

**THE RECRUITMENT AND SELECTION PROCESSES OF ELECTRICAL
ENGINEERING GRADUATE: EVIDENCE FROM KUMASI METROPOLITAN AREA
IN THE ASHANTI REGION OF GHANA**

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Abstract

Higher education institutions train students to meet the needs of their future employers. The quality of education can be assessed, among other things, from the successful transitions of students into the labour market. The economic progression of every country hinges on the quality of the labour force. Therefore, the government of Ghana must invest in education. Students pursue higher education with the hopes of getting lucrative jobs after their completion of their studies. The gatekeepers to the labour markets are the employers.

This is a qualitative study focusing on examining the recruitment and selection processes of electrical engineering graduates in Kumasi Metropolitan. Five human resource managers from medium and small size companies in the private sector share their experiences and challenges in hiring electrical engineering graduates. The research questions to be examined are a) the expected skills of university graduates by the employers, b) the recruitment and selection criteria and c) the challenges associated with the recruitment and selection processes. The study was guided by signalling theory, which gives a perspective on how job seekers' educational attainment shapes employers' decisions.

The main findings suggested that electrical engineering graduates are expected to have communications skills, teamwork, and cooperation with others. Recruiters are faced with the issue of nepotism where members in the industries use their positions and power to influence the recruitment processes. Electrical engineering graduates could use the certificate of their friends or relatives to apply for a job, and the recruitment processes require a substantial financial cost. Employers do background checks and screening of electrical engineering graduates who have applied for jobs as junior staff members.

The study concluded that electrical engineering graduates must understand basic circuit designs and basic coding. In the selection tests and selection, interview employers appraise the skills and attributes of engineering graduates who have applied for jobs as junior staff members.

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CHAPTER 1

1.0 Introduction

There is a growing demand for university graduates in Ghana, and the number of university graduates is increasing. The demand for employment has been intensified, but the absorption rate has been low. In 2011, when Ghana moved from being a low income to a lower middle-income country, it was assumed that there would be a growth in employment opportunities including for university graduates (Affum-Osei et al., 2019). However, this growth in terms of employment has until now not really materialised. With the relatively low employment opportunities, it is difficult for new university graduates to be employed or absorbed into the labour force. This has resulted in a growing number of unemployed university graduates. At the same time, the competitive nature of the labour market has raised the expectations of employers about the fresh university graduates to do well in the world of work as soon as they are hired (Quansah & Brempong, 2019). Even though there is the widespread assumption in Ghana that employers are concerned about the quality of the university graduates, there is still insufficient knowledge about whether the university graduates in Ghana are well prepared for the labour market.

The transition of university engineering students in Ghana from the university to the labour market is an important area. This is because the university graduates are expected to contribute to economic development of the country. For example, university graduates can play key roles in the generation of power to satisfy the energy needs in Ghana. Constant and non-stop supply of electricity is one of the drivers for the development of economic growth and social well-being of every locality in Ghana. In addition, university engineering graduates can supervise the construction of roads, bridges, and communication infrastructure, promoting the rapid economic growth of Ghana (Ametepey & Ansah, 2014). However, there is not enough knowledge available about the transition of university engineers in Ghana from the school to the labour market.

Studying the transition of university graduates to the labour market, in general, is too much for one master thesis. Therefore, the focus of the study will be predominantly on one specific group of graduates, that is, engineering graduates. In that group, I will empirically focus primarily on electrical engineering graduates. The electrical engineering graduates focused on in this thesis will

be those who completed Kwame Nkrumah University of Science and Technology (KNUST) and Kumasi Technical University (KTU). These two universities are the only public universities in the Kumasi metropolitan area of the Ashanti region of Ghana.

While this study is essential for Ghana, it nonetheless faces several challenges. First, there is a lack of accurate public statistics on higher education in the country. This implies that the statistics that one would generally use in a study like this are not readily available. But given that, I am interested, first and foremost, in the perspectives of the employers of the university engineering graduates. The employers are represented in this study by five human resource managers from private medium and small size companies which are situated in the Kumasi metropolitan area. By focusing on the opinions, experiences, and perspectives of employers, I will be able to deal in a valid way in this thesis with the lack of relevant detailed statistics on university engineering graduates.

1.1 Background

Higher education is mandated to educate students so that they are qualified for addressing what the labour market needs. In other words, higher education institutions are to educate students about the complexities, dynamism, and challenges of the labour market. With the influence of globalisation, engineering graduates must thrive on stimulating the economic competitiveness of Ghana. When engineering graduates successfully transition into the world of work, it can be argued that it shows the quality of higher education and education in general (Teichler, 2009).

Kwame Nkrumah University of Science and Technology and the Kumasi Technical University are the two public higher education institutions situated in the Kumasi metropolitan area in the Ashanti region of Ghana. They educate electrical engineering students and, in that way, prepare them for the labour market especially in the Kumasi metropolitan area. In addition, research, invention, and community services of Kwame Nkrumah University of Science and Technology (KNUST) and Kumasi Technical University (KTU) help improve the livelihood of the citizenry of the Kumasi metropolitan area. Joint projects, exchange of ideas, productivity, and technology transfer (Campbell et al., 2020) are some of the drivers that bring socio-economic development to this metropolitan area in one of Ghana's regions. Kwame Nkrumah University of

Science and Technology and Kumasi Technical University are to equip electrical engineering students with the skills and knowledge expected of them by the employers (Boden & Nedeva, 2010). This implies that the students of these two universities are trained to enhance the performance of the organisations where they will be employed as (junior) staff members.

Even though there is lot of interest in the transition of university graduates to the labour market and the number of students and graduates is growing in Ghana, there is relatively no information to back this claim. Specifically, there is no available statistics on the labour market situation of electrical engineering graduates in Kumasi metropolitan area in the Ashanti region of Ghana. However, table 1.1 gives information on the highest educational achievement of the entire Ghanaian population which was conducted by Ghana Living Standard survey from October 22, 2016, to October 17, 2017.

Table 1.1

Population and the Tertiary Educational Achievement and Sex

Educational attainment	Estimated population			Percent(%)		
	Total	Male	Female	Total	Male	Female
Polytechnic	281,424	188,968	92,456	1.3	1.7	0.9
University (Bachelor)	691,197	456,315	234,882	3.2	4.1	2.2
University (PostGraduate)	1,119,924	86,232	33,692	0.5	0.8	0,3
Professional	63,979	46,557	17,422	0.3	0.4	0.2

Source: GLSS, 2017

It is seen from table 1.1 that university (bachelor level) admits the highest number of students, with a figure of 691.197, with the professional institutions having the lowest number of student enrolment of 63,979. The university (bachelor) data gives general information, including graduates from private and public universities in Ghana. So it is difficult to disaggregate the number of

electrical engineering graduates of Kumasi Technical University and Kwame Nkrumah University of Science and Technology in Kumasi metropolitan from the university (bachelor) data. Statistics on various disciplines are not available.

1.2 Significance of the study

One of the issues discussed globally by policymakers, academicians, students, and job creators is graduate employability skills. Graduate employability skills are linked to unemployment and labour markets. Most engineering graduates were expecting to be hired by employers after completion of their studies. Engineering graduates must know their qualities, advertise, and 'sell' them to their potential employers, as graduation as such is insufficient to guarantee employment (Hillage & Pollard, 1998). In contemporary times, there has been a shift in employability on how education is connected and related to the skills and knowledge of the individual in question. It is about the propensity of an individual to get a job after graduation (Lees, 2002). Graduate employability is shown by how the universities are keen to produce graduates capable of improving their personal and intellectual skills above the specific knowledge in the academic discipline (Crossman & Clarke, 2009). This focus is vital, as employers are attracted to qualities and skills like punctuality, efficiency and willingness to follow supervisors' instructions, cooperate with colleagues, hard work, and sincerity.

Unfortunately, in Ghana, many engineering graduates are not employed due to the several reasons stated below. It is assumed that employers have raised concerns about the lack of fitly able candidates for the vacancies in engineering positions as junior staff in the industry (Markes, 2006). Insufficient practical training, the high number of graduates, meeting public and private job opportunities, and graduate preference among jobs are argued to be among the factors engineering graduate unemployment in Ghana (Mensah, 2013). Insufficient state and private aid to engineering graduates to start their own business and little or no counselling into jobs are factors that need closer attention. Policymakers, educational authorities, industries, graduates, parents, and non-governmental organisations must have a keen interest in the recruitment and selection process. This should be of public interest because it plays a crucial role in graduate employment.

There is scant literature on Afrocentric recruitment and selection processes. Most of the academic literature on recruitment processes in Ghana uses a western model. Although graduate unemployment is a worrying trend in Ghana, these foreign models cannot better understand the recruitment and selection processes in the Ghanaian context. Furthermore, only a few publications are focused on understanding the recruitment and selection process from the employees' perspective.

1.3 Research questions

The study examines the skills and competences that employers in Ghana expect when they are recruiting university engineering graduates. Attention will also be given to the recruitment and selection process criteria and the challenges employers encounter when hiring engineering graduates.

Upon careful thought, these research questions were developed:

1. What are the skills and competences employers expect from university engineering graduates?
2. What are the main criteria used in the recruitment and selection process of engineering graduates in Ghana?
3. What are the main challenges that employers that want to recruit engineering graduates face in Ghana?

1.4 Definitions of the main terms

There are three ways of understanding the concept of skills. First, it could be defined as the ability to find employment. Secondly, it could be understood as abilities to keep one's job. Lastly, it could be explained as the abilities needed to get new employment when the need may. (Crossman & Clarke, 2009). In this context, the last aspect outlines a better of understanding of the concept of skills.

The definition of beliefs in this study is understood to be the perceptions, expectations, or the image the job seekers portrays (Bailly, 2008). Employers are those whose responsibility is to hire employees to work in their organisations. They are the staircase between the organisations

they are working with and the labour markets. They play key roles in the decision-making when recruiting job seekers. There are similar traits attached to university graduates universities. The universities want to make a difference between their graduates and the graduates from others. They prefer graduates' traits to signify extra value gained through the education programme. It is what will entice job owners to have job seekers.

Transferable connotes what is acquired in one setting can be applied in another setting. Resourcefulness, adaptability, and flexibility are some of the traits of graduate attributes. Attributes, qualities, and characteristics are linked to personal abilities. Characteristics are employed to define job specifications. It also denotes the affective and cognitive domains. An industry is large-scale when it employs over 100 employees; medium scale when it hires 30 to 100 employees; small-scale when it employs between six to thirty persons, micro-sized scale, with one to five employees (IBES, 2015). Being aware of what is expected and where to get it is human resource planning.

1.5 Thesis outline

This study consists of seven chapters. The first chapter recounts how higher education institutions are to educate students to make them qualified engineers and their contributions to the socio-economic development of Ghana. It describes Ghana's quality of human capital development by showing data on population and tertiary educational achievement. Data on educational attainment of the employed population in Ghana was provided. As a result, it addresses the significance of examining the recruitment and selection processes in the Ashanti region. It considers research questions: the skills expected of engineering graduates by employers, criteria for the selection processes, and its challenges. Finally, the limitations of the study, definitions of main terms, and empirical setting are discussed.

In chapter two, the engineering-graduate skills and attributes are recounted. The hard and soft skills are explained in the field of engineering. It then explains the aim and relevance of the recruitment and selection processes from the company's perspective. It reviews the several stages when hiring job applicants. Attention is given to critical factors that make the selection process

effective. The study focuses on external sources of recruiting personnel for job vacancies in an organisation. The challenges of the recruitment and selection processes are examined.

The third chapter presents the study's theoretical framework when hiring job seekers by signalling theory. It presents a model of six trends that shape employers' beliefs when hiring job seekers. The study focuses on a model for understanding the recruitment and selection processes. The model of eight stages was formulated by Rohini and Keerthika (2008).

The fourth chapter describes the methods that were used in conducting the research. It entails the rationale of the research design, paradigm, study population, sampling technique and size, data collection, and analysis. Braun and Clarke (2006) developed a six-step thematic analysis as a guide in the analysis of the study. Ethical considerations and quality criteria are presented. The final part presents the limitations of the methodology.

The fifth chapter presents the findings of the study following the research questions to examine:

- a). The expected skills of graduates by the employers,
- b). The recruitment and selection criteria
- c). The challenges associated with the recruitment and selection processes.

