational activities. With this educational activity, occupation and employability will then take place.

A well-educated and skilled population is essential for creating, sharing, disseminating, and using knowledge itself as an enabler of the knowledge economy (WBI 2007:8). Recent OECD reports indicate that human capital, as measured by the educational attainment of the working-age population, has a measurable influence on economic growth (Bodrogi, Cristea, Johnson & McAlister, and 2012:115). Education at all levels contributes to development and a country's competitiveness. Basic education provides a solid foundation in reading and writing and successful entry to secondary education. Secondary education, including vocational and technical education and training, can develop specific competencies, skills, behaviors, and attitudes, together with a sense of cooperation and social responsibility, that enable young people to participate in the knowledge economy, contribute decisively to social cohesion, and be responsible citizens. Tertiary education can impart to people the ability to innovate, disseminate, and apply knowledge that supports the knowledge economy (World Bank, 2005). For higher education institutions, the employability of graduates is often used as a benchmark to measure the quality of education and skills (Teichler, 2009:111).

Accompanying the movement toward mass education has been an effort to invent a much more flexible education and learning system within a framework of lifelong learning. Lifelong learning, which encompasses the period from early childhood development through retirement and beyond, implies continuous learning and relearning opportunities. It is seen as crucial for a country to compete in the global economy because it equips people with the knowledge and skills that they need at any time or age (World Bank, 2006).

Samuelson (2006:356) argues that the learning system has two big virtues that support its advanced economy: "First, it provides second chances. It tries to teach people when they are motivated to learn, which it is not always when they are in high school or starting college. Second, it is job-oriented. Community colleges provide training for local firms and offer courses to satisfy market needs." Much recent research has focused on the links between education, the labour market, and skills development. Giannetti, Bonilla, and Almeida, (2004:361) for example, emphasize that investing in young people can improve development. Education investments broaden opportunities, develop young people's capacities by recognizing them as decision-making agents, and provide effective second chances through targeted programme. A related study, The Knowledge Economy and Education and Training in South Asia by Riboud; Savchenko, and Tan (2007:117) focuses on how skills affect labour market outcomes.

In another recent report, Linking Education Policy to Labor Market Outcomes, Fasih (2008:12) notes that the expansion of education only at the primary level will not raise earnings substantially and has not proven effective in reducing poverty. The quality of education is the cognitive skill of the population, not just the school enrollment rates, but is highly related to earnings and income distribution (Hanushek & Wöbmann 2007:17). As a result skills should be matched to occupation and employability.

2.2.3.1 Occupation and employability

Occupations, include trades and professions, are defined by their position (classification code) and their descriptors in the Organising Framework for Occupations, which is maintained by the Department of Labour (Department of Labour, 2008). An occupational qualification represents the achievement of a planned combination of learning outcomes which is intended to provide qualifying learners with the applied competence to practice an occupation, to perform occupationally-related skills sets and

to provide a basis for further learning. Occupational qualifications contain three components:

· Knowledge and theory component

· Practical skills component

· Work experience component.

Employability is having the skills and abilities to gain, retain and when necessary find a new fulfilling, satisfying, self-rewarding job (Pavlin, 2011:11). Therefore, the fact of finding employment is only one of the components of employability along with the labour-market relevant skills and job satisfaction.

Yorke (2006:114) notes that the balance between, and importance of, each employability element will vary for groups of individuals, depending on their relationship to the labour market while Rothwell, and Arnold (2007:118) define employability skills as:

• Positive attitude

• Self-management

• Team working

• Business and customer awareness

• Problem solving

• Communication and literacy

• Application of numeracy and

• Application of information technology.

Rothwell, and Arnold (2007:23) place an emphasis on graduates possessing a positive attitude as a key factor underpinning their employability; whether the individual has "a 'can-do' approach, a readiness to take part and contribute, openness to new ideas and

a drive to make these happen". Rothwell and Arnold (2007:24) note that employers value graduates who can demonstrate an entrepreneurial and innovative approach, and creative thinking which brings fresh perspectives and challenges assumptions.

2.2.3.2 The Importance of Occupation and Employability

The impact of the current economic crisis has had implications for higher education. The competition for employment among graduates has placed graduate employability as crucial for many parts of higher education. This results in a need for students to clearly understand how their academic skills could be used. Achievements relate to developing skills valued by employers. The institutions also have a role in providing employability enhancement and encouraging students to undertake other activities in addition to their core studies (Pegg, Waldock, Hendy-Isaac, & Lawton, 2012:40).

The marketplace is not driven by the supply side alone, but also by the labour market and employers. It is thus necessary for policy makers to understand how the education system and the labour market interact in order to prepare students for employment. Education and labour markets represent two ends of the spectrum. Education tends to be rigid and conservative, while labour markets are fluid and unpredictable. Effective linkages between the two depend on changes in both sectors. Old planning models and apprenticeship programmes must respond to the changing context of the labour market, with even successful models facing adaptation challenges today.

Labour market factors are also important. Without growth and positive labour market policies, more higher-quality human resources cannot be absorbed by a national economy and may result in unemployment. Information and career guidance are thus important, particularly for the poor, since they have fewer networks and connections to

the labour market than do the wealthy. The role of learners themselves also needs to be emphasized. In order to secure employment, they need to be realistic in their expectations, prepare themselves with the skills in demand, and develop self-learning skills, thus making themselves desirable to employers.

Crossman and Clarke (2010:599) recognize that employability cannot be a purely individual or institutional achievement, rather an outcome of the joint initiatives of the involved stakeholders including students, graduates, academics, programme coordinators, project managers, employers, representatives of relevant associations, and policy makers.

2.2.3.3 Measuring Employability

The concept of employability is closely linked to *'professional success'*, which can be described by a number of subjective and objective indicators such as: "(a) the smoothness of the transition from higher education to the labour market (duration of job search), (b) income and socio-economic status, (c) a position appropriate to the field and level of educational attainment, (d) desirable employment conditions (independent, demanding and responsible work), and (e) a high degree of job satisfaction" (Pavlin, 2010:5). It is deemed challenging to bring all these constituents to a common denominator. Nevertheless, one attempt has been made in the framework of the Erasmus Mundus employability survey (Hemmer, Pommer, Knabl, Calmand, Hallier, and Bouder, 2011:113) in which the index of the quality of employment was applied to analyse international degree programmes in terms of their labour market relevance. Christine (2005:5) argues that the dual challenges of competing in a world market and rapid technological advancements have necessitated a redesign of the workplace into an innovative work environment known as the high-performance workplace. This environment requires knowledge workers capable of solving problems, creating ways to improve the methods they use, and engaging effectively with their co-workers.

2.2.4 Skills Match

According to Cieslik, and Simpson (2006:213), the problem with short-terms views of employability lies in the failure to make a distinction between the tasks, firm and occupational understandings of skills. Skills at the level of an occupation concerns that ability or potential ability to fulfill all the tasks associated with or negotiated for an occupation. Skill in an occupational sense entails significant transferability between different jobs. It is also generally skills in this sense that is propagated by employees, it being in their interest to acquire skills of a more long-term nature, to equip them over a working life, Employers on the other hand, are more interested in skills needed by the firm (Winch & Clarke 2003: 240).

The match between required and provided skills plays a crucial role for economic growth (Sgobbi & Suleman 2011:235). The alignment between skills demand and supply in the labour market supports firms in filling up vacant positions and cuts the costs of process re-engineering. Matching employees benefit from higher returns from their investment in education and training and enjoy higher satisfaction levels. In addition, matching in the labour market signals the success of public policies in support of education and vocational systems. The above advantages make the alignment between required and provided skills a desirable target and justify the large body of literature on this topic. Provided that the benefits of an alignment between required and supply skills extend well beyond employees to include employers and institutional actors, the analysis of the determinants of educational and skills match is expected to offer additional insight to improve quantitative and qualitative adjustment in the labour market (Tur-Sinai, Romanov & Eizman 2009:4).

2.2.4.1 Skills Needed at Work

The skills or competences agenda is very prominent in the debates around the factors affecting graduate employability. There have been many attempts to classify skills and abilities with the major distinction being made between specific and generic ones. Yet, these classifications are rather artificial and even the employers do not seem to have found a common ground in their perceptions of the graduate competences. While some employers tend to be generally happy with the graduates' subject specific skills and less satisfied with the generic or transferrable ones (Yorke, 2006:114), other studies indicate that "the 'missing' skills are just as likely to be technical and/or employer-specific in nature as they are to be transferable" (Wang, 2005:333).

Various researchers such as (Badillo-Amador, García-Sánchez, and Vila, (2005:93), Shmarov and Fedyukin, (2004:119), Department of Education Science and Training, (2002) and Allen and van der Velden (2009:11), 2012:29) identified lists of skills, abilities and competences that are most important in the world of work and tried to expand the classification used in the Erasmus Mundus employability study (Hemmer, Pommer, Knabl, Calmand, Hallier, & Bouder, 2011:113).

First, there is an evident need for professional expertise or context/job specific skills involving mastery of own field or discipline, interdisciplinary know-how and research skills. The automation and computerisation of routine work tasks and the opportunities for outsourcing have led to "a growth in jobs that involve high level expert thinking and complex communication" (Allen & van der Velden, 2012:29). However, in the rapidly changing world, this expertise quickly becomes outdated. Hence, this category also includes an ability to rapidly acquire new knowledge.

Second, the field/specific skills depend upon a number of essential skills that can be grouped as follows:

Innovative and knowledge management competences including the ability to come up with new ideas and solutions, critical thinking, ability to write reports, memos or documents; presentation skills, problem-solving skills; analytical thinking, creativity, entrepreneurial skills. These skills are in line with the paradigm of the 'knowledge society' in which people are required to deal with ideas and concepts rather than objects, materials and machines (Allen & Van der Velden, 2012:29); and which emphasizes the importance of flexibility, adaptability, entrepreneurialism, initiative, etc. (Lindberg, 2008:29).

Even though the *technical skills*, such as basic operational ICT skills have not been singled out in a separate category by Hemmer *et al.*, (2011:111), there is a strong argument for mentioning them separately as the "ability to successfully use ICT will be just as essential for the ability to function in society as the ability to read, write or count" (Allen & Van der Velden, 2012:44). While basic computer literacy is often taken for granted these days, the use of ICT for information retrieval and strategic purposes might need a wider range of generic skills, such as logical reasoning and an ability to evaluate the trustworthiness of different sources, hence this competence needs to be viewed in a broader sense (Allen & Van der Velden, 2012:44).

Furthermore, mobilisation of human resources/workplace-interpersonal skills involves the ability to work productively with others, ability to mobilize the capacities of others, ability to clearly express one's opinion, ability to assert one's authority or leadership skills, and interpersonal/teamwork/ network skills. In the modern working environment the graduates have to be able to both work independently and in teams by bringing out and making use of the strongest qualities of the team members (Hemmer *et al*, 2011:113).

Finally the international competences are becoming increasingly important in the global labour market that the graduates are competing in these days and in the context of multicultural work environments that have become a reality worldwide. They include the ability to write and speak in a foreign language; professional knowledge of other countries; knowledge/understanding of international differences in culture and society.

In the case of international education, the researchers Garam, (2005:56) and Salisbury Storen and Wiers-Jenssen, (2010:31) argue that a broad range of skills and traits can be developed during the period of study abroad, such as social or life skills; a deeper understanding and respect for global issues, more favourable attitudes toward other cultures, improved personal and professional self-image, self-confidence, ability to handle ambiguity and difficult situations, insight into their own value systems and overall maturity. The question is whether these broader skills bring advantage to international graduates in the home or host country labour markets or whether they are still in a disadvantaged position due to the lack of integration and other factors.

The National Strategic Skills Audit of 2010 in England identifies the fundamental importance of increasing skill levels to future economic growth over the *longer term*. In particular important skills areas include: Management and leadership skills, and especially corporate managers across a wide range of sectors; Professional skills in the computing and software sector, in parts of health and social care, in pharmaceutical and medical technology, in manufacturing (i.e. traditional and advanced), teaching and research (Salisbury Støren & Wiers-Jenssen, 2010:31). Technician and equivalent skills across many sectors, such as health and social care, utilities, chemicals, life sciences and pharmaceuticals, automotive engineering and broadcasting; Intermediate vocational skills within sectors such as manufacturing, engineering, processing and construction associated with skilled trades will be needed as the current ageing

workforce retires and emerging opportunities develop in some sectors and to support future demand at technician level. The ageing population will lead to increased demand for care services with particularly significant volumes of staff in care assistant roles, that will need greater understanding of Information Communication Technology to support care users with assisted living technologies; Customer service and employability skills will be of growing importance to the service sector, including retailing as well as with after-service and maintenance roles in manufacturing and the digital economy (Umbach, Paulsen, & Pascarella, 2009). Lindberg (2008:10) argues that despite the continued growth of highly skilled work within the labour market, and a substantial overall decline in recent years in lower skilled jobs, in the future significant employment is expected to remain in sectors traditionally requiring low skilled jobs. These jobs are important as a labour market entry point for many groups, such as those seeking to move out of unemployment for example. However, many of these jobs will be in need of up-skilling in order to make improvements in service/product quality and to meet changes in consumer demand.

2.2.4.2 Skills Mismatch

When people's jobs match their needs, preferences, and abilities, they are likely to be relatively happy and satisfied with their work and lives, and workplaces are apt to function fairly smoothly and effectively. On the other hand, when there is a *mismatch*, or lack of fit, a variety of difficulties are likely to result for workers and their families as well as for employers and society. Mismatches have become more common in many countries than in the past several decades, due in large part to the pressures on companies to be more competitive, increased skills requirements, and the growing diversity of the labour force (Kalleberg, 2007:200).