It presents a summary of the findings.

Based on the data collected, the sixth chapter gives more detailed information on the skills expected of engineering graduates from employers, the criteria for the recruitment and selection processes, and the recruitment and selection process challenges. Finally, the discussion will be connected to the theories in chapters two and three.

The seventh chapter summarises the three answered research questions, the study's limitations, suggested potential directions for future research, and concluding remarks.

Chapter 2: Literature review

2.0 Recruitment Process of University Graduates

In this chapter, I will describe key aspects of the recruitment processes from the perspectives of the research questions. In the next chapter, I will present theoretical perspectives to study the recruitment and selection processes.

2.1 Engineering Graduates Skills and Attributes

The engineering profession aligns with the application and advancement of skills, which encompasses a corpus of unparalleled science, mathematics, and technology. Engineers contribute to every country's economies. Engineers do the design, development, and preservation of infrastructure and technology. These help to meet the aspirations and lifestyles of society (Trevelyan, 2010). Electrical engineering graduates in Ghana must be prepared to utilise today's sophisticated technology. Unfortunately, professional bodies have raised concerns about the skills and competences possessed by engineering graduates. Globally, it is alleged that engineering graduates do not always possess the right attributes (Patil & Codner, 2007). Generally, it is assumed that the skills possessed by the engineering graduates are not always able to address the needs at their workplaces. It is argued that they are not working to the expectation of their employers (Jollands et al., 2012). Engineering graduates are expected to have skills to enhance their performance in applying and practising the knowledge. Although electrical engineering graduates are rich in technical knowledge, they can face difficulties in applying it. This is one of the biggest worries of the employers. However, there is a lack of empirical evidence that electrical engineering graduates employed are seen to be underperforming at their workplace.

The skills are grouped into a core or hard skills: technical knowledge and soft skills, which are the process skills and personal qualities (Knight & Yorke, 2004).

Soft skills are the skills, abilities, and traits that encompass personality, attitude, and behaviour. It is also called employability skills, life skills, or interpersonal skills. Soft skills play a vital role at all departments of an organisation as they facilitate smooth and successful

performance. Soft skills influence the engineering graduates' personality. Graduates must show mastery in the engineering field and be matured personalities coupled with a well-balanced education.

However, it must be noted that soft skills are difficult to quantify and study (Schulz, 2008). They relate to a graduates' emotional intelligence, career growth, and development. Soft skills will dominate in the years to come in the field of engineering as engineers become more management focused. In this contemporary world of engineering, graduates must show high technical performance coupled with a set of soft skills to increase their employability (Schipper & Van der Stappen, 2018). The ever-changing industries and engineering workplaces hire graduates who are educated for a lifetime of learning. Application and experience are some of the best ways of nurturing the soft skills of engineering graduates (Wilmot & Colman, 2016).

Hard skills are relevant, required skills needed to accomplish a task. They include technical as well as academic learning, which is connected to graduates' careers or professions. are also called technical skills. They cover academic knowledge, expertise, and practical exposure. Hard or technical skills are tangible skills because they are easily identified and measured with tests and exams (Muhra, 2016). are what catches the attention of employers and get engineering graduates to be interviewed. In the 21st century, employers want entry-level graduates to have the right combination of non-technical skills to support job-specific skills, such as engineering skills. Engineering students spent a degree of time acquiring practical experience in the workplace before they qualify as professionals. Technical or hard skills are to be gained through formal and non-formal ways. With respect to formal way, it can be learnt in academic study programmes offered at higher education institutions. However, it could also be acquired through courses and seminars organised by bodies such as International Electrical and Electronics Engineers. Participants get a certification or degree through this channel. The non-formal approach is through an advanced tutorial, written electronic, and practical way that can be achieved to get technical skills. Consistent engagement is required to improve the technical knowledge in engineering so that skills are constantly improved. Engineering graduates must apply and connect ideas, concepts, information, and technology to work. Again, engineering graduates must handle and operate machines and

equipment and translate learned knowledge into an assignment at the workplace (Nasir et al., 2011).

Engineering graduates can thrive in the business environment when they skillfully combine technical expertise with practical ability. These skills can be efficiently utilised with graduates having interpersonal skills, like being familiar with the commercial realities (Radcliffe, 2005). Employers can be expected to prefer to recruit engineering graduates who have excellent communication skills. Engineering graduates who are good team players and have good attributes towards work are highly sought after. Skills in human relations and technical competence are essential. It is helpful for one to incorporate human skills with his or her knowledge base and professional practice. It is equally essential for current electrical engineers to be abreast with continual technology and organisational dynamism in the field of work (Yuzainee et al., 2011). Commercial realities of industrial practice and legal issues of every professional decision are essential for job seekers. Employers are enticed to hire engineering graduates who are competent at solving problems with drive and energy. Engineering graduates who are passionate about their profession stand better chances of getting employed as junior staff members. They are expected to have practical abilities and good communication skills (Radcliffe, 2005). These help in having good relations with other people. For engineering graduates to be employable, they should not only have technical skills. Employers do not only expect engineering graduates to be technically competent. They are expected to have skills such as teamwork, ethical and professional responsibility. Social and sustainability awareness and having the attribute to undertake lifelong learning are what employers expect from engineering graduates. (Male et al., 2009). Innovation and entrepreneurship are highly demanded of engineering graduates by employers. Engineering graduates are work-ready when they have these graduate attributes (Radcliffe, 2005).

2.2 Understanding the Recruitment and Selection Processes

There are two recruitment and selection process streams: from the applicant's and organisation's perspectives (Barber, 1998). The focus of this paper is on the organisation's perception. In this study, the applicants are engineering graduates looking for work.

The recruitment and selection processes play an integral part in the successful hiring of employees. It is an important aspect, which ensures an effective selection of new recruits. It creates a pool of candidates who are likely to be hired by organisations (Klepik et al., 2020). The pool of candidates enables these organisations to hire the most suitable candidates. Such applicants are those with the same values as the organisations. New recruits either quit their jobs voluntarily or might get fired when their values are no longer aligned with their employers (Izuogu, 2015).

The goal of recruitment and selection process is to find candidates with the best educational credentials, experience, right attitude, and skills. In addition, it is to find job applicants who are of good moral standing and medically proven healthy. Therefore, it is timely, and the number of suitable candidates should be inadequate. In addition, there are other several aims of the recruitment and the selection process. First, it is to have a great pool of candidates, which gives employers a better and greater chance of hiring the most suitable candidates. Secondly, it provides the opportunity to employ recruits permanently. Thirdly, the image of the organisations is enhanced when recruits are employed (Baron & Agustina, 2018).

The quality of recruits has an impact on the performance and effectiveness of the organisations. The recruitment process starts with organisations placing an advertisement for new applicants. Advertisement is the most preferred recruitment, with the desire of attracting applicants with work experience. The process comes to a successful end when the most suitable candidates are selected. There are two strands of employers hiring job seekers. The employers might go for individuals working in another organisations or those who are not active in the workforce, but they have not closed the doors to job opportunities (Baron & Agustina, 2018). An applicant can only be hired when he or she has met specific requirements. In some organisations, applicants must complete an application, be interviewed, and undertake tests. Recruitment tests are best utilised when they are in a systematic procedure, making up four stages.

1. An evaluation is conducted to decide whether it is worthy for a vacancy to be filled.
2. There is job analysis, description, and specification (Carroll et al., 1999).
3. They are asked to present their educational credentials (Becker, 1975).
4. Background checks are conducted on them by their potential employers.

Employers use more than one factor in the recruitment and selection process. This is to ensure that the weakness of one factor will be catered for by the strength of the other factor and vice versa. Press advertisements, job centres, and agencies are all forms of formal recruitment methods. Employee referrals and word-of-mouth are informal methods of recruitment. Qualified applicants will be overlooked when informal methods are utilised. Victims of informal methods may leave with a bad image of the organisation in indirect discrimination against the deprived applicants (Carroll et al., 1999). The recruitment and selection process impacts the applicants on staying in the pool of candidates and accepting the chance to be employed. The purpose of the recruitment should go beyond increasing the size and quality of the pool of applicants. The focus should also be directed towards sustaining the interest during the process.

The selection process entails several stages to hire candidates (Acikgoz et al., 2020). Screening of application is conducted to select the applicants meeting the requirement at this stage; applicants' ability, attitudes, and knowledge are known to the employers through tests and behavioural interviews. Personal traits and innate abilities are evaluated by the individual judgment of the employers (Devins & Hogarth, 2005). Applicants are further tested for their learning abilities. Relevant experience is also considered at this stage of the process. Indirect qualities that are sought after are emotional stress and innate abilities. Applicants are examined medically. The references on the applicants' curriculum vitae are also checked. The results are released based on the score of these stages. The applicants with the highest scores are employed by the organisations (Baron & Agustina, 2018). Some employers utilise the probationary period. The assessment centres are used to appraise the candidates' soft skills like teamwork. Psychological tests evaluate the aptitude, personality, and intelligence of the candidates. Online tests, tests for skills, literacy, and numeracy, telephone interviews are also utilised to shortlist and screen the pool of applicants for the most qualified applicants. A one-on-one interview is used in the selection process in the private sector, which encourages evaluating the applicant's social and communication skills. Academic references are highly ranked in the public sector. Recruitment and selection have been transformed due to globalisation and high technology. Artificial intelligence is a technology that allows a computer to execute certain functions. It works as a substitute for human cognition, like decision making (Acikgoz et al., 2020). Work experience, screening of job application forms,

resumes, and interview assessment can be done by artificial intelligence. It makes the selection process efficient, faster and minimises human bias. No human contact, limited chance for candidates to demonstrate their qualities are some of its associated challenges.

There are essential factors that need to be considered to make the recruitment and selection process effective. The requisite skills, attributes, and knowledge should be captured in the selection criteria. Personal qualities, professional knowledge, and social competence are highly desired (Behrenz, 2001). In addition, there must be the availability of opportunities, rewards, advancement, and challenges to inspire suitable candidates. Again, employers' learning experience is shaped by the changes in social learning and other exogenous factors. The recruitment policy, human resource planning, organisational size, recruitment cost, and development of the organisations impact the recruitment policies. They are exogenous because employers and their social actions do not influence them. However, their beliefs extensively influence the decisions of employers. The cultural environment, market conditions, and organisations' values are exogenous factors that impact the beliefs of employers (Kanagavalli, 2019). Gender, economic status, and ethnicity contribute to the recruitment and selection process (Blasko, 2002). The age and experience of the applicants cannot be underestimated (Behrenz, 2001). Applicants with diverse backgrounds and fields of study are hired as their employer's lookout for flexibility, adaptability, and preparedness to learn as criteria for selection. Lifelong learning and similar organisational values are the determinants for being culturally fit the organisations.

It must be trumpeted that there is no fixed or general procedure for the recruitment and selection process. The process is dependent on the employer's preference, operation, type of job, and size (Sackett & Lievens, 2008). A panel of two or more different people is constituted during the interview to nip the conception of biased selection in the bud.

There are several ways of recruiting personnel for a job vacancy in an organisation. They are categorised into two ways: internal and external sources of recruitment and selection process (Absar, 2012). An external recruitment source is alluring candidates from outside the organisation to occupy vacant positions. Therefore, it is a valuable tool to entice qualified candidates to apply. Several ways are employed to guarantee a successful recruitment and selection process. Some of them are e-recruitment, employment agencies office, and education and tertiary establishment.

Advertisement is the most popular tool for an external source of recruitment via electronic media and print. This process fishes a larger pool of qualified applicants. (Tabassum, 2011). The wording in the advertisement should be understood by all, devoid of elements of discrimination. However, advertisement is costly— to assess job seekers compared to those already on the organisation's payroll.

E-recruitment is also known as online recruitment, employs the website of the organisation to hire workers. The internet is a helpful avenue to showcase the organisation's image and advantages over rivals (Kapse et al., 2012). Job seekers who use the internet face frustration and difficulty searching for vital information to aid the application. On the other hand, the organisations are fraught with managing the recruitment site and their existing systems.

Employee referrals are where a current employee recommends a job seeker for a vacant position (Bhoganadam & Rao, 2014). Sometimes that employee is rewarded with cash if the recommended is finally recruited. The human resource manager relies on the reference of the employee in the organisation to appoint or employ the applicant. Time and cost are reduced in this process.

Employment agencies are also known as labour brokers. These agencies charge the employee or the organisation mainly for the preliminary screening they offer for the organisation. They then link qualified job seekers to the organisations. Finally, the organisation furnishes these agencies with the type of workers they are looking for (Branine, 2008).

The labour office provides certain types of employers. For example, in the construction industry, the union provides workers. The pool of workers is available via the unions. Workers who meet the requirements of the organisations are sent to them by unions. Non-union organisations are mainly flexible in choosing who should be employed and where the employee should be sent. Cooperative staffing programs are facilitated by the unions, especially in the building and printing industries.

2.3 Challenges of Recruitment and Selection Process

Human resource managers or recruiters are faced with several challenges when hiring new employees (Zinyemba, 2014).

Poor human resource planning will have a negative impact on the recruitment and selection process. Choosing the more qualified person for the right job is dependent on how good the human resource planning is. If planning is not good, the wrong persons will be hired for the right job, or the right persons will be employed for the wrong work; thus, it will not make the organisation thrive in its operation (Kaplan & Norton, 2004).

Secondly, organisations will have a substantial financial cost if they must attract a large pool of applicants. Advertisement demands huge sums of money. Some of the several ways of advertising are newspapers, television, radio, internet, social media, and a host of others. An external source of recruitment also incurs enormous costs in the recruitment and selection process. Knowing the right tool for advertisement will attract the most suitable applicants. The recruitment and selection process goal will not be achieved if the right advertising tool is not used. Advertising on social media may not serve the purpose of limited readership (Otoo et al., 2018).

Another challenge faced by the organisation is impersonation. It could be possible that some applicants could use the certificates of their friends or family relation to applying for a job (Zinyemba, 2014). It can, for example, happen in a situation where two people bear the same name. If a proper background check is not done, the organisation will hire the tricked-to-hire job seekers who use other people's certificates to apply for jobs. When conducting background checks, it is imperative to guarantee accuracy. Against this backdrop, high-profile persons are likely to misrepresent their success (Mdletye & Hlongwane, 2019). It could dent negatively on the total performance of the organisation.

Some management members and recruiters will use their power or position to influence the recruitment process. Some job seekers will be employed due to their tribe, business affiliation, religion, or regional affiliation with any top-hierarchy members in the organisation. Nepotism and favouritism are likely to defeat the recruitment and selection process (Yaro, 2014). Requirements for vacant positions should not be compromised to give undue advantage to unqualified family members and close associates. When organisations compromise on education, experience, knowledge, and skills, there is a negative impact on the organisation's progress. People are not employed by merit, and the most suitable person for the job is not given the nod. The resultant

effect is a feeling of resentment, which could give birth to frustrations and hostility in the workplace (Mdletye & Hlongwane, 2019).

Many job seekers have the preference to work in larger companies compared to smaller companies. Large companies usually have better wages and conditions of service. Other job seekers prefer state-owned organisations to the private sector companies or vice versa. This is because of the benefits that come with it. Highly skilled workers demand high salaries. Some private-owned organisations are forced to either hire low-skilled workers or highly skilled workers that can do the work assigned to them (Waxin et al., 2018). The size of the company is a challenge in the recruitment and selection process (Zinyemba, 2014).

Some organisations face challenges from the public sector in recruiting qualified workers, which reduces the pool of qualified job seekers of the organisations. Others compete with foreign organisations (Waxin et al., 2018).

The location of the company has an impact on hiring persons into the organization. Urban based organisations can recruit more qualified persons than a rural-based organisation. Most job seekers are reluctant to move to rural areas for several reasons: electricity, potable water, and health centre, among others (Kaplan & Norton, 2004).

CHAPTER 3: Theoretical Frameworks

3.0 A model to examine the expected skills of engineering graduates

There are skills that higher education graduates are expected to have in this contemporary world. Employers have expressed high demand for graduate skills. Six trends have changed the nature and assignment conventionally given to graduates to perform in the 21st century (Humburg & Van der Velden, 2013). The six trends are professional expertise, flexibility, the introduction of ICT and innovation and knowledge management, mobilisation of human resources, international orientation, and entrepreneurship. These are a helpful tool to analyse graduate skills in the 21st century and the drivers of these skill demands from an employer's perspective.

With professional expertise, the graduates to be employable in the knowledge society should be equipped with skills to help them execute some tasks. These tasks are the fulcrum of the knowledge of work.

Professional expertise is into three forms.

1. The knowledge and skills expected to find solutions to work-specific problems.
2. A subtle application of expert thinking
3. Graduates should be equipped with analytical thinking, reflectiveness, and the skill to identify the pitfall of one's decision-making.

Expert thinking is a corpus of specific solution methods dependent on the problem (Lees, 2002). It highlights the importance of applying expert thinking. It should not always be the case of having a specific body of knowledge. What differentiates an expert from a new graduate is the ability of the expert to move from a routine solution method. Broad analytical skills, such as analytical thinking and reflectiveness, are the drivers of the expert's ability to find non-routine solution methods. Thinking reflectively enables one to apply a solution method to new problems. Again, it helps one to identify the shortfall of his or her discipline and consider other perspectives. Body of knowledge, expert thinking, and broad academic skills make up the professional expertise. These three forms are what grant success to knowledge workers in their field of work. Considerable time and investment are needed to maintain a body of theoretical knowledge and specific solution methods. This is supported by knowing the modus operandi of professional tools.

With flexibility, workers are assigned to tasks dependent on market demand. They might be demanded to do overlapping jobs during their lifetime. It could be through retraining. In this regard, flexibility is functional and internal. Although employers are increasingly expecting flexibility, skills connected to flexibility are not rewarded necessarily. Skills, such as the ability to learn new knowledge, is one of them. Professional expertise is among the skills that have the strongest positive correlation with income and the chance of getting hired. When salary is strict and unyielding, companies employ temporary workers or give them fixed-term contracts to serve as a protection against market uncertainty. Workers with flexible, contracted arrangements can be laid off when business is not good. Apart from the economic trends of flexibility, social differentiation and demographic challenges are other aspects of flexibility. One can decide to shorten the working hours temporarily. One can quit a job to take care of his or her children or parents. Employers may also give flexible work arrangements in tight labour markets to encourage an individual to engage actively in the labour force. People need to have the employable skills to master external flexibility. To be flexible, he or she must assume the unexpected, be employable, and train again. Flexibility entails quitting one's routine work and new environment and perform new assignments (Humburg & Van der Velden, 2013).

Some of the skills that make up flexibility are

1. The ability to deal with changes and uncertainty
2. The ability to acquire new things
3. The employability skills, that is, the readiness to be retrained and reskilled and the ability to plan and control one's career.

Individuals ought to recognise uncertainty and be flexible in their life plans and personal projects. The ability to learn new things associated with flexibility. Flexibility workers are to be in control of their employability skills, such as planning, allocation of time and resources for retraining, and lifelong learning. One needs to have the skills to stay employable. The successful transitions between education and training and employment.

The introduction of Information and Communication Technology and innovation and knowledge management have significantly changed the way data and knowledge are derived and diffused. In this contemporary world, accessing knowledge is not challenging. It is how to control,

integrate and appraise it. Graduates have a crucial task to perform in this way. It is undeniable that Information and Communication Technology has considerably affected many professional skills (OECD, 2012). Communication skills like soft skills and basic skills like literacy and numeracy have all been influenced by Information and Communication Technology. There is a strong connection between innovation and knowledge management and Information and Communication Technology skills in this contemporary world of work. Raw data and random information cannot aid decision-making unless good is separated from what is not needed. Sometimes, past people used much time looking for scarce information. The introduction of Information and Communication Technology has made a large corpus of data readily accessible. The challenge is not about getting the information. It is about understanding the gathered information.

Innovation and knowledge management encompasses skills such as

1. Innovative/creative skills are the ability to generate new ideas or address problems from a different perspective.
2. Network information, strategic Information and Communication Technology skills
3. Implementation skills

Knowledge workers possessing good innovative and creative skills make their organisations competitive. New products are introduced to replace old ones. Generating new ideas and addressing problems from a different perspective is not enough to guarantee the organisation's competitiveness. It is believed that an organisation's innovative capacity is dependent on the knowledge and key individuals within the organisations. Knowledge workers have the responsibility to receive and publish expert information. They must be well connected, which will enable them to receive essential information. The connection will help them pass the information within the organisations. The flow of information in the organisation is not the surest way of making the organisation competitive. Ideas, novel technology, and knowledge are also drivers of the organisation's competitiveness. Innovation and knowledge management entails the skills that can make innovation a reality. This requires implementation skills.

Organisational changes influence the manufacturing of innovative products. Teams are formed with supporting expertise, for example, automotive engineers and electronic engineers. Employers ought to be competent in more than one field.

Concerning the mobilisation of human resources, a high-performance workplace has high anticipation. The workers need to have specific skills to effectively and efficiently use their own and other human capital (Humburg & Van der Velden, 2013). Some of the specific skills are;

1. Interpersonal skills that are to be a team worker communicate and work together with a diverse colleague and customers
2. Self-management skills are the ability to work within the budget, give leadership, and the stress of time.
3. Strategic-organisational skills are the ability to respond toward the attainment of organisational goals.

Conventionally, managers have interpersonal skills. This influences them to motivate others to acquire organisational goals. The employers might not be experts themselves. In a high-performance workplace, different tasks are assigned to teams and employees. These assignments cover production, training, product innovation, customer relations, and marketing. The organisational goals are achieved when supported by a group of employees with professional expertise (Károly, 2004). Information sharing and communication call for the collective capacity for non-management level workers. Conflict might arise due to diverse team workers. It is prudent for each member to be cooperative, accommodating, managing, and resolving conflict. It is very vital to guarantee effective communication in teamwork. It is equally essential for an employee to appraise their colleagues' work, seek advice and information and help when it is good. They need to influence team workers (Allen & Van der Velden, 2011). His productivity shows the success of a knowledge worker. The employers will not be able to identify the working process. It is of keen interest to employers to hire employees with strategic organisational skills. It is the ability to accelerate their actions to achieve the organisational goals with little or no supervision. Knowledge workers must be aware of their position in the organisation. They must incorporate their work with the work of their colleagues. In this sense, strategic thinking becomes an essential skill for professional and organisational success. It is demanded that the knowledge worker should have good self-management skills. Some of the self-management skills are the ability to work efficiently without being limited by time and budget. Conventionally, graduates are expected to demonstrate leadership skills. Nowadays, high-performance work expects knowledge workers to have non-

traditional management skills, such as the ability to use the competencies of others in the team efficiently.

Under international orientation, globalisation is connected to the creation of a knowledge society. It is associated with financial capital, goods, service, people, and ideas moving from one country to another. It has called for interaction with people from different cultural and linguistic backgrounds. The ability to write and speak in a foreign language is expected in the knowledge society. Decision-making, regular customer care, and cooperating with colleagues happen beyond the national borders.

Globalisation has paved the way for international orientation. It demands knowledge workers to have;

- a). To be fluent in a foreign language(s)
- b). Intercultural skills are working with people of diverse cultural backgrounds and adapting to new cultural contexts.

Working with people of diverse cultural and linguistic backgrounds requires a level of foreign language skills. There must be a common language foundation. Management activities, collaborations, or negotiation effects could slow down due to misinterpretation of behavioural patterns. It is prudent for graduates to be able to adapt to new cultural contexts. These intercultural skills entail knowing cultures of negotiation, politeness, decision making, the teamwork of colleagues and customers (Humburg & Van der Velden, 2013).

Entrepreneurship entails the following skills that employees, like engineering graduates, should have a) the ability to know commercial risks and opportunities; b) cost awareness, and c) the ability to use the idea to create a successful product. The labour force is expected to have entrepreneurial skills and commercial awareness. This is related to the ability to see changes in the market, know competitors and commercial risks and opportunities. Whenever employees take a critical assignment within an organisation, they must increasingly be aware of the changes in the markets. The greater the number of autonomy employees like engineers have within an organisation, the more relevant their skills and attributes contribute to the organisation's success. This the true for both employers as well as employees in the private and public sector.