Wilson (2007:101) describes the analysis and forecasting of competences and skills mismatch as:

- disequilibrium in the labour market is reflected in wage inflation, unemployment, lack of certain categories of personnel and inefficiency; the imperfections in the labour market make it one of the most socially sensitive markets and governmental intervention is in many cases required;
- there are long lags between decisions on investment in skills and the moment of implementation; these kinds of studies contribute to make these lags shorter and policy measures more rapid and effective; and
- unstable work environment has to be somehow anticipated in order to help individuals and organizations to adapt to structural modifications in the labour market.

Two essential questions arise from the study of labour and supply in the labour market, regarding competences and skills:

1) What are the likely changes in the patterns in demand for skills as measured by occupation and the qualifications?
2) What are the likely changes in the patterns in the supply of skills as measured by formal qualifications people held (Allen, Velden, Svetlik & Pavlin, 2009:13).

2.2.4.3 Skills Mismatch in a Working Environment

There is a growing literature on labour market mismatch, most of it focusing on educational mismatch and a smaller literature on skills mismatch, information on which has only recently become available in a limited range of data-sets (Mavromaras, McGuinness, O'Leary, Sloane & Wei, and 2010: 219). The allocation of workers across jobs is rarely optimal due to labour market failures. Discrepancies between labour

supply and demand can lead to unemployment or unfilled vacancies. However, to avoid unemployment, workers may also alter their job search behavior and accept jobs that do not match their acquired skills (Maud, Hensen, de Vries, & Cörvers, 2008:16) or are less favourable than others (Van Ommeren & Rietveld, 2007:241). A considerable amount of research has been done to explain education job mismatches, particularly with respect to workers' education attainment level relative to job level (Green & McIntosh, 2007:427). In addition, various studies have related the probability of finding a suitable job with mobility behavior (Gobillon, Selod, & Zenou, 2007:2401). Regions differ in labour supply and demand, making it easier to find a job at the required level in some regions than others. Thus, it is plausible that jobseekers have a higher probability of finding suitable jobs if their geographic search area is enlarged (Coniglio & Prota 2008:77). Apart from these characteristics related to the quality of the match, graduates also desire jobs near their place of residence; they dislike commuting or migrating for jobs (Van Ommeren & Rietveld, 2007:241). However, Maud, Hensen, de Vries, and Cörvers (2008:17) state that other education job mismatches also occur, such as people having jobs outside their study field or being engaged in nonstandard employment forms (part-time or temporary jobs). Research in this area has paid little attention to the match between study field and occupation.

Regions also differ in the distribution of schools and fields of education. This effect, however, is not incorporated in the analysis. According to Gobillon, Selod and Zenou (2007: 2401) their role in reducing the probability of graduates working are (i) jobs below their education level; (ii) jobs outside their study field; (iii) part-time jobs; (iv) flexible jobs; or (v) jobs paid below the wage expected at the beginning of the career. First, the job's desirability depends on five dimensions in terms of match: (i) education level; (ii) study field; (iii) contract type; (iv) the number of working hours; and (v) expected wage level. According to human capital theory, the accumulation of competences through education can be a human capital investment with a certain labour market value (Van Ommeren and Rietveld, 2007:241), and individuals strive to fully utilize this investment.

Florax, (2006:153) has analyzed the relevance of educational institutions' accessibility for higher education choice. Graduates with jobs below their education level run the risk of not being able to sufficiently utilize their acquired skills.

Skills mismatch, or more specifically over skilling, may result from workers being hired when the labour market is slack and jobs are hard to find. Skills mismatch may also imply that workers are being under-utilized because employers do not possess well-developed hiring practices or sophisticated employee-development strategies, with possible negative effects on wages and almost certainly negative effects on job satisfaction and a higher propensity to quit in so far as such workers are able to do so. There may also be negative effects on management-worker relations (Belfield, 2010:234).

Buddelmeyer, Lee and Wooden (2010:28) consider job satisfaction as a possible way of showing the degree of match between workers and jobs. Buddelmeyer, Lee and Wooden (2010:29) further distinguish between genuine and apparent mismatch. Genuine mismatch represents a situation in which a worker indicates possession of more education than is required to perform the job and also a low level of job satisfaction. Apparent mismatch represents a situation in which a worker has more than the required level of education, but is satisfied with the job. This is consistent either with a recognition that the job requirements are adequate for the level of skills possessed by the worker (i.e. the worker has low ability relative to that particular level of education) or alternatively that the worker prefers that level of job because it is less demanding or fits in better with leisure-work choices.

Adopting a slightly different approach, Green and Zhu (2008:116) distinguish between 'real' and 'formal' over- education according to whether or not this was accompanied by skills under utilisation. It was found that those in the real over- education category

suffered from higher wage penalties than those in the formal over- education group and only the former exhibited significantly lower job satisfaction. An alternative approach is to treat over- education and over skilling separately.

Lindley and McIntosh (2008:19) examined the relationship between educational mismatches and skills mismatches and found that while the former had a strong negative effect on wages the latter did not. Skills mismatches, in contrast, predicted the level of job satisfaction and that of on-the-job search much better than did over education. Green and McIntosh (2007:116) found a correlation between over education and over skilling. In a recent study, McGuinness and Sloane (2010:130) looked at the extent of over skilling in Australia and its impact on wage levels using the Household, Income and Labour Dynamics in Australia (HILDA) data. They also argue that over-skilling is a better measure of under-utilisation of labour than over education since it is less likely to be contaminated by unobserved individual heterogeneity than the latter.

Kler (2006:47) has already used the first wave of HILDA to examine the impact of over education on higher education graduates using bivariate probit models to account for possible unobserved heterogeneity, though over skilling is not considered. Kler (2006:47) calculates over- education by using job analysis to determine the educational requirements of particular occupations using ASCO codes. Kler finds that over-educated graduates suffer from lower levels of satisfaction than their matched peers, with the exception of satisfaction with hours worked and job security. However, this may be the result of excluding the over skilling variable.

Kler (2007:47) has used the Australian Longitudinal Survey of Immigrants (LSIA) to examine the extent of over education (based on the objective definition) among tertiary educated immigrants. English speaking immigrants are found to have similar rates of over education compared to the native born. A recent attempt to use the panel element of the British Household Panel Survey (BHPS) is that of Lindley and McIntosh

(2008:19). As there are no over education or over skilling questions in the BHPS, they use the one standard deviation over the mode approach to measure over education. There is some evidence that unobserved ability explains some of the over education and that, for some, over education is a temporary phenomenon, but for a sizeable minority there is evidence of duration dependence and this is particularly so for the more highly educated. However, Lindley and McIntosh (2008:19) do not have a skill mismatch variable and thus are unable to control for unobserved characteristics.

Jensen and Kletzer (2010:17) argue that the consequence of mismatch can be lost productivity, lower pay and reduced well-being. Addressing such consequences has increasingly entered the agenda of modern skills policies, so it is important to have a clear concept and taxonomy for skills mismatch. Skills under-utilisation occurs where a worker has work-related skills not used (or used at too low a level) in the job. This phenomenon is loosely related to the concept of "over education", where someone has achieved education at a level higher than needed to get the job they are doing. UKCES (2010:60) argues that a skills gap is the opposite case, where an employee's competence to do the job is called into question (typically by their managers). This phenomenon is relatively uncommon in cases where employers are free either to train or dismiss incompetent workers.

While the concept of skills gap applies to both worker and employer, a skills shortage vacancy is a mismatch phenomenon that applies to the employer: it describes the situation where a job vacancy is hard to fill because applicants lack needed skills UKCES, 2010:60) Since vacancies depend on demand and rise and fall with the economic cycle, this concept is only a weak guide to whether there are any skills problems in an organization or in a national economy.

More relevant for that purpose is the notion of a skills deficit, where the level of skills supplied and used is below the desirable level. A common practical guide to what the desirable level should be is not some absolute standard, but the level exhibited by similar organisations or economies. It is for this reason above all that policy advisers have a strong interest in the benchmarking that is made possible by inter-regional and international comparisons of skills. Unfortunately, direct measures of skills being rare, each nation's researchers usually benchmark educational achievements, which are not the same thing (UKCES, 2010:60).

2.2.4.4 Skills Mismatch drivers

The measures of educational and skills mismatch discussed above witness a significant mismatch between demand and supply in the labour market. Recent empirical studies have suggested that labour market conditions may influence the initial choices of new entrants and condition the subsequent evolution of their careers (Ortiz, 2007:446). Ortiz, (2007:447) further suggests that uncertainty in the labour market may induce employees to prefer permanent positions over temporary ones, also when higher employment security is associated with over education. Control for industry change, firm change and tasks change between first and current job are consequently expected to reveal the drivers of early adjustment of educational and skills mismatch. Nevertheless, a move to another job may also increase mismatch in case of limited skills transferability across workplaces (Robst, 2007:349). On the other hand competence disruption seems to prevail over mismatch adjustment effects in the case of firm and task change, which are positively and significantly associated with an increase probability of under education.

The mismatch between educational system and labour market needs and demands, lack of job, and the requirements of the employers for the employees to have work

experience are the major reasons that lead to the high youth unemployment rates. Furthermore, youth are mostly employed in the grey economy. As a result of the environment described above, the brain drain phenomenon has been present in many countries in the past decade. The Government has to undertake measures in order to cope with this phenomenon, and turn brain drain into brain circulation, i.e. return of highly qualified persons to the country, from which the country would benefit through using their work experience gained in the developed countries.

2.2.4.5 Measuring Skills Mismatch

The dynamic properties of over skilling and its relationship with the level of qualifications of over skilled workers can be measured by the difference between over skilling and over education (Mavromaras and McGuinness, 2012:20). Over skilling is defined as the situation where an employed worker reports that their skills are not fully utilised in their job. It is taken to reflect a form of skills under-utilisation in the workplace, and the possibility of a mismatch between the worker and the job. Mavromaras and McGuinness, (2007:20) jointly assume that over skilling has been emerging as a key measure of mismatch in the recent literature, in preference to the more commonly used over-education variable. McGuinness and Bennett, (2007:521); McGuinness, (2006:387); O'Leary, Sloane, McGuinness, O'Connor, and Mavromaras, (2009:88) put arguments that over skilling is a more general, and potentially more robust measure of skills under-utilisation in the labour market than is over education. O'Leary, Sloane, McGuinness, O'Connor and Mavromaras, (2009:88) state more specifically that over-education is more prone to measurement error in that it compares educational attainment taken to be a proxy for individual human capital, with job entry qualifications taken to be a proxy for job skills content. Education is a potentially inaccurate measure of aggregate human capital as it fails to encompass any measure of innate ability and/or skills learned through employment. Similarly, job entry requirements may often be a poor indicator of job content as a consequence of labour market credentialism. Over

skilling, on the other hand, arguably overcomes to a large degree all such difficulties by asking respondents to directly compare all their skills, whether they relate to education, work experience or general ability, with the actual requirements of the job. However, it must also be noted that as over skilling is measured exclusively in a subjective fashion, it is potentially prone to measurement error arising from subjective bias, for example, when individuals may have an exaggerated view of their actual abilities.

Workers' human capital depreciation might bring in mismatches between their formal education and their jobs. This might not necessarily imply a mismatch between workers' productive skills and the skills required by the market, but simply that workers were trained with skills that are actually not demanded anymore. Hence, even if individuals are optimally allocated given their productive skills, they might be formally over-educated.

Unfortunately, the nature of the data means that it is not possible to consider the dynamics or persistence of skill mismatch. However, Blazquez and Malo (2005:31) find that mismatch has particularly severe consequences for disabled individuals as they have a lower probability of leaving this state to become matched and have a higher probability of exiting this state to unemployment or inactivity. The relationship between education or skill mismatch and disability in the labour market has been largely ignored, even to the extent of not always controlling for disability in the regression analyses. One recent exception is Blazquez and Malo (2005:31),whose finding of no significant relationship between disability and educational mismatch is surprising given, as they note, that there are good reasons to expect the problem of over education to be more acute for disabled workers. As with other minority groups, employer discrimination would reduce the probability of employment, so that disabled individuals may be more likely to accept employment which does not fully utilise their skills or qualifications. Similarly, the unobserved productivity effect of a disability, by lowering productivity (for a

given set of educational characteristics), would also reduce employment prospects. However, there is another line of argument, found in Battu and Sloane (2004:535) which suggests that, for ethnic minorities, spatial constraints on job search increase the probability of educational mismatch. However, constraints on job search for disabled individuals may be multidimensional, including not only geographical location but also the physical (or emotional) demands of employment, hours of work and accessibility.

All these induce disabled individuals to search in a smaller pool of jobs and be more at risk of accepting 'mismatched' employment. Moreover, it is also possible that onset of disability reduces an individual's ability to work and so increases their probability of being under skilled (conditional on remaining in the same job). By contrast, if onset of disability is accompanied by a transition into less demanding work, there may be a greater risk of over skilling. It is well known that disabled individuals are less likely to participate in the labour market than the non-disabled, and that the work-limited disabled suffer a pay penalty. There is therefore a possibility that disabled workers may be more prone than the non-disabled to skills mismatch. This is, indeed, confirmed by Melanie, Welmer, Selmerc and Sloane (2010:101) in regression analysis, both with respect to under skilling and over skilling.

2.2.4.6 Effect of Wage Production

Conventional wisdom asserts that policies aimed to increase average schooling levels are expected to reduce earnings inequality by increasing the proportion of high-wage workers to a more balanced distribution of education (McGuinness & Sloane, 2010:130). Budria and Moro-Egido (2008:332) argue that this will result in a more balanced distribution of earnings. Even though such policies may reduce average differences between otherwise differently educated individuals, their final impact on overall inequality is not clear cut.

A well-documented adverse outcome resulting from over skilling is lower earnings, especially for university graduates. Over skilled workers use a smaller proportion of their skills, as a result they are less productive and command lower wages than their well-matched counterparts (Green & Zhu, 2010:740; Mavromaras, McGuinness & King Fok, 2009:60).

A mismatch between the individual's field of education and occupation (horizontal mismatch) (Robst, 2007a:397) is the individual's decision to invest in a particular education. It can be assumed that the individual chooses a particular field of education with the expectation of working in an occupation related to that field. The individual's choice of field of education can then be assumed to depend on expected earnings, as well as on other factors such as risk-aversion and preferences for specific job conditions and job characteristics (Robst, 2007b:159). To illuminate the phenomenon of a horizontal mismatch, the human capital stock accumulated during a college education must be assumed to be composed of different kinds of capital or skills, some general and some occupation-specific. The general skills can be expected to be remunerated in all (college level) occupations whereas the occupation-specific skills can be expected to be remunerated only within the corresponding occupation(s) (Robst, 2008:349). An observed outcome, where the individual's occupation does not match the chosen field of education, would then indicate that the original intention has not been actualized. There could be several reasons for this. Robst (2007b:159) divides them into supply-related and demand-related reasons. A demand-related horizontal mismatch can be regarded as involuntary in that the individual (after finishing education) has still wanted to be correctly matched, but has not been able to achieve this; The number of available matching job slots has been limited and the individual, purely by chance (e.g. bad luck or bad timing), by discrimination or by being outcompeted (e.g. due to lower ability or other non-educational individual characteristics), has not got into one of these slots.

In contrast, Robst (2008:349) states that supply related horizontal mismatch can be regarded as voluntary and initiated by the individual. The background could be changes in information and/or changes in preferences and constraints. The original investment decision is taken based on expected earnings and other occupational job characteristics and might be modified by new and/or more correct information. Information about job characteristics might have the character of good experience and be modified by the individual actually working for some time in the matching occupation(s). But it could also be that the attractiveness of other occupations (or the information about them) has changed. Another possibility is that the individual's preferences (or constraints) have changed so that he/she has come to prefer other pecuniary and/or non-pecuniary job characteristics than when the educational investment was undertaken. Thus both changes in information and changes in preferences (or constraints) might have led the individual to a change from the intended occupation(s), in other words to become mismatched.

The background to a horizontal mismatch could thus be quite heterogeneous and it is likely that the background will influence its earnings consequences. For example, Robst (2007b:157) shows that the wage effects differ between demand-related and supply-related reasons as well as between different types of supply related reasons (pay and career related versus amenity/constraints related). All the mismatched individuals will lose the payoff to their occupation specific skills. But individuals who have changed into a higher paying and more career oriented occupation may well have partly or fully compensated for this earnings loss. If the change of occupation instead has its background in amenities/constraints, then the mismatched individual is likely to have a lasting income penalty, but will be compensated for this by more attractive non-pecuniary job characteristics. In both these supply related cases, the earnings differences between the matched and the mismatched individuals from a certain field of education can be classified as voluntary. In the case of a demand related horizontal

mismatch a negative earnings effect from being mismatched is expected and it would have the character of an involuntary income penalty.

2.3 CONCLUSION

It is clear that when employees are employed in any organisation, education is important. The very skills that one acquires should be used in an effective and efficient way to bring production to an organisation. Education will result in a skills match, however it is important for every manager to be vigilant and have knowledge on how to recruit the right person to the right job. The next chapter relates the methodology that has been used in this study to achieve objectives set for this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on clarifying the methodology employed in the study. The purpose of the chapter is to reflect the research questions by providing a thorough explanation of research methodology and research design, the target population of the study, the research sample size, the sampling technique employed and data collection methods. Data analysis procedures and technique are also explained.

3.2 Research Methodology and Design

3.2.1 METHODOLOGY

Two major issues were analysed:

- The relationship between the education-job match on the one hand and the use of knowledge and skills on the other; and
- The effects of educational and skills mismatches on wages, job satisfaction and on-the-job search.

➢ Relationship between the Education-Job Match and Use of Knowledge and Skills

A quantitative method was employed to measure the extent of matching. In determining educational mismatches, employees were asked to indicate what the most appropriate ways of matching the job to knowledge are.

➢ Effects of Mismatches on Wages, Job Satisfaction and On-the-job Search

Regression analysis was used to measure the effects of educational and skills mismatches on the dependent variables. In the explanatory analysis, the assessment

was on the effects of the following dependent variables: natural logarithm of hourly wage, job satisfaction, and on-the-job search. In each of these analyses, the dependent variable of the previous analysis was included in order to account for its effect. Relevant control variables were taken into account.

The questionnaire was divided into three sections (see attached annexure). The questionnaire was presented in a Likert - type scale with strongly disagree forming one end of the continuum and strongly agree the other end. According to Maree (2008:167), the Likert scale is the most widely used scale in research and is convenient when the researcher wants to measure a construct.

3.2.2 Research Design

Most mixed-method studies used triangulation as a way of combining the qualitative and quantitative approaches (De Vos, Strydom, Fouche & Delport, and 2010: 360). The study therefore used qualitative data analysis to monitor and report the procedure (Patton, 2002:434). Quantitative analysis according to De Vos, *et al.*, (2010:93) is used with the view to establish the concepts and the selection or construction of measuring. The study is looking for a theoretical base and intervention model that would appropriately address the effective and efficient management of skills in the Ngaka Modiri Molema District of the Department of Education. The research design in this study used both a qualitative and quantitative approach. Data was collected predominately by use of a research instrument of self-administered questionnaire at a single point in time in order to collect a body of quantitative data.

3.2.3 Study Population and Sample

The population for this study comprises of officials in the Ngaka Modiri Molema District in the North West Province. The establishment document from the Human Resource section indicated that the Department of Education in the North West Provence has a population of 500 employees. The district is made up of five sub- district Mahikeng,

Ditsobotla, Ratlou, Ramotshere Moiloa and Tswaing. With a population of 500 staff members, random sampling was used by using the sample size below.

The guideline for sampling was used to determine the size of the sample for this study.

Table 1: Guidelines in selecting the size of the sample

Population	Percentage suggested	Number of respondents
20	100%	20
30	80%	24
50	64%	32
100	45%	45
200-500	**32%**	64
1 000	14%	140 to 300
10 000	4,5%	450
100 000	2%	2000
200 000	1%	2000

Source: (De Vos, Strydom, Fouché and Delport, 2010:196)

The total number of questionnaires distributed to respondents was 160. They were administered in the Department of Education, in Ngaka Modiri Molema District in the North West Province. Out of the total of 160 questionnaires distributed, 154 were completed and returned which is a 97% response rate by employees of the Department.

The population that was involved in this study includes only officials involved in planning and implementing. There were sixty (60) officials from Mahikeng, forty (40) from Zeerust; twenty (20) from Koster; twenty (20) from Setlagole and twenty (20) from Ditsobotla. The total number of the sample was N=160 respondents selected using the random selection method backed up by a participative criterion, which is also referred to as purposeful sampling. De Vos *et al.* (2010:196) state that, the larger the population

the smaller the percentage of the population which should be included in a sample. In random sampling, each member of the population has the same chance of being included in the sample and each sample of a particular size has the same probability of being chosen.

3.3 Data Collection

A questionnaire was developed as presented in appendix A for the Department of Education and administered by the researcher. The questionnaire was divided into three sections. The questionnaire was presented in a Likert - type scale and data were collected with the structured questionnaire. Section A gave demographic information, Section B with 31 items with responses of strongly agree; agree; uncertain; disagree strongly and disagree onminimizing the effects of skills mismatch; factors that decrease the productivity of employees; impact of skills mismatch and suggestions to improve the situation of skills mismatch. Section C had 6 open ended questions.

The advantages of using a questionnaire are:

- Firstly, that it is the least expensive means of gathering data (Pramlal, 2004:102).
- Secondly, the questionnaire offers the respondents a greater sense of anonymity and, at the same time, the opportunity to collect their thoughts and facts and to give greater consideration to their replies (Pramlal, 2004:102-103).
- Thirdly, with the questionnaire there is less pressure for immediate response on the subject (Pramlal, 2004:103).

However, there are also disadvantages when using the questionnaire method. They are:

- Firstly, organisations often are not able or willing to take up company time to complete questionnaires (Pramlal, 2004:103).

- Secondly, according to Pramlal (2004:103) the least educated respondents will be unable to respond to questionnaires because of difficulties in reading and writing.
- Thirdly, questionnaires do not allow the researcher to correct misunderstandings or answer questions that the respondents may have (Pramlal, 2004:103).

To deal with these challenges the respondents were requested not to hesitate if they needed any further clarification they were free to contact the researcher.

3.4 Data Analysis

The researcher ensured that all relevant questions had been answered and there was a follow up if the respondents did not understand or needed clarification. The sections were analysed using SPSS programme. Data were described with frequency counts. The responses were coded to facilitate entry into a computer. All questionnaires received for this study were coded before inputting into an SPSS soft package. Variables were categorised so as to facilitate several items measuring a particular concept being grouped together. Data from this research was entered manually into a computer. The results from the data analysis were summarised into graphs, tables and figures which represented personal characteristics.

According to Sekaran (2003:306) there are three primary objectives in data analysis, namely:

- Getting a feel for the data;
- Testing the goodness of the data; and
- Testing the hypothesis for the research.

3.4.1 Getting Data Ready for Analysis

Below are some issues researchers need to consider when getting collected data ready for further analysis.

- **Editing Data:** Data have to be edited especially when they relate to responses to open-ended questions of interviews or questionnaires (Hanuman, 2006:65). The

researcher should ensure that all relevant questions have been answered and where possible, a follow up should be done with respondents (Hanuman, 2006:65).

- **Handling Blank Responses:** Not all respondents will answer all items in the questionnaire (Hanuman, 2006:65). If 25% of items are not answered, then the
- Questionnaire should be thrown out and not included in the data set (Sekaran, 2003:302).

Sekaran (2003:303) also suggests that blank responses can be handled in the following ways:

- assign the midpoint in the scale;
- ignore the blank responses, although this reduces the sample size;
- assign the mean value of all the responses to the blank; and
- give the items the mean of the respondents own responses for other questions measuring this variable.
- **Coding:** The responses have to be coded to facilitate entry into the computer. All questionnaires received for this study will be coded before inputting into an SPSS software package.
- **Categorisation:** Variables will be categorised so as to facilitate several items measuring a particular concept being grouped together.
- **Entering of Data:** Data from this research will be entered manually into a computer.

3.5 Validity and reliability

The validity and reliability of the variables were assessed using the item reliability, construct reliability, and average variance extract, together with Cronbach's alpha coefficient. The results of the reliability testing highlights that the instrument utilised and the questions were reliable, valid and trustworthy at a Cronbach's alpha coefficient, of 0.746, which according to the internal consistency is a good measure.

3.6 CONCLUSION

Chapter three described the research design which includes the method of investigation, research design, exploratory research, descriptive research, research strategy, target population, sampling strategy, sample design, research instrument, questionnaire construction, and the administration of the questionnaire, collection of the questionnaires, data collection instruments, and data analysis. The next chapter focuses on analysis and interpretation of the results.

CHAPTER 4: ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The chapter presents results obtained by a questionnaire administered to employees of the Department of Education in Ngaka Modiri Molema District, in the North West Province. The results from the questionnaire are organised and analysed in the order of the research objectives presented earlier in chapter one in section 1.4.3. The questionnaire was divided into the following three sections namely; Section A, B and C.

4.2 DEMOGRAPHIC INFORMATION

Demographic section consists of response rate and biographic analysis. Biographic analysis is further subdivided into gender, age group, job status, highest qualification and number of years employed at the Department of Education and districts these employees are working in.

Figure 4.1 Gender distributions of respondents

Figure 4.1 depicts that of the respondents, 51% were males and 49% were females. This implies that there are almost equal numbers of males and females in the Education sector in the North West Province, because the split only differs by one percent. According to the report on Employment Equity and Gender Transformation Report for North West Province (2011), it is state that South Africa can demonstrate a strong political commitment to gender equality and transformation in the workplace, owing to comprehensive legislative framework and appropriate policies; however the evidence indicates that progress on gender equity has been very slow.