3.1 A Model to Examine the Recruitment and Selection Processes

Several types of research have been conducted, but there is no general theory of employment recruitment. There is scant literature on the relationships between various recruitment variables, how they are related to job seekers and organisational attributes, and their impact on recruitment results (Breugh, 2013). Although this is a foreign model, it gives an in-depth description of Ghana's recruitment and selection process. It highlights the shortlisting and selection of graduates who had formally applied for a particular vacancy and whom they wish to be hired as employees. The stages of this model are as follows:

Legal obligations: there are two implications for the incompetent recruitment of persons. The employment law demands that every applicant is given fair treatment. It frowns on the discriminatory selection process. Again, courts could hold the organisation responsible when the employee(s) with criminal records or other problems can access customer homes to commit a crime (Rohini & Keerthika, 2018). Secondly, negligent hiring could be avoided when background checks are done on the recruits. The documentation of the applicants should be verified.

Selection tests: it is widely used in the recruitment and selection process. It has contributed significantly to the recruitment process. It is commonly known as psychological tests, as they measure the psychological traits of an individual.

1. Psychological tests are an instrument employed to measure various traits that the employment application form cannot identify. For example, some organisations may conduct one or two tests of the following:

2. Ability tests: the ability of a person depicts the quality to execute a task. It includes his/her intelligence, skills, and aptitude. In addition, there are other forms of ability, such as mechanical ability, intellectual ability, and creative ability.

3. Achievement tests: it is also known as performance or trade tests. It is concerned with what one has attained. The test may be used to measure the how well the applicants know what he/she claimed to have accomplished. This is known through the answers given to specific questions by the applicants.

4. Intelligence tests: it is to measure the intelligence of the applicants. This includes verbal comprehension, word fluency, memory, inductive reasoning, among others. The intent is for the

organisation to hire applicants with the highest intelligence. Conventionally, the test is expressed in numbers that are intelligence quotient (IQ).

5. Aptitude test: it is used to measure the likely traits that execute a task. It is dependent on the proper environment and training available to the individual. It is authentic when the applicants have no experience along the lines of the job. It does not measure motivation.

6. Personality tests: the test is used to envisage performance success for tasks that demands dealing with people that play a supervisory role. This covers agreeableness, conscientiousness, negative emotionality, extraversion, and openness. This test forecast the personality of the applicants whom an organisation may hire.

Selection interview: it is a popularly used tool in the selection process. The interview is also known as an employment interview. It is an official and detailed conversation conducted to assess the acceptability of an applicant for employment. There are different types of an interview which are differentiated by its purpose and objective. For example, the selection interview includes a post-performance appraisal interview, exit interview, problem-solving interview, and selection interview.

Selection process: this is the stage where the organisation reflects on the data provided by the applicants, either through the curriculum vitae. Applicants may be interviewed more than once or be referred to another panel. Scores about applicants are recorded on the interview evaluation sheet. Qualitative observation and overall decision of the selection shall be sent to the associated recruitment manager or head of human resources. The selection will not be considered final until the application form is satisfied comprehensively. Any discrepancies seen by the panel members and the genuineness of data provided by applicants shall be officially recorded.

Screening of application form: this is to interview applicants who appear qualified based on the information captured in the curriculum vitae. Conventionally, it is conducted via telephone. It is to verify further the applicant's job qualifications and aptness for the positions. An applicant may be qualified for a specific position, he/she may be referred to another position if that matches his/her skills (Rohini & Keerthika, 2018).

Selection test and interview: it is used to choose the applicants' skills that the interview process could not identify. Applicants are valued based on aptitude, personality, abilities, honesty, and motivation. It is used to assess achieving an applicant on the job.

Technical test: it is conducted to assess the technical side of the applicants after successfully going through the opening stage. This is where the technical acumen of the shortlisted applicants is assessed.

Group discussion: this part allows the organisation to assess the applicants concerning their requirements. It allows the mass removal of several applicants. During the group discussion, the organisation assesses the leadership qualities, ability to reason, communication skills, body language, and knowledge.

Panel interview: this is the stage where the shortlisted applicants are asked series of questions by panel members. All the technical and behavioural skills of the candidates are fully assessed. The evaluation is done separately by each panel member (Devins & Hogarth, 2005). Finally, the entire panel members will discuss the performance of applicants and shortlist the applicants for the following process (Baron & Agustina, 2018).

Medical exams: newly recruited workers are mandated to undergo a medical check-up before starting work (Rohini & Keerthika, 2018).

Letter of appointment: after passing the medical examination, the selection is made legitimate, and the applicants are informed officially. They are given a letter of appointment. The letter details the agreed conditions of employment to guarantee that the recruits know the general terms, job description, and benefits provided. The job description entails the scope of rules, duties, and responsibilities (Carroll et al., 1999). It is then signed and returned to the Human Resources Department.



Source: Rohini & Keerthika (2018)

3.2 Signalling theory

To understand the relationship between scholarly output and the world of work, job market signalling theory (Cai, 2012) will be used. The signalling theory developed by Spence is of a different view. It sought to theorise the coordination processes of the imperfect information situations. It argues that employing people is an investment decision for employers. During uncertainties, employers make decisions on hiring people. When employing people, the employer is shaped by the level of educational attainment of the job seeker. Employers sort out all job applications, gauging from the signals they receive from the educational credentials. In this case, educational credentials become an agent of measure quality or ability (Cai, 2012). Higher wages are given to workers even if education has no impact on productivity. Again, there is the assumption that ability level relates to productivity. It is assumed that potential employees with relatively higher levels can put money in education more cheaply than workers with weaker ability. For instance, workers with high ability can go through school with less pain and effort than weaker ones. From the cost differential of the two groups and the wage, premium employers give to higher-ability employees, higher-ability workers must put more money into education. This is done to signal their higher ability or higher productivity to their employers (Strober, 1990). If organisations find that those with higher education are productive, they will use education to signal higher productivity. It must be emphasised that education has no impact on productivity improvement.

Job seekers use education to signal their employers of what they can do or their inborn capabilities. It is the inborn capabilities that enhance productivity. The two types of information aid the employer in taking decisions on recruitment (Spence, 1973).

3.3 Weber's theory of bureaucracy

Max Weber's theory of bureaucracy examines bureaucracy that Weber identified in the western countries. Bureaucracy was an emerging tenet in an organisation in the nineteenth century. Max Weber posited that leadership and authority emanated from a sensible structure in the new organisation (Constas, 1958). Authority in the new bureaucratic organisational form was rationale leaders were acknowledged adhering to values of logic, efficiency, and reason. Bureaucratic organisations operated on laws, rules, and regulations from the coherent, regulated, efficient, and

methodical calculation of optimum means to given ends. Bureaucratic action was geared towards problem-solving. Bureaucratic decisions were regulated by efficiency, calculability, and expectedness. Bureaucratic decisions were taken without references to persons. Thus, bureaucratic decisions are impervious to personal, insensible, and emotional aspects. Below are three essential characteristics of the bureaucratic organisation (Jain, 2004):

1. The official and clear hierarchical structure of power and authority.
2. An elaborate, rationally driven, and systematic division of labour.
3. There is a set of official and clear, rigorous rules that were impersonally guided decision making.

Bureaucracies examine the separation of personal from official property. Bureaucratic decisions were made on the principles of qualifications: people were appointed, not voted, and were compensated with a salary.

Max Weber's theory of bureaucracy is subjected to criticism. Firstly, historians criticised that Weber ignored the specific historical conditions that influence the social phenomenon he investigated. Second, they criticised him for uniting historical events that happen centuries apart into an idea of a social system (Blau, 1963). Finally, the sociologist criticised him for being preoccupied with understanding western capitalism; instead, he could have studied recurrent social phenomena. This would have made it possible for Weber to formulated testable generalisation about a social structure.

3.4 Operationalisation of the theories.

A six trends model by Humburg and Van der Velden (2013) will be used by the researcher to identify the skills and attributes of the engineering graduates preferred by the employers. It will be useful in classifying the skills expected by employers in the Kumasi metropolitan area of the Ashanti region into two groups: hard or technical skills and soft or non-technical skills

A model to examine the recruitment and selection process by Rohini and Keerthika (2018) was adopted to address research question two: what are the main criteria used in the recruitment and selection process of engineering graduates in Ghana? The model helps the researcher investigate the recruitment and selection processes engineering graduates of Kumasi Technical University, and Kwame Nkrumah University of Science and Technology go through in Kumasi

metropolitan. The examination will reveal the recruitment and selection process, which are applicable in the Ghanaian context. The findings from this study could serve as the foundation for future research on recruitment and selection processes, which are Afrocentric, specifically the Kumasi metropolitan in the Ashanti region.

Signalling theory supports the model to examine recruitment and selection processes by Rohini and Keerthika (2018), specifically the selection process where job seekers provide their curriculum vitae. It highlights the essential role educational credentials of engineering graduates play in influencing the recruitment decision of employers.

Bureaucracy theory will help the researcher examine research question three: what are the main challenges that employers want to recruit engineering graduates to face in Ghana?

CHAPTER 4. Methodology

4.0 Introduction

This chapter presents the methods employed in conducting the research. It touches on the research design, research paradigm, study population, sampling technique, sample size, data source, data collection, data analysis and handling, and ethical considerations. The limitations of the study are also discussed in this section.

4.1 Research Design and Research Paradigm

The paper is established on a qualitative research strategy. Qualitative research is an inquiry employed to understanding a social situation, focusing on the description, experiences, and understanding of the people involved directly (Yilmaz, 2013). Employing the qualitative method might make the study full of not-too-much needed information about a social situation under study. It will be quite challenging to conduct the same research and have the same findings or reproduce the case. Nevertheless, it gives a complete and detailed description of the social setting (Bryman, 2016). This gives a more accurate and more precise picture of the phenomenon. Furthermore, the findings are derived from the participants' understanding and perceptions about the case understudied (Flick, 2019). This is associated with the constructivist paradigm.

Constructivism is based on people's social situations but not on a set of rules or laboratory tests. It does not endorse objectivity as it proposes a stance of responsible participation (Allen, 1994). It is assumed that reality is created productively through the meanings and values of the one observing. One's cognitive processes achieve the creation and making of the meaning of social and psychological domains. It is how people establish relationships through their actions and discourses (Flick, 2019). Meaning can be made when these actions and discourses are situated in the social, historical, and cultural ambient. This truth and reality are fused with social context and meaning (Young et al., 2017).

A case study is a qualitative research approach method, thorough and versatile, to investigate a single social phenomenon. It shows thorough, in-depth analysis and reveals key traits about a single case's nature (Bryman, 2016). A case study was chosen for this study as it is one of the most effective ways of researching social science. It is used to answer questions about how,

what, and why that phenomenon is or was happening without enough defined evidence (Yin, 2003). A case-study method gives a thorough and profound description of the social situation. It is investigative and exploratory, but the researcher could be biased as the researcher gains more personal interaction with the participants (Starman, 2013). With this personal and intimate relationship, there is the likelihood of the researcher not given an accurate description of the phenomenon intentionally or unintentionally. The researcher might forget that he/she is a stranger in this regard.

4.2 Study Population

The entire group of individuals from which the sample is selected is called the study population (Bryman, 2016). In congruence with this research design, the chosen participants were purposefully marked out to consist of human resource managers at Kumasi metropolitan in the Ashanti region of Ghana. The human resource managers were selected from companies that employ electrical/electronic graduates from Kwame Nkrumah University of Science and Technology and Kumasi Technical University.

4.3 Eligibility Criteria

The study recruited human resource managers from reputable companies in the Ashanti region. These human resource managers have actively employed people, predominantly electrical graduates, in their respective companies. Therefore, managers who are not involved in hiring graduates were excluded from the selection of participants.

4.4 Selection of Participants

The thesis selected five participants. Participant selection is defined as enlisting a section of a study population to represent the entire population (Bryman, 2016). It is desirable but practically impossible to study the whole population. Therefore, a section of the population is enlisted to represent the whole population. This can be achieved when sampling is used.

The table 1.2 presents some key characteristics of the five interviewees of the study. The interviewees did not give any detailed information about their educational background and they did not to give their ages when asked.