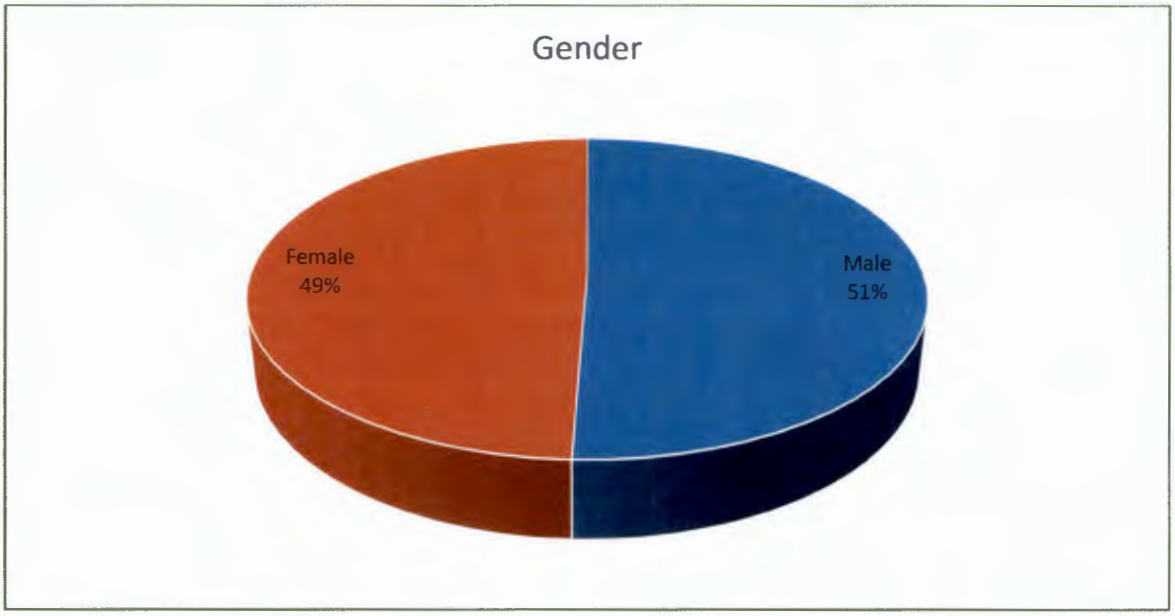
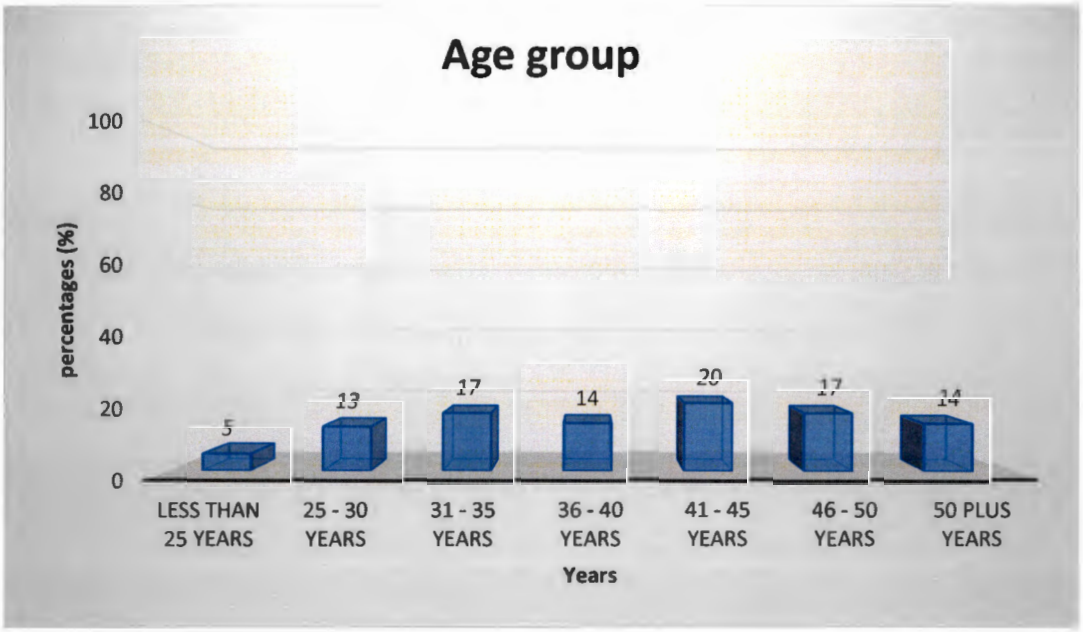


Figure 4.2 Age groups of respondents

Figure 4.2 shows that the majority of respondents were in the age groups of 41 – 45 years with 20%, and also in the age groups 31 – 35 years and 46 - 50 years with 17% each. The minority were in the age groups of less than 25 years with 5%. This implies that most of the employees in the Department of Education are nearing their retirement age, because 51% of the respondents are in the age range between 41 and 50 plus.



4.3 Job status of employees in the Department of Education

As shown in figure 4.3, a majority of the respondents are Educators with 49%, 25% of the respondents are administrative officers and the minority (3%) are at senior management level.

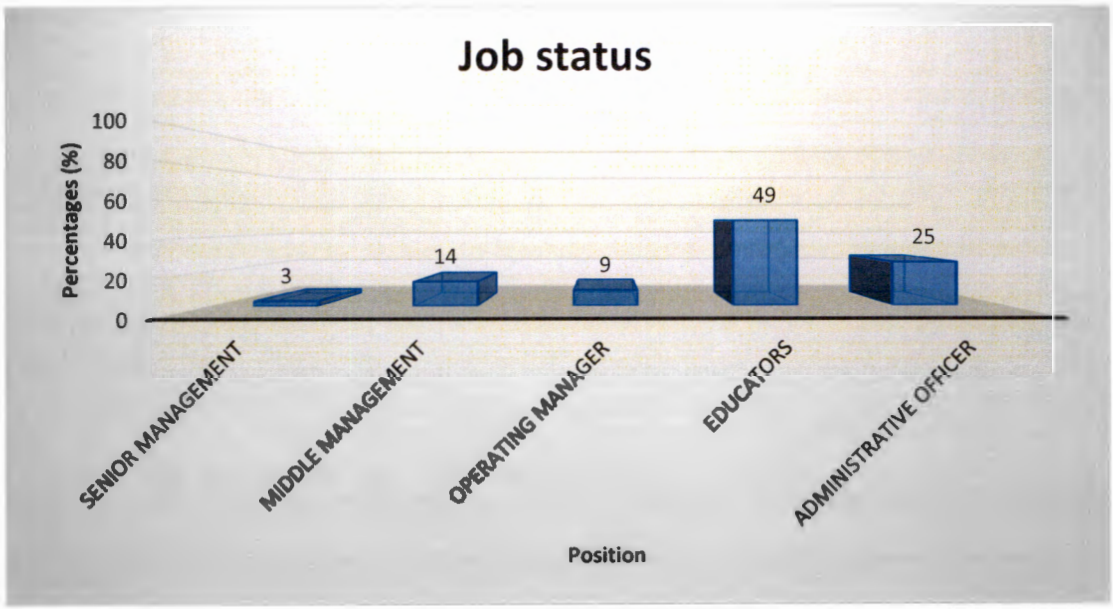


Figure 4.4 Highest qualifications of employees in the Department of Education

As Illustrated from Fig 4.4, the majority of the respondents on this section are graduates from tertiary institutions with any other Certificate. From the 154 responses received, 45% are respondents holding any other Certificate; 23 hold a Bachelor's Degree, 16% of the respondents are holding an Honors Degree and the minority, which is 1%, do not have matric. This implies that the majority of the respondents are educated and this enables them to educate or carry out any administrative job given to them.

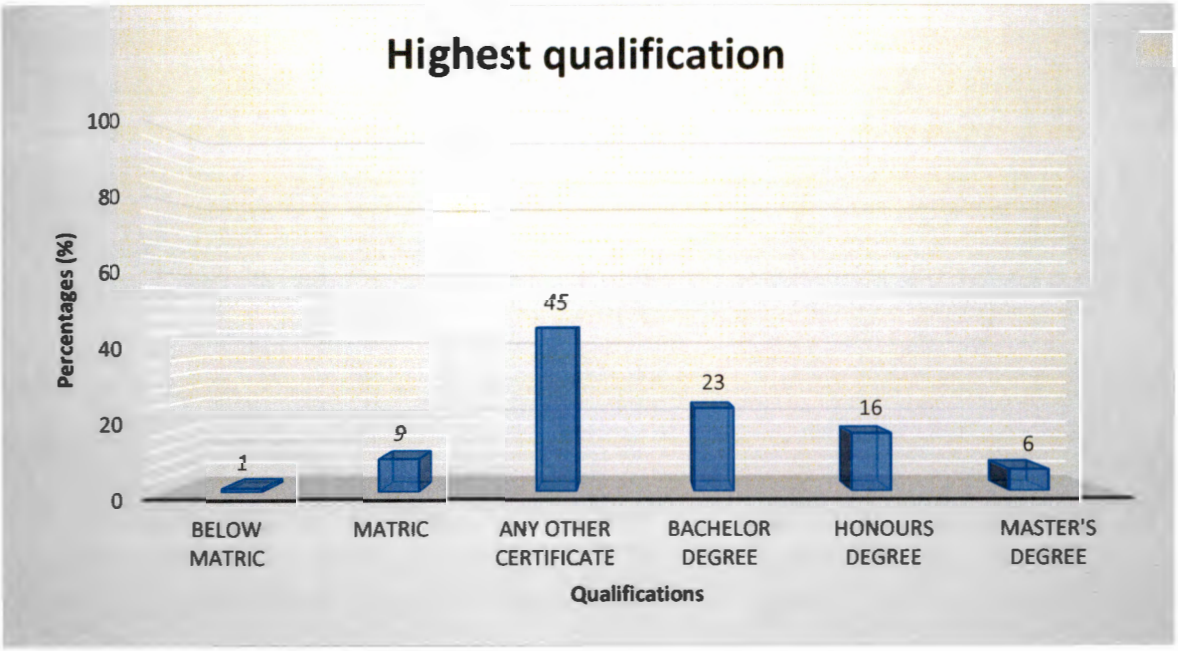
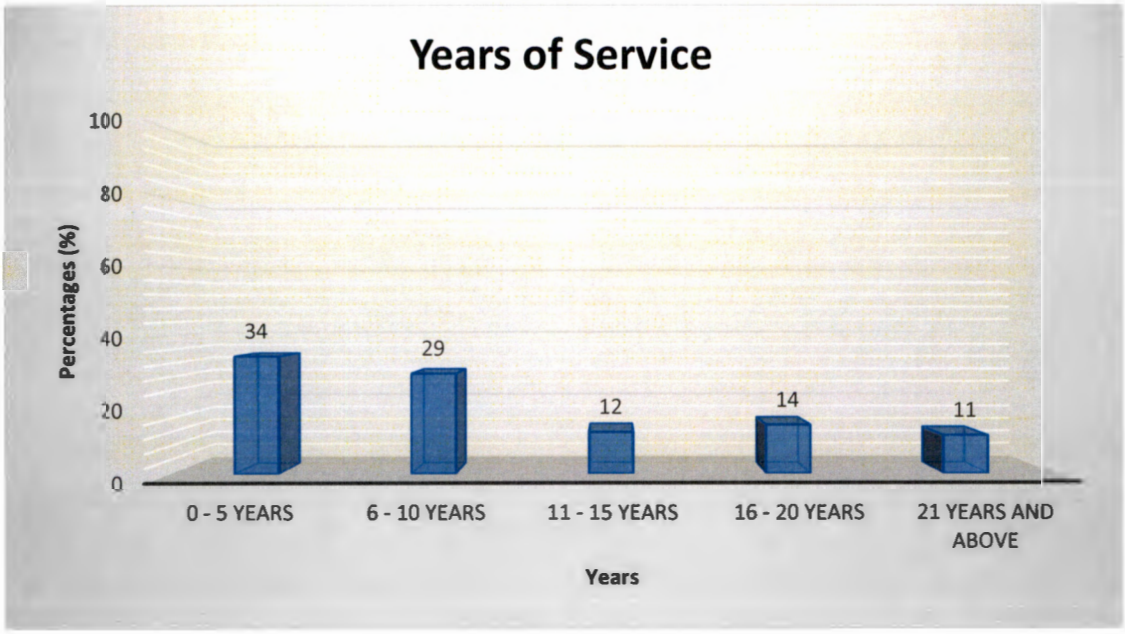


Figure 4.5 Years of service

Figure 4.5 reflects that the majority of the respondents (34%) have worked at the Department between 0 – 5 years, and the least number of respondents with 11% of the respondents have worked at the Department for 21 years and above. This implies that the majority of employees have just started working for the Department, which implies that they are inexperienced with educational policies.



4.6 Sub Districts respondents working in the Department of Education

Figure 4.6 reflects that the majority of the respondents (54%) work in Mahikeng, 24% of the respondents work in Ditsobotla, 5% of the respondents work in Tswaing, 14% in Ramotshere Moiloa and the minority of the respondents with 3% are from Ratlou sub district.

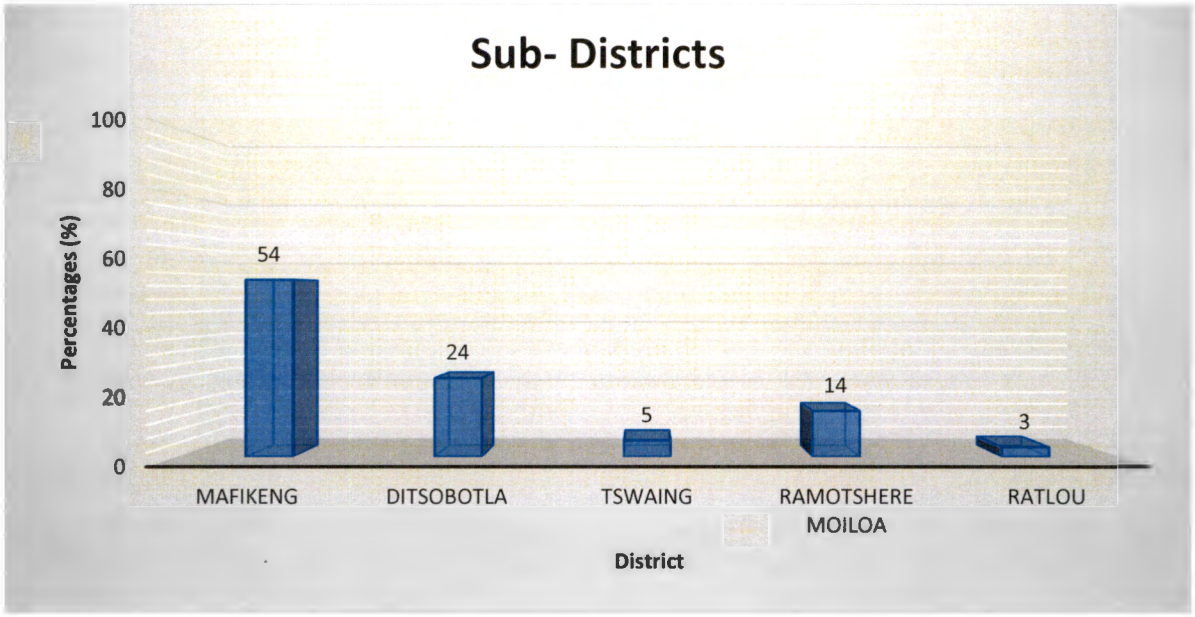


Table 4.1 presents the responses to the statements relating to minimizing the effects of skills mismatch in the Department of Education in Ngaka Modiri Molema District. The respondents were requested to respond to six statements. They were asked to rate each item on a scale of 1 to 5 (1 = strongly agree; 2 = agree; 3 = uncertain, 4 = disagree and 5 = strongly disagree).