Table 1.2

Information of the Five Interviewees

Codes	Company	Position	Gender	Educational background
Resource person 1	Palmer Green International Limited	Human resource manager	Female	First degree holder
Resource person 2	Bos Engineering Limited	Human resource manager	Female	First degree holder
Resource person 3	Wilkins Engineering Limited	Human resource manager	Male	First degree holder
Resource person 4	Mastermind Electrical Solutions	General manager	Male	First degree holder
Resource person 5	Power & Co Engineering Limited	Human resource manager	Male	First degree holder

Fieldnote, 2012

Purposive sampling, which is a non-probability form of sampling, will be employed in selecting the participants. It is extensively employed in qualitative research when one wants to identify and choose information-rich cases. Finding knowledgeable individuals and experienced groups can be achievable using purposive sampling (Patton, 2002). It is a vital tool because it will help find the right participants who can give rich information about their perceptions, experiences,

and feelings (Yilmaz, 2013). Although it is challenged with a high level of bias, low-level reliability, and inability to generalise research findings, it saves time and cost as the selection is based on the researcher's discretion. Again, when the researcher is faced with light primary data sources to give rich information about the study, it is imperative to use purposive sampling. Finding the right participants can lead to an in-depth description of the recruitment and selection process and skills expected of the graduates by employers. It helps recruit a sample from an entire population with a particular set of characteristics in conducting research (Patton, 2002). The recruitment was based on participants who have particular specified characteristics needed to understand the recruitment and selection process and expected skills of the graduates by the employers.

A list of human resource managers of various organisations was provided by Kumasi Technical University's electrical/electronic department, with the aid of a lecturer friend. The list consisted of companies in the Ashanti Region where the department students go for their internships. In addition, some of the students are employed after completion of their studies. An official letter was given to the researcher by the Department of Higher Education, University of Oslo. It was then sent to the participants.

4.5 Sources of Data

Five human resource managers involved in the recruitment exercises of their respective industries were interviewed. They were interviewed to solicit their views on what informs their decisions when employing graduates, the expected skills they look out for, and their challenges in the recruitment process. Interview guides were used, analysed, and presented in this study.

4.6 Data Collection Methods and Research Instruments

Documents and interviews were sources of the data collection.

Semi-structured interviews were used to get vital information from the five participants. A semi-structured interview is a verbal communication between two or more people, where one is the interviewer and the rest being interviewees. The interviewer asks questions to seek information which is the most often used qualitative method. A semi-structured interview is helpful because of

its flexibility. This makes the interview freely change between participants considerably, unlike structured interviews where a list of questions is strictly followed. Semi-structured interviews differ from unstructured interviews as the discussion is described. It can be employed to identify the inconsistencies in the interviewees' remarks. Questions will not be followed strictly, unlike the structured interview. (Bryman, 2016). Instead, the interviewer could ask questions relevant to getting vital information.

The guide may not have captured this information. So semi-structured interview brings the best out of the participants' responses. Some questions can be derailed from the guide and nuisance to the interviewees and the interview. It can also be carried out online (Longhurst, 2003). A telephone interview was the preferred choice to avert the risk of exposing potential participants to the COVID-19 epidemic. There are several advantages associated with a telephone interview. The interviewer has the chance to seek clarification about apparent misunderstanding, and probing questions can be used. It also speeds up the collection of data.

Most importantly, the risk of having a biased result is minimised as the interviewer effect is reduced. Telephone interview comes with its challenges, having elaborated on these advantages. Visual cues are essential to understand and interpret data during the stages of analysis. Visual cues were absent (Carr & Worth, 2001). A telephone interview generates shorter responses, as compared to a face-to-face interview. Some of the questions asked were;

- a). What kind of technical skills do employers look out for in electrical engineering seeking employment?
- b). What type of recruitment do employers engage in?
- c). Does wrong recruitment impact the company's performance?

Document analysis is a way to analyse documents and texts that seek to measure fixed categories' content in an orderly and replicable manner (Bryman, 2016). For example, it was used to look for data on population and tertiary educational achievement and the educational attainment of the employed population in Ghana.

Lastly, audiotape recorders were used by the researcher after permission was granted by the participants. Tape recorders were needed in saving the details of the interview. The audio files were played and transcribed verbatim. The average time spent for each interview was between

twenty to thirty minutes. Fieldnotes were used to collect data for the analyses. Key points raised by the participants were recorded in the field notebooks to aid the analysis.

A letter was sent via mail to the Kwame Nkrumah University of Science Technology and Kumasi Technical University requesting student admission, student graduation, and the dropout rate for regular students. Attached to the letter was an authorisation letter from the University of Oslo. With Kumasi Technical University, the electrical/electronic department demanded that another letter be sent to the international student office. Unfortunately, having met all the requirements, the electrical/electronic department of Kumasi Technical University did not provide the needed information to the researcher. A sibling of the researcher made a follow-up, but the data was not given. The reason given was that the head of the department was not around. Therefore, the information in table 1.3 was provided by the electrical department of Kwame Nkrumah University of Science and Technology. A mail was sent to seek for explanation and source of the data provided. Unfortunately, the mail was unanswered.

Table 1.3

KNUST Electrical Engineering Department Data

Year	Admitted	Graduate – Regular	Graduate - Special
2010	122	122	
2011	124	89	
2012	141	76	
2013	153	101	
2014	139	110	
2015	173	106	
2016	212	112	
2017	234	99	4
2018	310	97	12
2019	327	107	10
2020	454	127	8

Fieldnote, 2021

4.7 Data Analysis

A qualitative research study thrives on the rich information given by participants. Therefore, it is prudent to employ proven strategies when analysing the data. It also guarantees that the perceptive are well captured and represented in the analysis. To achieve that, firstly, files and field notes were categorised. Next, the interview was labelled and stored with the aid of a system. The labelling of the files was done using codes. The codes were given to every audio file dependent on the time and date the interview took place, as well as the place it occurred. Hence, a data tracking system was used to name every document, consent form, and other valuable materials. This was done in line with the labels given to the audiotape and field notes. The researcher then transcribed the interview verbatim. It was kept on the laptop, which was protected by a password. The password prevented intrusion. The glossary was employed to identify important terms that are useful to this research. Finally, the thematic analysis was used in the study. Thematic analysis is one form of analysis used to identify, analyse, and interpret patterns within qualitative data (Bryman, 2016). It is ready to use, flexible, and most-used qualitative data analysis. The themes identified in the graduates' expected skill by employers, criteria for selection, and recruitment challenges were used in this paper. The themes were born out of the perceptions and views of the participants.

Braun and Clarke (2006) suggested a six-step thematic analysis. It was used to guide the analysis of the study. This is elaborated below:

Data familiarisation: for the researcher to understand the rich information given by the participants, he immersed himself in the data. He got closer and was familiar with the data. I read and re-read the data to get the best understanding that befits the perceptions of the participants. On several occasions, I listened to the audio-recorded data. It helped the researcher to identify possible themes, which were also captured by the transcribed interview. Transcription is the act of writing down spoken words. The researcher made the early analytic observation.

Coding: it is about identifying and generating labels for critical features of the data. It is achievable when guided by the research question based on the theories in chapter two and chapter three. Codes help to reduce data. It is an analytic process to highlight the semantic and conceptual reading of the data.

Searching for themes: A consistent and meaningful pattern found in the data is called a theme. It is always in conformity with the research question based on the theories in chapters two and chapter three. It helps the researcher to identify the similarities and differences in the data. Excerpts from the transcribed data were done at this stage. Again, the researcher brought together all the coded data needful to every theme.

Reviewing themes: it has to do with the consistency of the themes with coded extracts and the complete data set. Critically, reflecting on the themes, the researcher made sure the themes represent an accurate picture of the data. I then began to identify the nature of every theme and the connections between the themes. Themes were merged when they had similar meanings, while broad themes were divided into three. Some themes, which were considered irrelevant, were erased or rejected.

Defining and naming themes: an in-depth analysis of every theme was provided. It entailed what every theme was made up of, and its relevance to a befitting, informative, and catchy label was assigned to every theme.

Writing up: this is the final and most crucial part of the thematic analysis. Putting together and making meaning out of the data extracts and analytic narratives were done in this stage. The write-up about the data should be logical, coherent, and compelling to the reader. In addition, it should align with the existing literature.

4.8 Ethical Considerations

One of the ethical issues that were considered to guarantee the validity and reliability of the study was the confidentiality of the participants. The identity of the participants should not be revealed as it is unethical (Bryman, 2016). Some human resource managers will be reluctant to give information about their companies' skills when employing graduates and other issues relevant to the study. They might feel it is an act of betrayal and disloyalty. Getting the correct information will be a challenge.

Moreover, it will not give a true reflection of the situation. So to prevent that, the identity of the participants was not revealed. Participants' names or any information that will expose the participants' identities were protected with all seriousness. In replace of exposures were

assigned to them in the field notes. When writing the report, their names were not be captured as it will stay anonymous. Their comments were captured in the write-up.

Secondly, there is the need to give prior information about the study (Steffen, 2016). The participants were briefed on what the study was all about. They were then given a chance to decide whether to participate. Interview consent forms were sent to participants for their perusal before signing by an accomplice for the researcher (Bryman, 2016). This consent form entailed that participants' details would not be revealed, and they were at liberty to withdraw from the study. The consent form made the participants feel free to give their all. They had the documents to seek legal redress if their privacy was to be invaded. The interviewer was protected accusations that would be levelled against him by any participant who would complain that his/her consent was not sought.

Thirdly, participants were not deceived into making responses, and Deception is synonymous with research (Bryman, 2016). Deception makes the participants believe in their information, which is not proper to lure them into participating. Participants are not told the whole truth about what, how, where, and why the study is conducted (Steffen, 2016). When the participants are deceived into believing in what is not, their responses will negatively affect the validity and reliability of the study. Through telephone conversation, the researcher informed the participants of all that the study was about. Opportunities were given to all respondents to address any concerns or doubts about the study. When these concerns were addressed, then the interview was conducted. As a result, the participants had a free mind and fair knowledge about the study. This made the researcher get vital information analysed to enrich the study and make it valid and reliable.

4.9 Quality Criteria

Validity is the sincerity of a conclusion that is produced from research. The indicator used to measure a concept that could gauge that concept (Bryman, 2016). A topic is worthy when there is an ongoing debate about the research question in the academic, social, or political arena. A topic is essential when it becomes a topical issue for discussion (Tracy, 2010). Several publications have been produced on the recruitment and selection process and the required skills of graduates from

employers. This is a worthy topic because graduate unemployment is a worrying trend that the country is faced with. Employers allegedly raise concerns that the graduates do not have the skills to get jobs in engineering and manufacturing (Markes, 2006).

Again, research is rich when there are various theoretical constructs, data sources, and samples (Tracy, 2010). The sources of data collection are solely interviews and documents. Five human resource managers who are involved in recruiting graduates for their respective companies were interviewed. These five small and medium industries in the private sector are situated in the Ashanti region of Ghana. The interview was semi-structured, and the interaction was on the telephone. The semi-structured interview helps in bringing out the best of the participants' responses. The selection criteria and the required skills of the employers were explored. Views on the challenges of the recruitment and selection process of the five companies in the Ashanti region were solicited. Several theoretical frameworks describe the required skills, recruitment, and selection process provided in this paper.

Trustworthiness and plausibility make up for a paper's credibility. Triangulation uses more than a person's data source, method, and theories (Tracy, 2010). It is used to authenticate the findings of the research (Bryman, 2016). Interview and documents are the sources of data. Several publications have been reviewed. This brought about different views to be elicited, making it possible for the paper to be credible. A document from Ghana Statistical Service dubbed GLISS 2017 was used.

4.10 Limitations

No information on student admission, graduation, and dropout was given by Kumasi Technical University (KTU). The information provided by the electrical department of Kwame Nkrumah University of Science and Technology (KNUST) did not state the data source. Therefore, the number of student admission and graduation was not explained. Furthermore, information on the dropout rate of the electrical department of Kwame Nkrumah University of Science and Technology was not given. This would negatively impact the credibility of the study.

Another limitation is the Covid crisis. I could not go to Ghana to do the fieldwork there. It prevented face-to-face interviews with the participants. Instead, a telephone interview was used

to solicit the views of the participants. With telephone interviews, there are no visual cues that are important in data analysis.

CHAPTER 5: Findings of the Study

5.0 Introduction

The chapter will present the findings of the study based on the indicators derived from the theories presented in chapters two and three to identify patterns in the data. The patterns will be addressed concerning each research question. A summary of the findings summarises the chapter.