Table 4.1 Skills mismatch

STATEMENTS	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
	1	2	3	4	5
Innovative and knowledge management competences	(97) 63%	(48) 31%	(7) 5%	(2) 1%	(0) 0%
Technical skills, such as basic computer skills	(88) 56%	(50) 33%	(9) 6%	(7) 5%	(0) 0%
Mobilisation of human resources	(82) 52%	(52) 34%	(17) 11%	(4) 3%	(0) 0%
Workplace-interpersonal skills	(79) 51%	(54) 35%	(17) 11%	(4) 3%	(0) 0%
International competences	(70) 44%	(50) 33%	(23) 15%	(10) 7%	(1) 1%
Willing of graduate to relocate	(73) 46%	(50) 33%	(20) 13%	(10) 7%	(1) 1%

The study also investigated minimizing the effects of skills mismatch in the Department of Education in Ngaka Modiri Molema District. Out of 154 responses received, 94% of the respondents agreed that innovative and knowledge management competences are key to minimizing effects of skills mismatch, 5% of the respondents were uncertain

whether innovative and knowledge management competences are important to minimizing effects of skills mismatch and some 1% of the respondents disagreed that innovative and knowledge management competences are key to minimizing effects of skills mismatch. Innovative and knowledge management competences include the ability to come up with new ideas and solutions, critical thinking, ability to write reports, memos or documents; presentation skills, problem-solving skills; analytical thinking, creativity, entrepreneurial skills. These skills are in line with the paradigm of the 'knowledge society' in which people are required to deal with ideas and concepts rather than objects, materials and machines (Allen & Van der Velden, 2012:29); and which emphasizes the importance of flexibility, adaptability, entrepreneurialism, initiative, etc.

A total of 89% of the respondents highlighted that the technical skills, such as basic computer skills will be able to minimize effects of skills mismatch in the Department, 6% of the respondents indicated they were uncertain that technical skills such as basic computer skills can minimize the effects of skills mismatch and 5% of the respondents disagreed that skills such as these will minimize the effects of skills mismatch. Even though the technical skills, such as basic operational ICT skills have not been singled out in a separate category by Hemmer *et al.*, (2011:111), there is a strong argument for mentioning them separately as the "ability to successfully use ICT will be just as essential for the ability to function in society as the ability to read, write or count" (Allen & Van der Velden, 2012:44). While basic computer literacy is often taken for granted these days, the use of ICT for information retrieval and strategic purposes might need a wider range of generic skills, such as logical reasoning and an ability to evaluate the trustworthiness of different sources, hence, this competence needs to be viewed in a broader sense (Allen & Van der Velden, 2012:44).

Out of the 154 responses received, 86% of the respondents indicated that transfer of human resources can minimize the effects of skills mismatch in the Department of

Education, 11% of the respondents were not sure if transfer of human resources can really minimize the effects of skills mismatch and 3% of the respondents disagreed that transferring human resources can minimize the effects of skills mismatch. A total of 78% of the respondents agreed that workplace-interpersonal skills are key to minimizing the effects of skills mismatch in the Department, while 11% of the respondents highlighted their uncertainty with regard to workplace interpersonal skills minimizing the effects of skills mismatch and a minority (3%) of the respondents totally disagree that workplace interpersonal skills can minimize the effects of skills mismatch.

Furthermore, transfer of human resources interpersonal skills involves the ability to work productively with others, ability to transfer the capacities of others, ability to clearly express one's opinion, ability to assert one's authority or leadership skills and interpersonal/teamwork/ network skills. In the modern working environment the graduates have to be able to work both independently and in teams by bringing out and making use of the strongest qualities of the team members (Hemmer *et al*, 2011:113).

A total of 77% of the respondents indicated that international competences are vital to minimising the effects of skills mismatch, while 15% of respondents were not sure whether international competences will minimize the effects of skills mismatch and lastly 7% of the respondents did not agreed that international competences are key to minimization of the effects skills mismatch. Moreover, international competences are becoming increasingly important in the global labour market that the graduates are competing with these days and in the context of multicultural work environments that have become a reality worldwide. They include the ability to write and speak in a foreign language; professional knowledge of other countries; knowledge/understanding of international differences in culture and society.

In the case of international education, the researchers Garam, (2005:56), and Salisbury, Støren and Wiers-Jenssen, (2010:31) argue that a broad range of skills and traits can be developed during the period of study abroad, such as social or life skills; a deeper understanding and respect for global issues, more favourable attitudes toward other cultures, improved personal and professional self-image, self-confidence, ability to handle ambiguity and difficult situations, insight into their own value systems and overall maturity. The question is whether these broader skills bring advantage to international graduates in the home or host country labour markets or whether they are still in a disadvantaged position due to the lack of integration and other factors.

Out of the 154 responses received, a total of 79% of the respondents highlighted the willingness of graduates to relocate can really minimize the effects of skills mismatch, 13% of the respondents were uncertain whether the willingness of graduate to relocate will minimize the effects of skills mismatch and roughly 8% of the respondents disagreed that the effects of skills mismatch can be minimized by the willingness of graduates to relocate. A considerable amount of research has been done to explain education job mismatches, particularly with respect to workers' education attainment level relative to job level (Green & McIntosh 2007:427). In addition, various studies have related the probability of finding a suitable job with mobility behavior (Gobillon, Selod & Zenou, and 2007:2401). Regions differ in labour supply and demand, making it easier to find a job at the required level in some regions than others. Thus, it is plausible that jobseekers have a higher probability of finding suitable jobs if their geographic search area is enlarged (Coniglio & Prota (2008:77). Apart from these characteristics related to the quality of the match, graduates also desire jobs near their place of residence; they dislike commuting or migrating for jobs (Van Ommeren & Rietveld 2007:241). However, according to Maud, Hensen, de Vries, and Cörvers (2008:17), other education-job mismatch also occurs, such as people having jobs outside their study field or being engaged in non-standard employment forms (part-time or temporary jobs). Research in this area has paid little attention to the match between study field and occupation.

Table 4.2 presents the responses to the statements relating to which factors that tend to decrease the productivity of employees having a skills mismatch in the Department of Education. The respondents were requested to respond to twelve statements. They were asked to rate each item on a scale of 1 to 5 (1 = strongly agree; 2 = agree; 3 = uncertain, 4 = disagree and 5 = strongly disagree).

Table 4.2 Factor effect productivity

STATEMENTS	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
	1	2	3	4	5
Jobs below their education level	(55) 36%	(68) 43%	(18) 12%	(9) 6%	(4) 3%
Jobs outside their study field	(71) 46%	(63) 41%	(18) 12%	(2) 1%	(0) 0%
Part-time jobs	(59) 38%	(52) 34%	(22) 14%	(18) 12%	(3) 2%
Flexible jobs or multi-tasking	(57) 37%	(60) 38%	(18) 12%	(10) 7%	(9) 6%
Jobs paid below the salary expected at the beginning of the career	(79) 51%	(60) 39%	(13) 8%	(1) 1%	(1) 1%
Education level	(65) 42%	(58) 38%	(26) 17%	(3) 2%	(2) 1%
Lack of capacitation or training	(70) 46%	(71) 45%	(10) 7%	(2) 1%	(1) 1%
Contract employment	(56) 36%	(66) 43%	(23) 15%	(8) 5%	(1) 1%
Number of working hours	(46) 30%	(66) 43%	(22) 14%	(17) 11%	(3) 2%
Lack of performance assessment	(67) 43%	(62) 40%	(10) 7%	(14) 9%	(1) 1%
Engagement in nonstandard employment forms	(59) 38%	(56) 36%	(23) 15%	(7) 5%	(9) 6%
Lack of recognition of production of people with disability	(58) 38%	(62) 40%	(28) 18%	(5) 3%	(1) 1%

The study also investigated the factors that tend to decrease the productivity of employees having a skills mismatch in the Department of Education. Out of 154 responses received, 91% of the respondents indicated that lack of capacitation or training tends to decrease the productivity of employees having a skills mismatch in the Department of Education, 7% of the respondents were not sure whether lack of capacitation or training tends to decrease the productivity of employees having a skills mismatch and some 2% did not agree that lack of capacitation or training tends to decrease the productivity of employees having a skills mismatch. This implies that the department must invest more on capacity and training in order to ensure that the employees are always abreast of new developments in the field to enable productivity. The reason for decreased productivity is that these employees are not prepared for the changing environment they are working in, because in a daily basis there are new developments in teaching.

A total of 90% of the respondents agreed that jobs paid below the salary expected at the beginning of the career tend to decrease the productivity of employees in the Department of Education, 8% of the respondents were uncertain whether jobs that paid below the expected salary at the beginning of the career lead to decreased productivity and a total of 2% of the respondents did not agree that below the par salaries at the beginning of the career are the actual cause of low productivity. Lindley and McIntosh (2008:19) examined the relationship between educational mismatches and skills mismatches and found that while the former had a strong negative effect on wages the latter did not. Skills mismatches, by contrast, predicted the level of job satisfaction and that of on-the-job search much better than did over education. This implies that the newly appointed educators will be expecting to be paid more money, only to find that in practice that is not the case.

The majority (87%) of the respondents indicated that jobs outside their study field tend to decrease the productivity of employees having a skill mismatch in the Department of Education, 12% of the respondents were not sure whether jobs outside their study field tended to decrease the productivity of employees having a skill mismatch and the minority (1%) did not agree that jobs outside their study field decreased the productivity of employees having a skill mismatch. However, Maud, Hensen, de Vries, and Cörvers (2008:17) state that other education-job mismatch also occurs, such as people having jobs outside their study field or being engaged in non-standard employment forms (part-time or temporary jobs). Regions also differ in the distribution of schools and fields of education. This effect, however, is not incorporated in the analysis. The roles of geographic mobility according to Gobillon, Selod and Zenou (2007:2401) in reducing the probability of graduates working are (i) jobs below their education level; (ii) jobs outside their study field; (iii) part-time jobs; (iv) flexible jobs; or (v) jobs paid below the wage expected at the beginning of the career. Maud, Hensen, de Vries, and Cörvers (2008) argue certain assumptions about graduates' job-search behavior. This also can be a result of the lack of job opportunities in the fields of the educators, hence they end up working in any position that they can find, and at the end of the day they end up being unhappy and unproductive.

A total of 83% of the respondents highlighted that lack of performance assessment also tends to decrease the productivity of employees in the Department, 10% of the respondents did not agree that lack of performance assessment decreased productivity of employees and a total of 7% of the respondents were uncertain if lack of performance assessment decreased productivity of employees with skills mismatch. Lastly, a total of 80% of the respondents agreed that education level also tends to decrease the productivity of employees having skills mismatch, 17% of the respondents were uncertain if this was the case, but 3% of the respondents agreed that education level decreased productivity of employees. Buddelmeyer, Lee and Wooden (2010:28) considered job satisfaction as a possible way of showing the degree of match between

workers and jobs. Jensen and Kletzer (2010:17) argue that the consequence of mismatch can be lost productivity, lower pay and reduced well-being. Addressing such consequences has increasingly entered the agenda of modern skills policies, so it is important to have a clear concept and taxonomy for skills mismatch.

Table 4.3 presents the responses to the statements relating to what impact skills mismatch has on the Department of Education. The respondents were requested to respond to five statements. They were asked to rate each item on a scale of 1 to 5 (1 = strongly agree; 2 = agree; 3 = uncertain, 4 = disagree and 5 = strongly disagree).

Table 4.3 Impact of Skills Mismatch

STATEMENTS	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
	1	2	3	4	5
Disequilibrium in the labour market is reflected in disparity	(48) 31%	(85) 56%	(19) 12%	(2) 1%	(0) 0%
The time between decisions on investment in skills and implementation is long	(68) 44%	(60) 39%	(21) 14%	(5) 3%	(0) 0%
The unstable work environment helps employees and the Department to adapt to structural change in the labour market	(61) 40%	(58) 37%	(25) 16%	(9) 6%	(1) 1%
Discrepancies between labour supply and demand can lead	(65) 42%	(57) 37%	(28) 18%	(4) 3%	(0) 0%

to unemployment or unfilled vacancies					

The study also investigates the impact does skills mismatch has on the Department of Education. Out of the 154 responses received, 87% of the respondents agreed that disequilibrium or imbalance on labour is reflected in disparity brought by skills mismatch in the Department, 12% of the respondents were not sure whether disequilibrium on labour is reflected in disparity brought by skills mismatch and 1% of the respondents did not agree that disequilibrium on labour is reflected in disparity brought by skills mismatch. The majority (83%) of the respondents indicated that the time between decisions on investment in skills and implementation increases the impact of skills mismatch on the Department, 14% were uncertain whether the long time between decisions on investment in skills and implementation is long and contributed to increased impact on skills mismatch and the minority (3%) of the respondents disagreed that the length of time between decisions on investment in skills and implementation contributed to increased impact on skills mismatch. 79% indicated that discrepancies between labour supply and demand can lead to unemployment, which has the impact of skills mismatch, 18% of the respondents were not sure whether discrepancies between labour supply and demand can lead to unemployment, which has the impact of skills mismatch and 3% disagreed that discrepancies between labour supply and demand can lead to unemployment, which has the impact of skills mismatch. Finally, the majority (77%) of the respondents highlighted that the unstable work environment helps the Department and employees adapt to structural change in the labour market, 16% of the respondents were uncertain whether unstable work environment helps the Department and employees adapt to structural change in the labour market and the minority (7%) disagreed that the unstable work environment helps the Department and employees adapt to structural change in the labour market.

There is a growing literature on labour market mismatch, most of it focusing on educational mismatch and little literature on skills mismatch, information on which has only recently become available in a limited range of data-sets (Mavromaras, McGuinness, O'Leary, Sloane & Wei, and 2010:219). The allocation of workers across jobs is rarely optimal due to labour market failures. Discrepancies between labour supply and demand can lead to unemployment or unfilled vacancies. However, to avoid unemployment, workers may also alter their job search behavior and accept jobs that do not match their acquired skills (Maud, Hensen, de Vries, & Cörvers, 2008:16) or are less favourable than others (Van Ommeren & Rietveld, 2007:241). A considerable amount of research has been done to explain education job mismatches, particularly with respect to workers' education attainment level relative to job level (Green & McIntosh 2007).

Wilson (2007:101) describes the analysis and forecasting of competences and skills mismatch as:

- Disequilibrium in the labour market is reflected in wage inflation, unemployment, lack of certain categories of personnel and inefficiency; the imperfections in the labour market make it one of the most socially sensitive markets and governmental intervention is in many cases required;
- There are long lags between decisions on investment in skills and the moment of implementation; these kinds of studies contribute to make these lags shorter and policy measures more rapid and effective;
- The unstable work environment has to be somehow anticipated in order to help individuals and organizations to adapt to structural modifications in the labour market.

Table 4.4 presents the responses to the statements relating what can be suggested to improve the situation of skills mismatch in the Department of Education. The respondents were requested to respond to nine statements. They were asked to rate each item on a scale of 1 to 5 (1 = strongly agree; 2 = agree; 3 = uncertain, 4 = disagree and 5 = strongly disagree).

Table 4.4 Improvement of skills mismatch

STATEMENTS	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
	1	2	3	4	5
Alignment between the demand for skills and supply in the labour market	(79) 51%	(58) 38%	(16) 10%	(1) 1%	(0) 0%
Development of skills valued by Department (reskilling and up skilling)	(91) 59%	(55) 36%	(8) 5%	(0) 0%	(0) 0%
Positive attitude	(100) 67%	(39) 29%	(3) 2%	(1) 1%	(1) 1%
Strong leadership and management	(110) 71%	(39) 25%	(3) 2%	(1) 1%	(1) 1%
Team working	(102) 66%	(40) 26%	(12) 8%	(0) 0%	(0) 0%
Review of systems and processes	(95) 61%	(51) 33%	(7) 5%	(1) 1%	(0) 0%
Problem solving	(99) 64%	(50) 33%	(5) 3%	(0) 0%	(0) 0%
Effective communication and advocacy	(99) 64%	(50) 33%	(3) 2%	(2) 1%	(0) 0%
Application of information technology	(82) 53%	(44) 29%	(22) 14%	(6) 4%	(0) 0%

The study also investigates what can be suggested to improve the situation of skills mismatch in the Department of Education. Out of the 154 responses received, 97% of the respondents agreed that problem solving can be suggested to improve the situation of skills mismatch in the Department of Education, 3% of the respondents were not sure if problem solving can be suggested to improve the situation of skills mismatch and no (0%) respondents disagreed with problem solving being suggested to improve the situation of skills mismatch. A total of 97% of the respondents indicated that effective communication and advocacy could be suggested as being key to improvement of skills mismatch in the Department of education, 2% of the respondents were uncertain whether effective communication and advocacy could be suggested as being key to improvement of skills mismatch and 1% of the respondents disagreed that effective communication and advocacy could be suggested as being key to improvement of skills mismatch. The majority (96%) of the respondents highlighted that strong leadership and management can be suggested for the improvement of the situation with skills mismatch in the Department of Education, 2% of the respondents were not sure if strong leadership and management can be suggested for the improvement of the situation with skills mismatch and the minority (2%) of the respondents disagreed that strong leadership and management can be suggested for the improvement of the situation with skills mismatch.

94% the respondents suggested review of systems and processes as key to the improvement of the skills mismatch situation in the Department, 5% of the respondents were uncertain whether review of systems and processes will be vital to improvement of skills mismatch and the minority (1%) of the respondents disagreed that review of systems and processes will lead to any improvement of skills mismatch. Lastly, the majority (92%) regarded team work as a key driver to improve the situation of skills mismatch in the Department of Education, 8% of the respondents were not sure if team work can be a solution to skills misrnatch and none (0%) disagreed with the idea of team work as a solution to skills misrnatch.

The match between required and provided skills plays a crucial role for economic growth (Sgobbi & Suleman 2011:235). The alignment between skills demand and supply in the labour market supports firms in filling up vacant positions and cuts the costs of process re-engineering. Matched employees benefit from higher returns on their investment in education and training and enjoy higher satisfaction levels. Skills mismatch, or more specifically over- skilling, may result from workers being hired when the labour market is slack and jobs are hard to find. Skills mismatch may also imply that workers are being under-utilized because employers do not possess well- developed hiring practices or sophisticated employee-development strategies, with possible negative effects on wages and almost certainly negative effects on job satisfaction and a higher propensity to quit in so far as such workers are able to do so. There may also be negative effects on management-worker relations (Belfield, 2010:234).

4.6 SECTION C: SKILLS MISMATCH IN RELATION TO EMPLOYEE SKILLS AND QUALIFICATION

This section allows respondents to highlight whether they were affected by skills mismatch in the Department, if they feel that they have the skills or qualification to do more demanding work, whether they have formal training or education, if educational mismatches are responsible for the positive association between higher education and within-age groups wage dispersion, whether employees are exclusively employed according to their own field of study or a completely different field.

4.7 Indicate whether you have been affected by skills mismatch in your Department

4.7 illustrates that the majority of the respondents (60%) indicated that they are not affected by skills mismatch in their Department, whereas 40% of the respondents indicated that they have been affected by the skills mismatch. Respondents who are not affected by the skills mismatch highlighted that they have been appointed accordingly. But the ones who have been affected by skills mismatch indicated that there is no motivation to do their jobs properly, they are hired to do marketing but end up working as personal assistants. They are forced to carry out jobs which are not related to their qualifications. Respondents also indicated that restructuring, lack of staff and always been placed wrongly, were one was employed as an administrative officer but ended up being used as an educator, and also been trained as high school teachers but ending up working at primary schools

Figure 4.7 highlights whether the respondents have been affected by skills mismatch in their Department.

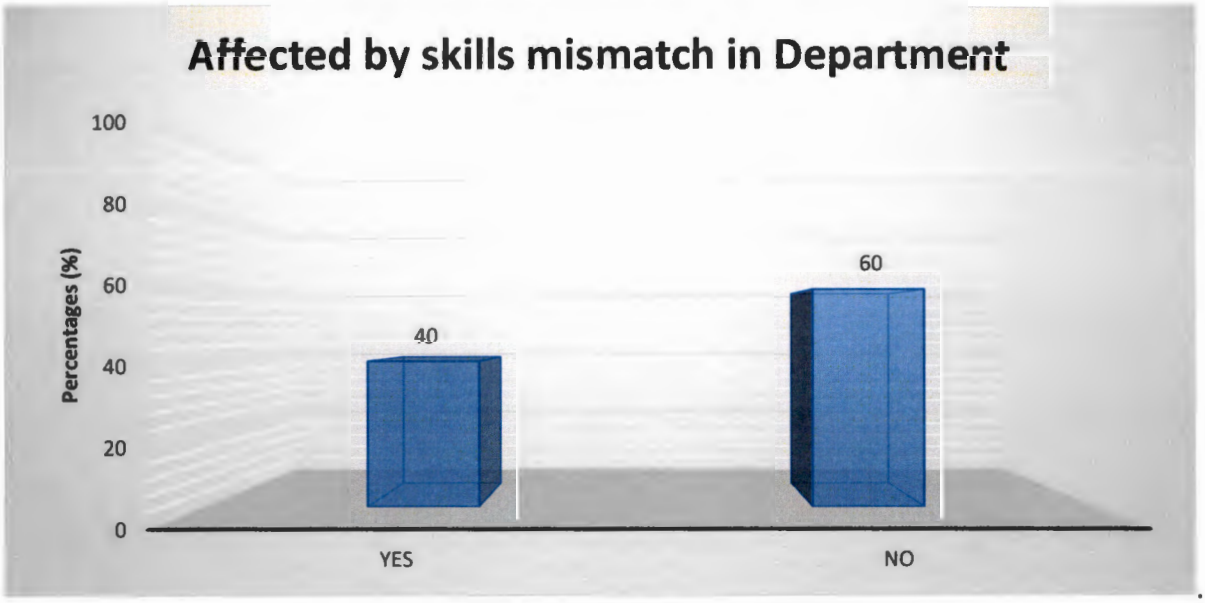


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Figure 4.8 illustrates that the majority of the respondents (55%) agreed that they have proper skills and qualifications to do a more demanding job than the one they are currently doing, whereas 45% of the respondents indicated that they do not have appropriate skills or qualification to do more demanding work than they are doing now. The respondents who agreed that they have the appropriate skills and qualifications, had extra training, they were computer literate and also held professional tertiary qualifications, which gave them the edge to do more. Respondents without appropriate skills and qualifications indicated that they just qualified as educators, their skills only allow them to teach and that opportunities for further training are rarely provided or available.

Figure 4.8 highlights if the respondents have adequate qualification or skills to do more demanding jobs in the Department.

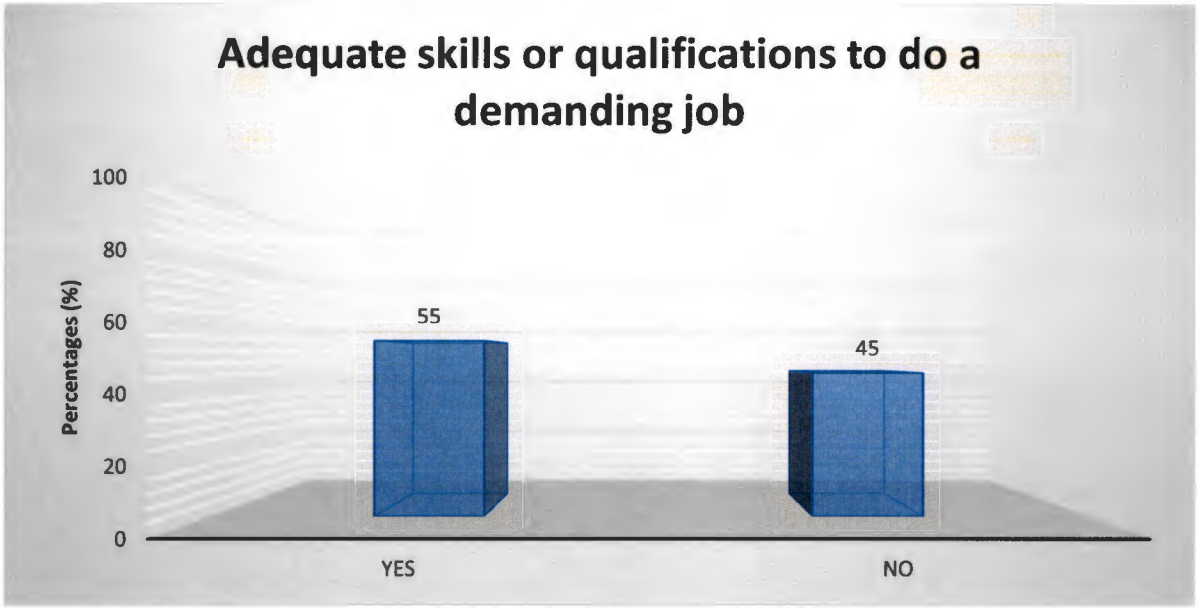


Figure 4.9 highlights whether the respondents have formal training that gave them the skills for their present job.