5.1 Skills Expected of Electrical Engineering Graduates

This section presents the participants' views based on research the first research question: what are the skills employers in the Kumasi metropolitan expect from engineering graduates of KNUST and KTU? From the indicators of engineering graduate skills and attributes identified in chapter two, the skills will be classified into hard or technical skills and soft or non-technical skills.

5.1.1 Hard or technical skills that are expected of electrical engineering graduates

Interviewees reiterated the need for electrical engineering graduates of Kwame Nkrumah University of Science and Technology and Kumasi Technical University to have technical skills. Technical skills are practical and often related to mechanical, information and communication technology (ICT) or scientific tasks. Some examples include knowledge of programming languages, design programs, mechanical equipment, or tools. Interviewees opined that in their view fresh electrical engineering graduates do not have sufficient relevant experience, skills and are primarily naïve when initially employed or recruited. The interviewees mentioned that electrical engineering graduates must know coding skills and circuit design. The following quote captures an interviewee's response on the technical skills that are expected of electrical engineering graduates:

“The hard or technical skills expected of electrical engineering graduates is that they must have a solid understanding of basic circuit designs, but they cannot apply the knowledge” (Resource person 1).

Engineering is a profession geared towards applying and developing skills based on a corpus of science, mathematics, and technology knowledge. Interviewees mentioned that engineering graduates are expected to have hard skills to improve their performance in applying

and practising knowledge (Radcliffe, 2005). Although the importance of coding is higher in some areas of electrical engineering than others, it is still an instrumental skill to have, mainly when working with low-level embedded systems or when analysing data. Some of the interviewees mentioned the need to use key languages like Java, C Language, C++ in the field of electrical engineering.

5.1.2 Soft or non-technical skills that are expected of electrical engineering graduates

Non-technical skills mean generic abilities or life skills outside the formal education programme. The qualifications are not specific to any job or working environment. They are widely available in all assigned jobs and tasks. These qualifications cannot be achieved within a short time. They can be tested with wide use and experience.

Non-technical skills are interpersonal skills, including communication skills, problem-solving skills, teamwork skills, decision-making skills, and cooperation (Cummings et al., 2008). Soft skills do not include the technical expertise needed for the work, for example, the technical skills or expertise required to work or run a machine. Nevertheless, the technical capabilities must complement the soft skills to make them more efficient and effective. For example, the interviewees stated that electrical engineering graduates must fix the problem when working on circuit design, either in a group or independently. In addition, they must be knowledgeable about topics such as computer simulations used in circuit design. These are some of the views shared by the resource persons in relation to soft skills that they expect from electrical engineering graduates:

“In my company, electrical engineering graduates must be able to solve problems at work. At times, workers need to think critically in a short time to effectively implement a voltage when working on transformers and circuit design. In addition, they must settle misunderstandings amicably so the company can grow” (Resource person 3).

“Graduate employees must be team players and can co-operate with others at all levels. There are different people the graduates will meet. They will meet all kinds of people inside and outside the workplace. They have worked well with all these people. Moreover, Kumasi has

different ethnic groups living here. Some are our customer while others are colleagues” (Resource person 5).

5.2 Criteria for the Recruitment and Selection Process

In a world economy, companies look for new opportunities for growth and employ new employees to help reach this growth. However, at the same time, labour markets run the risk of beginning to deteriorate when employees from the baby boom generation start retiring. Again, they are replaced by a decreased supply of younger workers. As a result, the essential human resource function for organisational survival and success has evolved in their midst, including recruitment and selection.

5.2.1 General impression of the hiring process in selected organisations.

Better recruitment and selection processes have a positive impact on the performance of the organisations. This section presents how employers see the recruitment and selection processes in their respective companies. Considering what various interviewees gave varying, but similar information about hiring in their organisations. Responses showed that careful planning is considered before engineering graduates are hired for the various positions within the selected organisations.

According to one of the interviewees:

“The process starts with identifying vacancies or the need for more hands within the various departments, this is followed by the qualifications needed for such positions, then advertisements. Candidates are shortlisted, and, depending on the position being applied for, potential candidates are screened through tests interviews to select the best applicants for the organization” (Resource person 5).

5.2.2 Ways organisations attract graduates to apply for a job

The recruitment and selection processes guarantee the effective hiring of new electrical engineering recruits. The purpose of recruitment is to hire the most suitable electrical engineering applicants who recently graduated for a position as junior staff member. Therefore, the quality of

the electrical engineering recruits impacts the organisation's performance (Baron & Agustina, 2018). The organisation's image is enhanced when suitable methods are used in recruiting electrical engineering graduates. All respondents reported that organisations use several but comparable means to attract graduates to apply for jobs, as can be illustrated by the following quote:

“We mostly use our websites to tell the public more about our organisation, thus what we are into and what we do and the benefits of working with us. Whenever there are openings or vacancies, we also post them on our website. We also use the dailies or newspapers and flyers for advertising for job openings within our organization” (Resource person 2).

5.2.3 Materials provided when applying for a job and applicants screening in the selection process

In the recruitment and selection process, there are requirements for job seekers to fulfil. They are only recruited when the requirements are met (Carroll et al., 1999). Overall, interviewees were emphatic and agreed that materials provided by applicants when applying for a job are mostly their curriculum vitae (C.V.). Furthermore, applicants are screened through various means to select the best for the organisation (Acikgoz et al., 2020). The following quotes indicate how organisation screen applicants during the selection process:

“Screening of applicants is in three folds. The first is the preliminary interview this is followed by either Aptitude or Ability tests and a final interview to select the best applicants” (Resource person 2).

“CVs are the main materials provided for applicants. However, when one is shortlisted for an interview, supporting documents, from academic to other relevant materials, need to be presented for documentation and selection. With the screening of applicants of electrical engineering background, applicants first go through a first interview to test individuals for confidence and theoretical knowledge. The second has to do with tests to test the practical knowledge of applicants. In contrast, applicants finally go through another interview” (Resource person 3).

Employers decide on the quality and value of the technical and non-technical skills carried by engineering graduates who have applied for job vacancies as junior staff members. It was revealed that employers use several methods in assessing the technical and non-technical skills of recruits. Most interviewees argued that they use achievement or ability tests to assess potential employees' technical and non-technical abilities. Other employers reiterated that they invite resource persons to test the knowledge and abilities of potential employees during interviews before recruiting graduates applying for jobs.

5.3 Challenges of Recruitment and Selection Processes

Recruiting the right calibre of employees for an organisation will go a long way to impact its productivity (Gamage, 2014). However, employing the wrong individuals will have a negative impact on the organisation (Baron & Agustina, 2018). The more reason human resource managers involved in the hiring process must take the time to select the best for their organisation. Human resource managers face challenges in the recruitment and selection process when they are employing electrical engineering graduates (Zinyemba, 2014), as presented in this section.

5.3.1 Nepotism

At times, management members use their position to influence the recruitment and selection process. As a result, the purpose of the recruitment might be compromised when unqualified job seekers are employed because of the forces of nepotism. These unqualified job seekers could get undue advantage because of their religion, tribal lines, and business connection with the top hierarchy of the companies. When this happens, unqualified electrical engineering graduates are employed as junior staff members. This has a strong negative impact on the performance of the company. Interviewees argued that nepotism, that is, "whom, you know", plays a crucial role and can be very effective, at least from the unqualified applicants' point of view regarding recruiting and selection. They stated that nepotism is unethical, which could affect the performance of the organisations. Sometimes they do not have control over the situation as highly regarded staff members might be influencing the recruitment and selection processes. Interviewees

stated that ethnic nepotism is most dominant, though there are other form such as religious and business association nepotism.

According to one of the interviewees:

“We had a situation some years back that affected the organization; someone got recruited because of ethnic and business association, even though the person did not meet the criteria we needed. So, it led to under-performance and cost to the organization” (Resource person 2).

5.3.2 Impersonation

Impersonation is the act of intentionally imitating another person's traits and characteristics. In the framework of this study it refers to the likelihood of job seekers forging certificates to apply for jobs. This could mislead the organisations in the sense of that they employ the wrong, that is, unqualified personnel(s). That is why organisations must do background checks on applicants before they are given appointment letters. In this study, interviewees doubted impersonation as a challenge in the recruitment and selection process.

“It is possible to impersonate, but in electrical engineering and the type of interviews, practical tests, and background checks we do, it will be challenging to impersonate. It could be a challenge somewhere, but in electrical engineering, I have my doubts” (Resource person 1).

5.3.3 High recruitment and selection costs

Interviewees agreed that high recruitment and selection costs are a necessary evil. To get the best pool of potential employees' extensive advertisement, especially in the newspapers, must be embarked on to reach a large audience. This comes with a cost as illustrated by the following quotes:

“I think recruitment and selection costs are necessary as it helps get the right personnel for the job; however, it becomes real costly if poor recruitment is done as it will impact negatively on the organization” (Resource person 1).

“The issue of huge recruitment and selection costs is a planned human resource activity, and it is factored in the cost of the organisation once vacancies are identified and need to be filled. However, the real challenge and cost come when labour turnover sets in after a year or two, with

most newly employed leaving. That is when the organisation loses and has to recruit and select again” (Resource person 4).

5.4 Summary of the Findings

To achieve improved company productivity with technology and equipment often requires qualified employees as a source of competitiveness. Graduates of electrical engineering programs at universities must have a highly specialised and customised skill set to handle complex concepts and use relevant theories. Again, they must understand how to apply them to real-life projects and work (Nasir et al., 2011).

Overall, interviewees were of the view that electrical engineering graduates need to have hard or technical skills. Technical skills include expertise or technical competence, both engineering and technically related to the workforce. Using tools, work-related equipment, and every technical matter is associated with technical (or hard) skills" (Nasir et al., 2011). It was realised that the type of expected of electrical engineering graduates includes a solid understanding of basic circuit designs and basic coding skills. The study showed that most of these graduates are inexperienced. At the same time, they showed excellent technical know-how, especially with the theoretical aspects (Jonck & Jonck, 2014). The study further showed that, according to the interviewees, electrical engineer ring graduates are good team players, have communication skills, problem-solving skills, and co-operate with others at all levels in the case of non-technical or soft skills.

To assess both the technical and non-technical capabilities, most of the selected organisations put in place aptitude and achievement tests to evaluate the abilities of engineering graduates (Devins & Hogarth, 2005). These activities help test and assess the technical and non-technical abilities of graduates seeking jobs. Generally, most electrical engineering graduates show that they have difficulty applying theoretical knowledge in the field of work.

The recruitment and selection process are meant to discover, develop, search for, and attract individuals to fill actual and/or expected employment vacancies (Gamage, 2014). It has three general aims: to fill vacancies, acquire new skills for the organisation, and enable corporate development. However, if the recruiting and selection practices are ineffective and not consistent,

the potential electrical engineering employees and the organisation may be affected (Baron & Agustina, 2018).

Finally, the findings of the study showed that despite the critical role of recruitment and selection in organisations, they are faced in practice with some challenges (Zinyemba, 2014). Among the challenges raised were the high cost of recruitment and selection, and nepotism (Yaro, 2014), while the interviewees agreed that the threat of impersonation in the recruitment process is highly unlikely.

CHAPTER 6: Discussions

6.0 Introduction

This chapter provides a discussion based on each research question of the study. Finally, results are discussed, drawing on relevant literature and theories on the skills expected of engineering graduates by employers, criteria of the recruitment, and recruitment challenges.

6.1 The Skills Expected of Engineering Graduates by Employers

The first research question sought after to find out the skills expected of electrical engineering graduates by employers. The findings of the study indicate that employers require two primary sets of skills from electrical engineering graduates, that is, technical and non-technical skills. Technical skills are basic knowledge of any work in any industry. Hard or technical skills include a body of knowledge that electrical engineering graduates need to have to execute the tasks given to them in their workplaces. This is the practical knowledge as electrical engineering graduates can apply what they have been taught in a real-life situation like their workplaces.