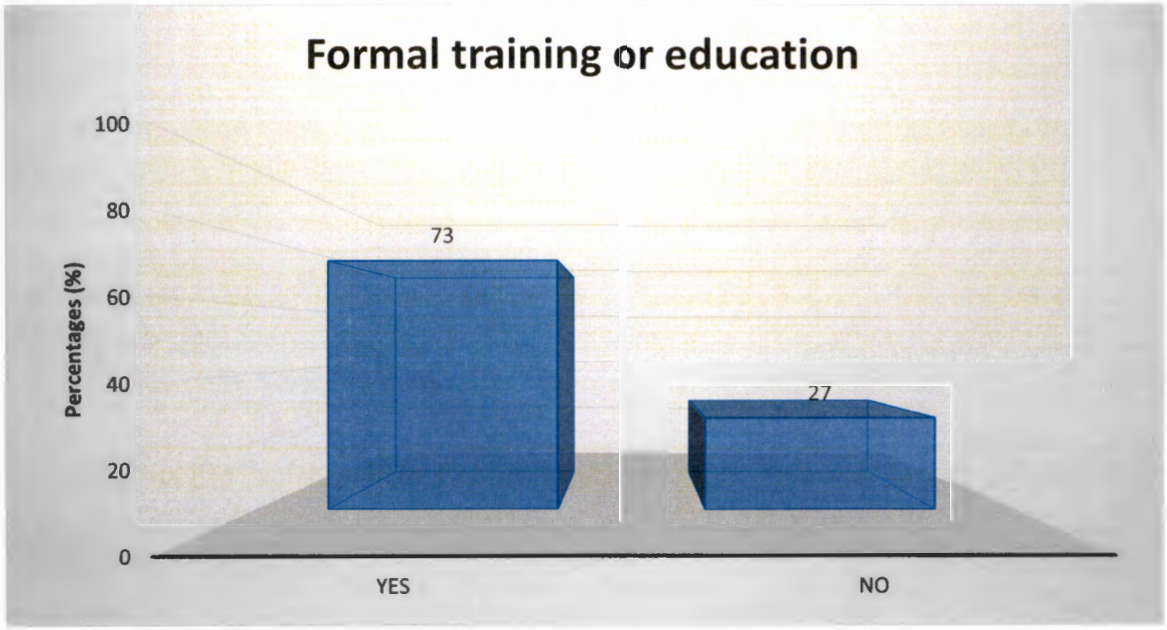


Figure 4.9 reflects that the majority of the respondents (73%) have formal training or education and 27% indicated that they do not have formal training or education that provided skills needed for their present job. The majority of the respondents had formal training in curriculum development, Life Orientation, Portfolio of Evidence and Outcomes Based Education. Also they highlighted the fact that they have formal tertiary training with diplomas and degrees, they were taken to workshops, as well as assessor and moderator training. In-service training also provided them with the necessary skills needed, workshops such as Supply Chain Management, Public Financial Management Act, Quality Management System and Project Management gave them the necessary

skills they needed to carry out their current jobs. The respondents who highlighted that they do not have the necessary skills or education to do their job, indicated that they have never been given any training because of lack of funds. The results imply that the majority of the respondents have been provided with the necessary tools to carry out their current type of work.

Figure 4.10 highlights whether educational mismatches are responsible for the positive association between higher education and within-groups wage dispersions.

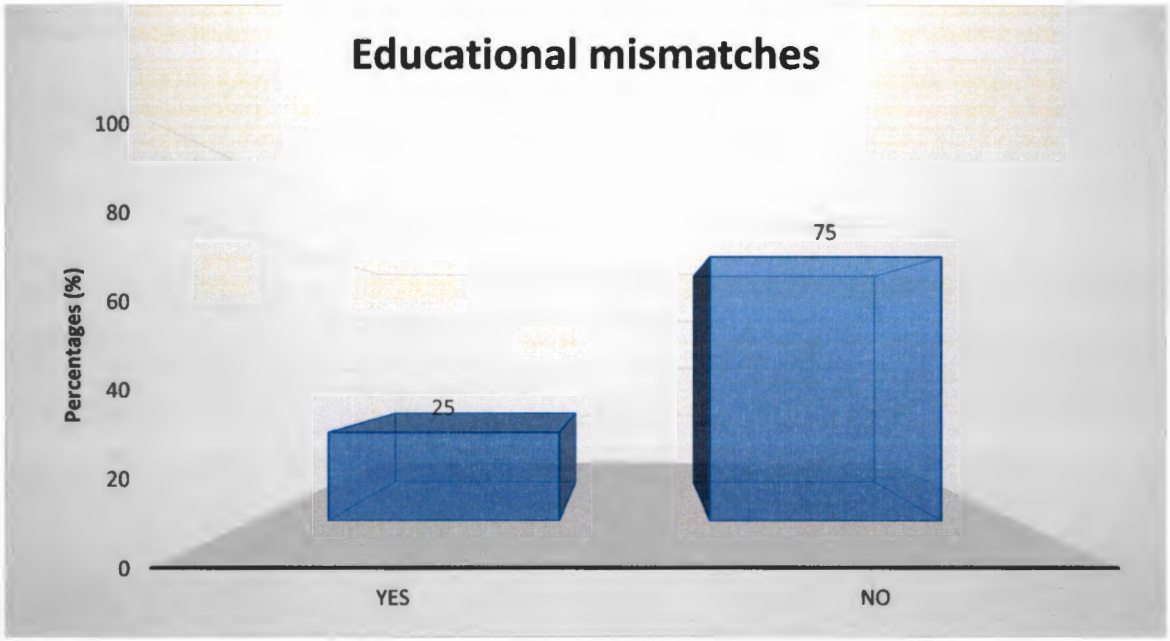
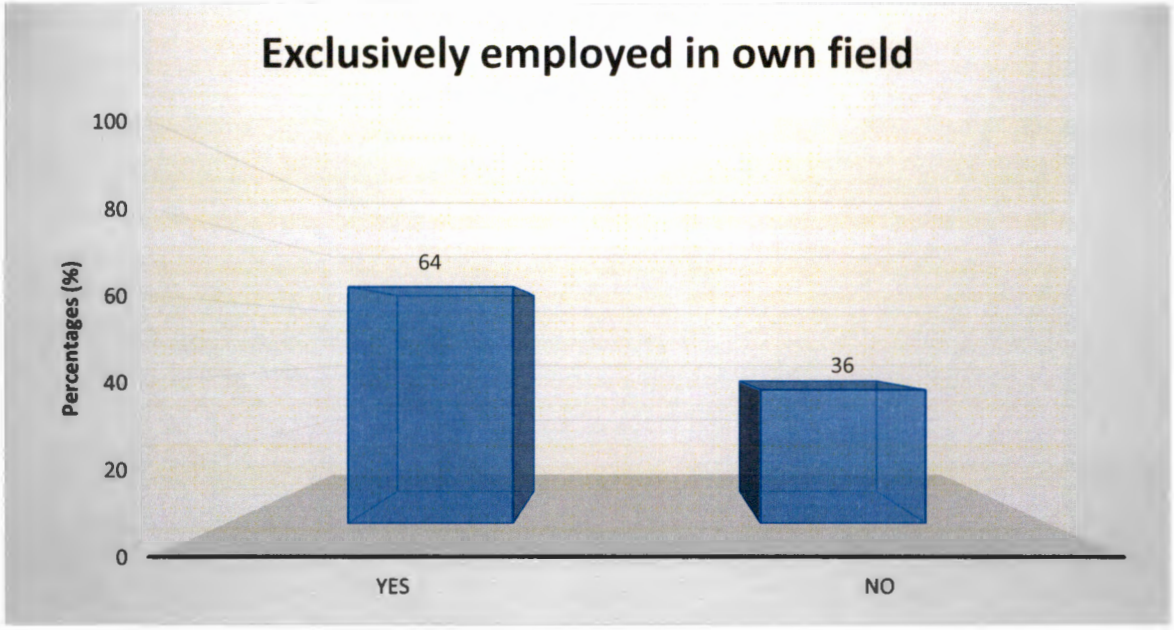


Figure 4.10 reflects that the majority of the respondents (75%) indicated that educational mismatches were not responsible for the positive association between higher education and within-groups wage dispersions and 25% agreed that educational mismatches are responsible for the association between higher education and within-groups wage dispersions. The respondents who disagreed indicated that this dispersion

is brought about by circumstances and also highlighted that there is no link between the two. They think that poor articulation and underpaid educators in FET may be the cause of this. The other 25% highlighted that underpayment and uneven salary scales are the cause for this phenomenon.

Figure 4.11 highlights whether the respondents have been exclusively employed according to their own field.



4.11 Are you exclusively employed according to your own field?

Figure 4.11 shows that the majority of the respondents (64%) have been exclusively employed in their own field and 36% have indicated that there are not employed in their own field. Most of the respondents who highlighted that they were employed in their field were educators, because they had formal teaching qualifications from either a college or university, their qualifications satisfied the job requirements and they are in the relevant field of work. The respondents who were employed in the wrong positions had either formal tertiary training in marketing but they turned out to be employed as personal assistants, or they worked in finance with HR qualifications, studied electrical

engineering but worked at student support and lastly auditors were hired to manage the database of students.

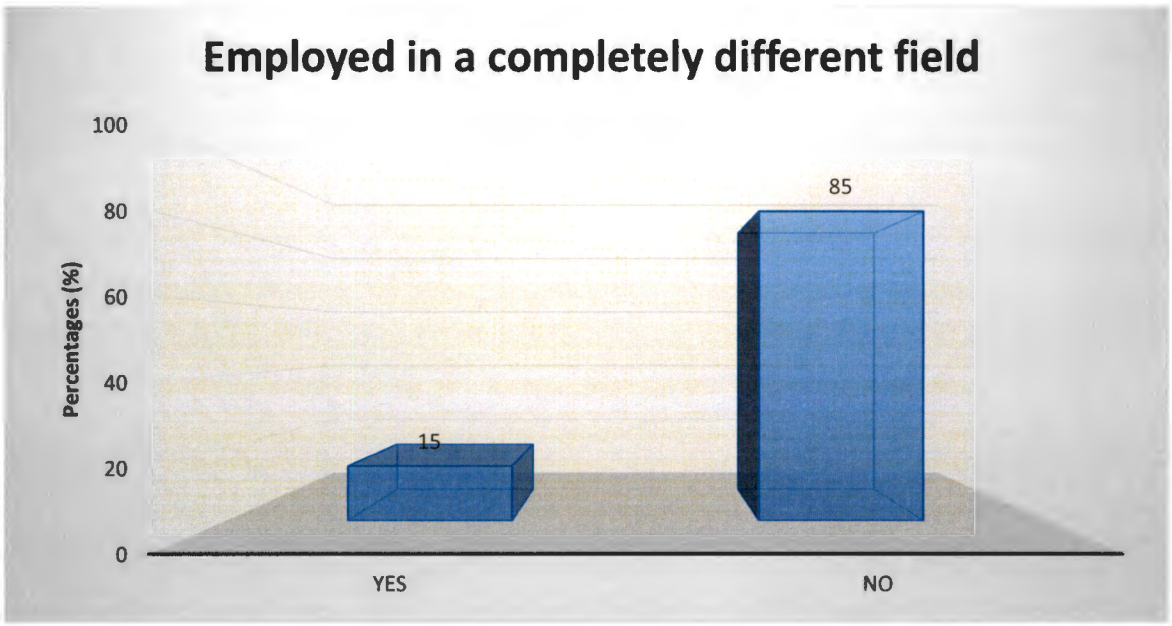


Figure 4.12 illustrates that the majority of the respondents (85%) indicated that they are not employed in a completely different field but 15% agreed that they have been employed in a completely different field. The majority of the respondents have been employed as educators, or in their relevant field, with qualifications which satisfy their job requirements. But the minority indicated that they are employed in a completely different field as a result of lack of employment in their respective fields.

4.13 RELIABILITY, VALIDITY, AND TRUSTWORTHINESS

The validity and reliability of the variables were assessed using the item reliability, construct reliability, and average variance extract, together with Cronbach's alpha

coefficient alpha. The results of the reliability testing highlights that the instrument utilised and the questions were reliable, valid and trustworthy at a Cronbach's alpha coefficient, 0.841 which according to the internal consistency is a good measure.

4.14 CONCLUSION

The chapter presented the findings on the demographics of the respondents, as well as key analyses of the skills mismatches in the Department of Education in the North West Province. Overall the results indicate that respondents agreed that innovative and knowledge management competences are key to minimizing effects of skills mismatch, the majority of the respondents highlighted that the technical skills, such as basic computer skills will be able to minimize effects of skills mismatch in the Department, and that lack of capacitation or training tend to decrease the productivity of employees having a skills mismatch in the Department. Most of the respondents agreed that jobs paid below the salary expected at the beginning of the career tend to decrease the productivity of employees having skills mismatch in the Department of Education.

The respondents agreed that disequilibrium is reflected in disparity brought by skills mismatch in the Department. Some respondents indicated that the time between decisions on investment in skills and implementation is long, which increases the impact of skills mismatch in the Department, respondents agreed that problem solving can be suggested to improve the situation of skills mismatch in the Department of Education, some of the respondents indicated that effective communication and advocacy could be key to improvement of skills mismatch in the Department of Education. Chapter 5 will focus on summary, findings, recommendations and conclusion of the study.

CHAPTER 5: SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

The focus of this study is on the potential causes of skills mismatch, the extent of skills mismatch, and the consequences of skills mismatch in terms of earnings in the Department of Education and Training. A distinction is made between skills mismatch and education mismatch. The analysis points to the complex ways in which mismatch is generated and the need for an accurate and up to date measure of mismatch, one that reflects the possibilities for skills gain and skills loss of employees, and reflects differences in the quality of qualifications. Two key findings stand out. First, including supply and demand characteristics in earnings function revealed that labour demand characteristics are more important than labour supply characteristics in explaining earnings differentials. In other words, skills matter for earnings but only if they are required by the job. This has direct implications for better understanding the causes of mismatch on earnings. Second, the skills content of jobs seems to be an even stronger determinant of participation in employer supported education/training than educational attainment or literacy proficiency. The influence of demand characteristics thus tends to outweigh the influence of supply characteristics when employers make the decision to support education/training. Addressing skills mismatch thus requires a careful consideration of both the demand and supply sides of the labour market, so as to better understand the variety of factors which may have a negative impact on the effectiveness of skills formation, skills maintenance, and also skills use.

This chapter focuses on the following: a brief summary of the study, major findings of the study, as well as major recommendations.