The employers are looking for engineering graduates who have, for example, good knowledge about basic circuit designs and coding skills. This is related to professional expertise, a tenet of the model by Humbury and Van der Velder (2013). The employers mentioned the design of the circuit (the simple circuit), which is a complete electrical system found within an integrated circuit whose design process can be operationalised or executed by one electrical engineering graduate. In this case, the employers expect the electrical engineering graduates to know about designing circuit designs. Without enough theoretical knowledge, how can the electrical engineering employee contribute to the success of the medium and small industries in the private sector in Kumasi metropolitan in the Ashanti region? The interviewees stated that some electrical engineering graduates might have professional knowledge about some aspects of electrical engineering, but some cannot apply the knowledge. In circuit design, electrical engineering graduates are expected to synthesise what is on paper into real life. However, some of the electrical engineering graduates are unable to create schematic circuit diagrams in real life.

For electrical engineering graduates to succeed in their search for jobs, they need to have good technical knowledge about electrical engineering. Electrical engineering applicants can stand

a better chance of getting employed when they have both soft skills and technical knowledge of electrical engineering. The synergies of technical and non-technical skills of electrical engineering applicants are attractive to employers of medium and small industries in the private sector in the Kumasi metropolitan. Based on the interviewees' views, soft or non-technical skills like communication skills, problem-solving skills, being cooperative, and good team worker are very useful to enhance the performances of the medium and small scale companies in the private sector in the Kumasi metropolitan area. This view is in line with the signalling theory, which discusses abilities and skills that any individual, such as engineering graduates, acquire through investment in education that enhances potential income earning.

For every industry to succeed, there should be good communication between employees. Based on the interviewees' views concerning the six-trend model by Humburg and Van der Velden (2013), electrical engineering graduates must have good communication skills. The employers, that is, the interviewees from the medium and small-scale companies in the private sector in Kumasi metropolitan area, mentioned that electrical engineering graduates must put their thoughts into words. They must communicate very well with colleagues and non-technical people, such as clients from private companies and government agencies. Like one industry that is into electric installation, sales of power cables, service, and maintenance of electrical gadgets, there are all kinds of people who do business with that industry. In addition, electrical engineering employees are expected to communicate very well with the customers. That is, the customers must be able to understand what the electrical engineers said to them. It could be advice or recommendations. Electrical engineering graduates must interpret their knowledge into plain words that clients can understand. Electrical engineering graduates must also be prepared to produce a proposal of circuit design to meet the customers' specification. They must convert the electrical engineering languages into plain words that are understandable to the customers. This could help enhance the performance of the medium and small-scale companies if the customers are satisfied with the services of the industries. In addition, electrical engineering graduates must have good communication skills as junior staff members for interacting effectively with their colleagues. They are expected to be clear, effective in their communication through phone calls and mails, as mentioned by interviewees. This helps in executing their tasks very effectively and efficiently.

In the daily activities of medium and small-scale companies in the private sector in the Kumasi metropolitan area, workers are challenged with new and unanticipated situations. It could be a project or new customer. When this happens, electrical engineering graduates are expected to provide solutions to problems. The decisions that they will make have an impact on the performance of the medium and small-scale companies where they are employed. They can be tasked to perform duties either in the office or outside the office. Such duties might come with problems or challenges. They must be able to identify the problem and provide possible ways to deal with it. The complexities of the problem require electrical engineering graduates to find solutions to the problem. The employers stated that electrical engineering graduates must be able to provide possible alternatives. This is related to the interpersonal skills posited by the six-trend model by Humburg and Van der Velden (2013). Electrical engineering graduates are expected to think deeply and develop new approaches addressing the problem. Having achieved that, they must successfully implement the preferred new approach. As mentioned by interviewees, once, for example, a circuit is designed, it must be tested and verified. A problem may be identified when testing and verifying the circuit. Then employers expect electrical engineering graduates to fix the problem, which is likely to have an amount of the design to be done again. Electrical engineering job applicants must have problem solving skills which can enhance and move the business of the involved company forward successfully. It is a skill that employers expected from electrical engineering graduates, and it is in line with the signaling theory.

Again, employers expect engineering graduates to be good team players and cooperative, which the six-trend model per the interpersonal skills posits by Humburg and Van der Velden (2013). This is argued by signalling theory, which discusses abilities and skills that any individual, like engineering graduates, acquire through investment in education that enhances potential income earning. Due to the diverse cultural and linguistic situation and aspects that can be identified within the medium and small scale companies in Kumasi metropolitan area, employers expect engineering graduates to be employed as junior staff members, be cooperative, and be good team workers. Electrical engineering graduates will be working with colleagues and clients who have different linguistic and cultural backgrounds. They must be cooperative when they are working as a team member. This is because vast differences in culture can lead to conflicts among

colleagues, and with clients. Electrical engineering graduates are expected to settle any misunderstanding with colleagues in their team. The views of other colleagues must not be maligned due to cultural or linguistic differences. More so, electrical engineering graduates must cooperate with colleagues in the workplace. It creates a good working environment, which can enhance the productivity of the medium and small-scale companies in the private sector in Kumasi metropolitan area in the Ashanti region. Lastly, electrical engineering graduates are expected to know computer technology, as stated by interviewees. It is in accordance with the introduction of Information and Communication Technology (ICT) captured by the six-trend model by Humburg and Van der Velden (2013).

Concerning the six-trend model by Humburg and Van der Velden (2013), not all the six trends were applicable in this study. While mobilisation of human resources, professional expertise, and international orientation are observed in the expected skills of medium and small-scale companies involved in this study, flexibility and entrepreneurship were less applicable in this context.

6.2 Criteria for the Recruitment and Selection Process

Medium and small-scale companies across various sectors (financial services, engineering, high-quality technology, pharmaceuticals) have recruitment and selection processes (Affum-Osei et al., 2019) in the Kumasi metropolitan area. Their recruitment and selection processes guide these medium and small-scale companies to employ the best engineering graduate in Kumasi metropolitan in the Ashanti region. Also, because engineering graduates are increasingly important in driving competitive advantages, selection errors could cause disastrous consequences for organisational success and survival (Kaplan and Norton, 2004). In medium and small-scale companies, engineering graduates must compete effectively and create competitive advantages in their given market spaces. In addition, they must help their organisations respond to future unknown challenges by having the required combination of skills, aptitudes, motivations, and competences. In the Kumasi metropolitan area, recruitment and selection for these companies have become vital tools for ensuring they have the personnel they need to realise their organisational strategy (Gamage, 2014).

The recruitment and selection processes within the selected medium and small-scale companies are carefully planned. They are aimed at selecting the best engineering graduates of Kwame Nkrumah University of Science and Technology and Kumasi Technical University who can contribute to the development of the organisation. The medium and small-scale companies in the private sector analyse jobs to find the areas in which vacancies exist or where workers are needed. They then advertise their vacancies in the printed media, that is, newspapers and flyers with the electronic media, other medium and small industries contract television and radio stations to advertise job vacancies of their industries. The websites of the medium and small-scale companies are also used. The advertisements address the type of work, the description of the role, personal detail detailing the individual or individual's minimum acceptable qualification (Carroll et al., 1999). Finally, advertising is followed by the job for interested engineering graduates to apply.

In connection to Rohini and Keerthika (2018) analytical framework, the input from the interviewees show that after advertisement, there is the selection interview, which is an essential activity in recruitment and selection processes. It is conducted to test the suitability of the engineering graduates who applied as junior staff members. The curriculum vitae of every engineering graduate is reviewed. Engineering graduates are made to provide their educational qualifications which signal their potential productivity to the companies in question. This is in accordance with the signalling theory. The educational credentials help employers appraise the engineering graduates' actual value of being hired as junior staff members. The curriculum vitae and other relevant documents submitted by engineering graduates are screened. With the reference to the analytical framework of Rohini and Keerthika (2018), the selection interview and selection process are done separately. However, in the case of medium and small-scale companies in the private sector in the Kumasi metropolitan area, the selection interview and selection process are merged into one stage of recruitment.

Based on the views from the interviewees and in relation to the analytical framework of Rohini and Keerthika (2018), it is realised that the involved companies use in the recruitment and selection of job-applying electrical engineering graduates at least one form of tests. Electrical engineering graduates are made to do either aptitude or achievement test. Referring to the

analytical framework of Rohini and Keerthika (2018), it is stated that the aptitude test is a test conducted to measure the likely attribute needed to accomplish a task. It is to find out the basic knowledge of potential employees. It is ideal for engineering graduates who have no idea about the line of work. An achievement test is used to measure how well engineering graduates know what they claim to have accomplished. In the context of the Kumasi metropolitan area, indicators such as intelligence test, ability, and personality test identified in the analytical framework of Rohini and Keerthika (2018) were unused. However, they could be used in different disciplines, regions, or sectors.

Background checks were conducted on electrical engineering job applicants to be employed as junior staff members. A recruitment decision was made during the selection test and selection interview. At this stage, the employer had come to the conclusion that relevant qualifications, qualities and talents of engineering graduates who applied to be junior staff members had been identified. This is in line with the signalling theory.

The selected engineering graduates who successfully passed the selection test and selection interview were made to go for medical exams before they were given an appointment letter, which is in line with the analytical framework of Rohini and Keerthika (2018).

6.3 Challenges of the Recruitment and Selection Processes

Human resources managers and recruiters are faced with lots of challenges in recruitment and selection processes. When the hiring process is affected by specific challenges, it can lead to poor recruitment, high costs and negatively impacts the organisation. On the other hand, when the right calibre of employees is selected for the organisation, it can be expected to lead to competitive advantages and positively impacts on the organisation.

Among the challenges raised in the study is nepotism, which is also referred to as "whom you know" (Zinyemba, 2014). This is where, for example, the company management uses its power or position to influence the selection of someone who is affiliated to the management, ethnically, religiously or through a business connection. Based on the views of the interviewees, it can be argued that nepotism is a challenge to the recruitment and selection (Mdletye & Hlongwane, 2019) of electrical engineering graduates in the Kumasi metropolitan area by the

involved companies. Nepotism is an unethical challenge, as stated by interviewees. When recruited, electrical engineering graduates have suitable qualification. Therefore, it can help in the growth of the organisation (Kaplan & Norton, 2004). However, when unqualified electrical engineering applicants are recruited due to nepotism, which contradicts Weber's theory of bureaucracy, it could be a challenge to the productivity of the company in question. In line with the bureaucracy theory by Max Weber and posited by interviewees, in that case competence has been compromised due to nepotism (Affum-Osei et al., 2019). The most dominant aspect of nepotism is ethnic nepotism. In the Kumasi metropolitan area, workers in the medium and small-scale companies sometimes use their position and power to influence the selection of electrical engineering applicants who are their ethnic members. Electrical engineering graduates who are ethnically related to power are in such a case selected over non-ethnic members. This implies that priority is not given to competence. Ethnic nepotism can entail cultural and linguistic relations. Ethnic nepotism is a challenge because the Kumasi metropolitan area is a city with many cultural, racial, and linguistic differences. Many electrical engineering graduates have applied for few vacancies as junior staff members. In some cases, people start to lobby for electrical engineering graduates who are their family members. This is driven by the fact that there are few employment opportunities. The other aspect is nepotism induced by religious affiliations. Interviewees mentioned that people working in their companies make attempts to influence the recruitment and selection processes. They want electrical engineering graduates to be recruited with whom they share the same religious faith. Kumasi metropolitan area is a city with different religious faith spanning from the three main religious types in Ghana: Christianity, Islamic, and traditional ways of worshipping. The interviewees also mentioned business affiliation. Some electrical engineering graduates are chosen because their family has business ties (Zinyemba, 2014) with the organisation where they applied for a job as junior staff members.

The recruitment and selection processes in this study focused on aim to employ the most qualified electrical engineering graduates who have applied for jobs as junior staff members (Gamage, 2014). Choosing the wrong electrical engineering graduates has a negative impact on the performance of the involved companies. This means that the companies in question might have to go through the recruitment and selection process again to employ the best electrical engineering

graduate. Impersonation can lead to hiring the wrong people (Mdletye & Hlongwane, 2019). Interviewees stated that there are only a few cases in their organisation where impersonation was detected. Interviewees agreed that in those few cases, based on the background checks done, it was detected that some electrical engineering graduates used other peoples' educational qualifications to apply. Such electrical engineering applicants have completed their studies, but they did not perform in a way that would lead to becoming employed by one of the companies involved in this study. This is a rare case, though, but some electrical engineering graduates use the certificates of others because they have the same names as the owner of the certificates. As stated by the interviewees, the screening of the applicants and background checks help to identify the authenticity of the educational qualifications and other relevant documents presented by every electrical engineering applicants. Achievement and ability tests expose electrical engineering graduates who impersonated. Some of the interviewees posited that they verify the educational certificates from the universities. The selection interview also helped the medium and small-scale companies to prevent the case of hiring imposters as junior staff members. The interviewees stated that due to the rigorous recruitment and selection processes and specific technical features of electrical engineering, it is challenging for electrical engineering applicants to impersonate.