5.2 Summary

The study was conducted in the Department of Education in the North West Province. Chapter one of the study outlined the background of the study, problem statement, and the aim of the study, research objectives, research questions, significant and scope of the study. Literature review was discussed in detail in chapter 2. The review consisted of sections that provided insight and detail on skills mismatch of employees. Research methodology described the research design which included the method of investigation, sample procedure and sample size, data collection, where a questionnaire was developed for the Department of Education in North West and administered by the researcher. The validity and reliability of the variables were examined using reliability, construct reliability, and average variance extract, together with Cronbach's alpha coefficient. Data was obtained through a questionnaire made up of sections: A: demographic information; Section B: the prevalence of skills mismatch in the Department of Education; the effects of skills mismatch factors that tend to decrease the productivity of employees having a skills mismatch; the impact of skills mismatch in the Department of Education in Ngaka Modiri Molema District.

The researcher completed forms of ethics from the North West University for Compliance. The researcher obtained permission from the Department of Education to conduct research. Questionnaires were then distributed to the Department of Education. All questionnaires received for this study were coded before inputting data into an SPSS

soft package. The responses were coded to facilitate entry into a computer. Data were described with frequency counts. The response and results were treated with confidentiality. The research findings were presented, analysed, interpreted and discussed. The findings were split into four sections. The results from the analysis were checked whether the primary research objectives were met by the secondary research objectives. The results from the research were listed and discussed.

5.3 Major findings of the study

The findings of the four objectives is that out of 154 responses received, 94% of the respondents agreed that innovative and knowledge management competences are key to minimizing effects of skills mismatch, 90% of the respondents highlighted that the technical skills, such as basic computer skills will be able to minimize effects of skills mismatch in the Department, 87% of the respondents indicated that mobilization of human resources can minimize the effects of skills mismatch in the Department of Education, 86% of the respondents agreed that workplace-interpersonal skills are key to minimizing the effects of skills mismatch in the Department. Some 15% of the respondents were uncertain whether international competences are key to minimizing skills mismatch in the Department and the minority of 8% of the respondents disagreed that the willingness of graduates to relocate will minimize the effects of skills mismatch in the Department.

5.3.1 Objective one

5.3.1.1 Findings on personal characteristics

Competences are becoming increasingly important in the global labour market that the graduates are competing with these days and in the context of multicultural work environments that have become a reality worldwide. They include the ability to write and speak in a foreign language; professional knowledge of other countries; knowledge and understanding of international differences in culture and society.

5.3.1.2 Recommendations on personal characteristics

This recommendation is based on the personal characteristics in 5.3.1, which is very important in every organization to find the prevalence or occurrence of skills mismatch in the Department of Education in Ngaka Modiri Molema District. This characteristic of employees towards the government employment process needs a very serious consideration. A government should disseminate broad goals and review the situation with stakeholders. One element is the creation of proper documents and other publication that convey essential information on organizational goals and associated policies, plans, and the allocation of human capital. This information needs to be available to casually interested stakeholders while giving those interested in more detail an opportunity to understand much more about the workings of government and the process to be followed by Human Resource Section.

Lifelong learning, which encompasses the period from early childhood development through retirement and beyond, implies continuous learning and relearning opportunities. It is seen as crucial for a country to compete in the global economy because it equips people with the knowledge and skills that they need at any time or age

5.4 Objective two

5.4.1 Findings on the effects of skills mismatch

The second objective of the study is to examine the effects that can minimize skills mismatch in the Department of Education in the Ngaka Modiri Molema District. The findings illustrates that the majority of the respondents (60%) indicated that they are not affected by skills mismatch in their Department, whereas 40% of the respondents indicated that they have been affected by the skills mismatch. Respondents who are not affected by the skills mismatch highlighted that they have been appointed accordingly. But the ones who have been affected by skills mismatch indicated that there is no motivation to do their jobs properly, they are hired to do marketing but end up working as personal assistants. They are forced to carry out jobs which are not related to their

qualifications. Respondents also indicated that restructuring, lack of staff and always been placed wrongly, were one was employed as an administrative officer but ended up being used as an educator, and also been trained as high school teachers but ending up working at primary schools.

5.4.2 Recommendations on the effects of skills mismatch

To illuminate the phenomenon of a horizontal mismatch, the human capital stock accumulated during a college education must be assumed to be composed of different kinds of capital or skills, some general and some occupation-specific. The general skills can be expected to be remunerated in all (college-level) occupations whereas the occupation-specific skills can be expected to be remunerated only within the corresponding occupation(s)

5.5 Objective three

5.5.1 Findings on factors that tend to decrease the productivity of employees having a skills mismatch

The findings on this objective is that, to increase productivity of employees having skills mismatch, it is important to develop their specific skills such as: Innovative and knowledge management competences including the ability to come up with new ideas and solutions, critical thinking, ability to write reports, memos or documents; presentation skills, problem-solving skills; analytical thinking, creativity, entrepreneurial skills. These skills are in line with the paradigm of the 'knowledge society' in which people are required to deal with ideas and concepts rather than objects, materials and machines and which emphasizes the importance of flexibility, adaptability, entrepreneurialism, initiative.

Education may also include informal transmission of such information from one human being to another. Education frequently takes place under the guidance of others, but learners may also educate themselves (autodidactic learning). Any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. Education is commonly and formally divided into stages such as preschool, primary

school, secondary school and then college, university or apprenticeship. The science and art of how best to teach is called pedagogy.

Usually formal education takes place in a school environment, with classrooms of multiple students learning together with a trained teacher. Most school systems are designed around a set of values or ideals that govern all educational choices in that system. Such choices include curriculum, physical classroom design, student-teacher interactions, and methods of assessment, class size, and educational activities. With this educational activity, occupation and employability will then take place.

Education at all levels contributes to development and a country's competitiveness. Basic education provides a solid foundation in reading and writing and successful entry to secondary education. Secondary education, including vocational and technical education and training, can develop specific competencies, skills, behavior's, and attitudes, together with a sense of cooperation and the social responsibility, that enable young people to participate in the knowledge economy, contribute decisively to social cohesion, and be responsible citizens.

The use of ICT for information retrieval and strategic purposes might need a wider range of generic skills, such as logical reasoning and an ability to evaluate the trustworthiness of different sources hence this competence needs to be viewed in a broader sense.

The functional flexibility category includes skills mainly associated with one's ability to cope with change such as the ability to negotiate effectively, ability to perform well under pressure, ability to coordinate activities, ability to use time efficiently; self-management/organisational skills and communication skills.

5.5.2 Recommendations on factors that tend to decrease the productivity of employees having a skills mismatch

Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to

the next through storytelling, discussion, teaching, training, and/ or research. Education may also include informal transmission of such information from one human being to another. Education frequently takes place under the guidance of others, but learners may also educate themselves (autodidactic learning). Any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. Education is commonly and formally divided into stages such as preschool, primary school, secondary school and then college, university or apprenticeship. The science and art of how best to teach is called pedagogy.

5.6. Objective four

5.6.1 Findings on the impact that skills mismatch has on the Department of Education in the Ngaka Modiri Molema District.

Mobilisation of human resources/workplace-interpersonal skills involves the ability to work productively with others, ability to mobilize the capacities of others, ability to clearly express one's opinion, ability to assert one's authority or leadership skills; interpersonal/teamwork/ network skills. In the modern working environment the graduates have to be able to both work independently and in teams by bringing out and making use of the strongest qualities of the team members.

The international competences are also very important in the context of multicultural work environments that become a reality worldwide. They include the ability to write and speak in a foreign language; professional knowledge of other countries; knowledge/understanding of international differences in culture and society. Cultures, improved personal and professional self-image, self-confidence, ability to handle ambiguity and difficult situations, insight into their own value systems and overall maturity.

5.6.2 Recommendations on the impact that skills mismatch has on the Department of Education in the Ngaka Modiri Molema District.

It is recommended that to improve the situation of skills mismatch is to measure the skills available in each section of the department. The dynamic properties of over skilling and its relationship with the level of qualifications of over skilled workers can be measured by the difference between over- skilling and over education. Changes in the nature of work have created demands for new skills and education and training policies to enhance skill development. To successfully accomplish the latter, policymakers should first define and measure skills, then understand how they contribute to economic performance.

This positive approach would support the following:

- **Using numbers effectively:**

Measuring, recording measurements, calculating, estimating quantities, relating numbers to the job

- **Using language effectively:**

Writing clearly and in a way appropriate to the context, ordering facts and concepts logically

- **Using IT effectively**

Operating a computer using basic systems and learning other applications is as necessary as using telephones and other technology to communicate.

These functional skills would be support the following:

- **Self-management**

Punctuality and time management, fitting dress and behavior to context, overcoming challenges, asking for help when necessary.

- **Thinking and solving problems**

Creativity is reflecting on and learning from one's own actions, prioritizing, analyzing situations, developing solutions.

- **Working together and communicating**

Co-operating, being assertive, persuading, and being responsible to others, speaking clearly to individuals and groups, listening for a response.

- **Understanding the structure of the organization**

Understanding how the individual job fits into the organization as a whole; recognizing the needs of stakeholders (customers and service users, for example); judging risks, innovating, contributing to the whole organization.

5.5 Conclusion

Although this research is only based on the education sector, it raises the question of whether a market for training and development based on individual free choice can meet the demands from industry more generally. Further cross-sector research is needed to explore this. It also suggests that there may be a need for greater government intervention through training providers to ensure that the vocational education and training meets industry's skills needs.

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APPENDIX A

QUESTIONNAIRE TO EMPLOYEES IN THE DEPARTMENT OF EDUCATION IN THE NGAKA MODIRI MOLEMA DISTRICT

I am PAULINE DAANTJIE an (MPA) Master's student at the North West University MAFIKENG CAMPUS) and I am conducting a research study on the topic below:

ANALYSIS OF SKILLS MISMATCH IN NGAKA MODIRI MOLEMA DISTRICT IN THE DEPARTMENT OF EDUCATION

Kindly assist in the completion of this study by furnishing the information as requested in the questionnaire. Your honest response will contribute to addressing the challenges encountered by the Department of Education in the Ngaka Modiri District. Responses will be treated with the utmost confidentiality.

Please read the statements carefully and mark with a cross (X) in the appropriate block.

SECTION A

1. **Demographic Information**

1.1 Gender

Male	
Female	

1.2 Age group

Less than 25 years	
25 – 30 years	

31 – 35 years	
36 – 40 years	
41 – 45 years	
46 – 50 years	
More than 51	

1.3 Job status

Manager	
Line manager	
Operational manager	

1.4 Highest qualification

Below Matric	
Matric	
Certificate	
Bachelor Degree	
Honors Degree	
Master's Degree	
Doctorate Degree	

1.5 Number of years employed at the Department of Education

0 – 5 years	
6 – 10 years	
11 – 15 years	
16 – 20 years	
21 years and above	

1.6 Which Local Municipality

Mafikeng	
Ditsobotla	
Tswaing	
Ramotshere Moiloa	
Ratlou	

SECTION B

This section analyses the skills mismatch in the Department of Education. Please put a cross (X) or tick (_) in the applicable box to rate your level of agreement or disagreement. Mark one box only per statement:

What can minimize the effects of skills mismatch in the Department of Education in the Ngaka Modiri Molema District?

No	Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
2.1	Innovative and knowledge management competences					
2.2	The technical skills, such as basic operational ICT skills					
2.3	Mobilization of human resources					
2.4	Workplace-interpersonal skills					
2.5	International competences					
2.6	Graduates also desire jobs near their place of residence; they dislike commuting or migrating for jobs					

Which factors tend to decrease the productivity of employees having a skills mismatch in the Department of Education in the Ngaka Modiri Molema District?

No	Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
2.7	Jobs below their education level					
2.8	Jobs outside their study field					
2.9	Part-time jobs					
2.10	Flexible jobs					
2.11	Jobs paid below the wage expected at the beginning of the career					
2.12	Education level					
2.13	People having jobs outside their study field					
2.14	Contract type					
2.15	Number of working hours					
2.16	Expected wage level not met.					
2.17	Engaged in nonstandard employment forms					

2.18	The unobserved productivity effect of disability					

What impact does skills mismatch bring in the Department of Education in the Ngaka Modiri Molema District?

No	Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
2.19	Disequilibrium on the labour market is reflected in wage inflation					
2.20	There are long lags between decisions on investment in skills and the moment of implementation					
2.21	The unstable work environment helps individuals and organizations to adapt to structural modifications in the labour market.					
2.22	Discrepancies between labour supply and demand can lead to unemployment or unfilled vacancies.					

What can be suggested to improve the situation of skills mismatch in the Department of Education in the Ngaka Modiri Molema District?

No	Item	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
2.23	The alignment between skill demand and supply in the labour market supports firms in filling up vacant positions and cuts the costs of process re-engineering.					
2.24	Developing skills valued by employers.					
2.25	Positive attitude					
2.26	Self-management					
2.27	Team working					
2.28	Business and customer awareness					
2.29	Problem solving					
2.30	Communication and literacy					
2.31	Application of information technology.					

SECTION C:

3. Please indicate whether you were affected by skills mismatch in your Department or Section?

If you answered YES to the above question, please indicate how you were affected?

.....

.....

If you answered NO to the above question, please indicate the reason for this.

.....

.....

4. Do you feel that you have skills or qualifications to do a more demanding job than the one you have now?

If you answered YES, please indicate how?

.....

If you answered NO, please indicate why?

.....

5. Have you had formal training or education that has given you skills needed for your present type of work?

If you answered YES, please indicate how?

.....

If you answered NO, please indicate why?

.....

6. Are educational mismatches responsible for the positive association between higher education and within-groups wage dispersion?

If you answered YES, please indicate how?

.....

If you answered NO, please indicate why?

.....

7. Are you employed exclusively according to your own field?

If you answered YES, please indicate how?

.....

If you answered NO, please indicate why?

.....

8. Are you employed in a completely different field?

If you answered YES, please indicate how?

.....

If you answered NO, please indicate why?

.....

THANK YOU FOR YOUR TIME AND CO-OPERATION