The costs of recruiting and selecting new employees was also seen as a challenging issue by interviewees. The involved companies invest a large amount of resources in their recruitment and selection processes. An important part of the recruitment and selection processes is formed by the job advertisement. Not only does job advertisement entails the job description, but it also enhances the popularity and employment brand of the company in question. Newspapers, websites of the companies, and television and radio stations are used for advertising vacant jobs. Large sums of money are paid to the newspapers, television, and radio stations to announce the vacant jobs to the public. Television advertisement, which is the most expensive avenue to advertise, is a significant challenge to the companies, as mentioned by the interviewees (Zinyemba, 2014). These sources of advertisement aim at increasing listenership and readership so that potential electrical engineering graduates can apply. Interviewees opined that the quality of the advertisement is important for attracting the best electrical engineering graduates to apply. Therefore, the best newspapers, television, and radio stations are hired to run the job

advertisement. Extra costs could be incurred if the best electrical engineering graduates are not attracted. This means that the companies must pay additional money to, for example, printed and electronic media to advertise again. Recruitment and selection processes could be unsuccessful if the best electrical engineering graduates do not apply. Interviewees agreed that when newly recruited electrical engineering graduates perform very well, the issue of high costs is not important. However, if they are unable to perform at the expected level, it could lead to high labour turn over.

The bureaucracy theory of Max Weber could only be used for examining the issue of nepotism in the context of the involved companies in the Kumasi metropolitan area. The bureaucracy theory could not examine the costs of recruitment and impersonation.

CHAPTER 7: Conclusion

7.0 Introduction

This chapter concludes the study by examining how the research questions were answered concerning the data analysis and its findings. It also presents the limitations and recommendations for further research on the topic.

7.1 Answers to Research Questions

Answers to each research question can be summarised based on data collection and analysis as follows:

1. What are the skills employers in Ghana expect from engineering graduates?

The key skills employers require or expect from (electrical) engineering graduates are technical and non-technical skills. Electrical engineering graduates must, for example, have a solid understanding of basic circuit design. They must be able to apply their theoretical knowledge at the workplace. Employers expect engineering applicants to have non-technical skills such as communication skills, problem-solving, cooperative skills, and teamwork as captured by the six trends model of Humburg and Van der Velden (2013) to complement the such as professional expertise as non-technical skills are general skills. The synergies of technical and non-technical skills are important because soft or non-technical skills are not specific to a particular job.

2. What are the main criteria used in the recruitment and selection process of engineering graduates in Ghana?

The criteria used in the recruitment and selection processes of engineering graduates by the selected companies were almost similar. The findings revealed that medium and small-scale companies in the Kumasi metropolitan area screen applicants using various tests such as interviews, medical exams, and checks. These processes were in line with the analytical framework of Rohini and Keerthika (2018) and signalling theory. The analytical framework of Rohini and Keerthika (2018) also showed the legal obligations of employers to do background works for applicants or recruits. All the five companies involved do background checks of potential recruits at the various stages of recruitment before making a choice on which applicant to offer

employment. Screening involves looking at the various CVs and selecting the best ones. The most common selection process consists of selection tests and selection interviews. The tests include achievement tests and aptitude tests.

3. What are the main challenges that employers that want to recruit engineering graduates face in Ghana?

Despite the importance of the recruitment and selection processes in the involved companies, the findings showed that they faced some serious challenges in these processes. Among the challenges faced is nepotism, referred to as "whom you know". This is when staff in the involved companies use their position of power to influence the recruitment and selection processes. This could either be positive or negative to the organisation, depending on the calibre of the individual employed. Another challenge is the issue of the costs of the recruitment and selection processes. Though expensive, these processes are necessary if the involved companies are to achieve their aims and goals.

7.2 Limitations

The findings of this study should be reviewed or discussed in the context of the following limitations.

Firstly, empirically, the thesis focuses on only one out of the sixteen regions in Ghana. Furthermore, the focus was on Kumasi metropolitan area in the Ashanti region. This could lead to limited generalisability options.

Secondly, five medium and small-scale companies were selected for involvement in the study. Consequently, in the interpretation of the data, the findings may not apply to large-scale industries found outside the jurisdiction of Kumasi metropolitan area in the Ashanti region.

Thirdly, the five medium and small companies are found in the private sector. Nevertheless, there are also engineers working in the public sector. This can affect the transferability of the findings of the study.

Fourthly, the focus is only on electrical engineering university graduates in Kumasi metropolitan area. Graduates from all the other disciplines are not included in the study.

Furthermore, the only two public higher education institutions in the Kumasi metropolitan area in the Ashanti region are used in the study. Private universities' graduates are not included in the study.

A limitation in the research methodology is the sample size. A total of five participants were interviewed for this study. This small sample size poses a limitation for the transferability of the study's findings to other contexts.

Personally, the author tried to solicit information from the electrical engineering department of Kwame Nkrumah University of Science and Technology and Kumasi Technical University about student enrolment, graduation, and dropout rate of students but was not allowed to do so. If the necessary assistance has been given from the relevant departments of Kwame Nkrumah University of Science and Technology and Kumasi Technical University, very much detailed information could have been collected to enhance the study.

Lastly, this is Ghana, a lower middle-income country and public statistics are not as reliable and available compared to high-income countries where one can find detailed statistics on electrical engineering graduates and students. But this is a difficulty in Ghana. The focus on Ghana has limitations.

7.3 Suggestions for Future Research

Based on the findings and conclusions of this study, there are several potential directions for future research in this area.

It is suggested that the population size, the number of organisations, and academic areas should be widened to cover more institutions, more extensive areas with lots of respondents, to draw a much better picture and conclusion.

Graduate and undergraduate electrical engineering students could also be targeted to solicit their views on prospects of electrical engineering and other graduates in the job market and their place in the Ghanaian economy.

7.4 Concluding Remarks

An organisation must systematically and continuously analysed by an organization in the context of changing conditions and for developing staff policies suitable for the organisation's longer-term efficiency. It will also guarantee that plans are made for the recruitment and commitment of employees in the present and the future that are necessary, optimal, and of quality. Human resource planning of private companies and public sector organisations guarantees that persons with the right skills, expertise, and competences are attracted and retained (Gamage, 2014). The problem of possible surpluses or human deficits can in that case be expected.

Employers are looking for both hard and soft skills among job applicants (Al-Kassem, 2017). The hard skills from the study include basic knowledge of circuits and being technically up to date with coding skills. The study further revealed that potential graduate employees are assessed on their technical skills using several methods such as interviews and tests to get the best out of the recruits. Interviewees also reiterated that the recruitment and selection processes are carefully planned and systematic. The selected companies use national service personnel, referrals and, their websites to attract potential employees.

Another concern shown by interviewees, which formed the final objective of the study, was the challenges faced in the recruitment and selection processes. The point that caught the attention of interviewees was the issue of "whom you know" (Yaro, 2014). According to interviewees, "whom you know" or nepotism is one issue that can influence the recruitment and selection processes in companies and public sector organisations. It could either impact positively or negatively on organisations, depending on the calibre of individuals hired. Those with the requisite qualifications and experience can contribute positively and vice versa. This, as a result, leads to the question of the costs of recruitment if those who are employed are unable to deliver after being hired. When this happens, the company loses and incurs costs. Another challenge that leads to costs is labour turnover within organisations. When recruits or hired employees leave their jobs after a short period, it creates a considerable burden for organisations, as new employees must be employed through the recruitment and selection process, which involves money. Finally, impersonation was believed to be a potential challenge (Zinyemba, 2014), but interviewees

admitted that this is difficult in the electrical engineering field because of the selection process, which involves interviews, practical tests, and background checks.

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Appendix A: Recruitment history of selected companies

Small and medium-scale companies play key roles in the economic development of both developed and developing countries, of which the Ashanti region of Ghana is no exception. They contribute to the growth of national gross domestic products. They help in creating jobs for the people, bringing innovative ideas and skill development. Small and medium-scale companies play a vital role in the socio-economic development of the Ashanti region of Ghana. They provide goods and services, taxes, and revenue creation. Again, they support economic growth, livelihoods, social stability, and economic diversity. Therefore, they are seen to be an economic entity.

All the five human resource managers from medium and small-scale companies in the private sector can be found in the Kumasi metropolitan area in the Ashanti region of Ghana. They have contributed to the socio-economic development of the Ashanti region. They have created jobs for many people, including the engineering graduates of Kwame Nkrumah University of Science and Technology and Kumasi Technical University. Below are the data collected from the field about the history, activities, products, and services and the recruitment number of electrical engineering graduates of each company. In this study, the focus is on electrical engineering graduates who apply for jobs as junior staff members in these selected companies. It is must be reiterated that organisations and companies are used interchangeably.

PALMERS GREEN INTERNATIONAL LIMITED

Palmers Green International Limited is a privately owned company established in 1995. It has a current staff of about 900 employees, made up of all headquarters and associate companies. Civil engineering, procurement, and supply of electrical equipment and accessories and provide installation and commissioning services to private and government-owned organisations in Ghana and West Africa. The firm is then focused on strategic partnership with business-minded organisations that are more predominantly into civil and electrification works and require assistance in various capacities. The company's headquarters is in Accra, Ghana.

Recruitment History

Year	No. of Electrical Engineers Employed	Retrenchment/left
2016	47	6
2017	32	3
2018	21	13
2019	41	7
2020	none (due to covid-19)	47

Source: Fieldnotes, 2021

BOS ENGINEERING GHANA LIMITED

BOS Engineering was established in 2017 as a safety and engineering company in Tema, Ghana. It is a 100% owned Ghanaian company and operates oil and gas, marine, procurement, and engineering. In 2018, the headquarters was moved from Tema to Takoradi to aid the company implement innovative ways and best ideas to serve their clients.

Recruitment History

Year	No. of Electrical Engineers Employed	Retrenchment/left
2017	19	7
2018	27	7
2019	16	9
2020	none	21

Source: Fieldnotes, 2021

WILKINS ENGINEERING LIMITED

Wilkins Engineering Limited is a Ghanaian organisation with over 25 years of experience in engineering services in Ghana and Sub-Saharan Africa. Services provided include grid extension services, including, but not limited to, design and construction of sub-transmission network, power distribution service connection, and substations. Clients include both private and government agencies. The organisation has a staff strength of about 500.

Recruitment History

Year	No. of Electrical Engineers Employed	Retrenchment/left
2017	36	11
2018	29	0
2019	17	9
2020	none	19

Source: Fieldnotes, 2021

MASTERMIND ELECTRICAL SOLUTIONS

Mastermind electrical solutions was set up in Kumasi and has been in operation since 2012; and is one of the most experienced and well-known electrical contractors in Ghana. Mastermind electrical solutions is a fully committed, professional, and affordable electrical service. They are into electrical works, from design and consultation to commissioning for clients in the domestic and commercial sectors. The company has a staff strength of 120.

Recruitment History

Year	No. of Electrical Engineers Employed	Retrenchment/left
2012	47	19
2013	21	9
2014	17	5
2015	36	2
2016	13	11
2017	6	5
2018	20	12
2019	None	9
2020	None	29

Source: Fieldnotes, 2021

POWER & CO ENGINEERING LIMITED

Power & Co Engineering Limited is a retailer and maintenance provider in Ghana for Perkins engine-powered electric generators (GENSETS) since 2002. They provide electrical engineering, installation, and sale electrical accessories from transformers and power cables. Power & Co also offers preventive maintenance contracts and a consistent supply of genuine spare parts, backed by after-sale service and support. Power & Co has a staff strength of about 150.

Recruitment History

Year	No. of Electrical Engineers Employed	Retrenchment/left
2017	33	5
2018	14	11
201	19	3
2020	4	2

Source: Fieldnotes, 2021

Appendix B: Interview guide

Background questions

- Can you briefly describe your company?
- How many years have you been working in the company?
- What are your expectations as the HR of the company?
- Have your expectations been met?
- How long have you been involved in the recruitment and selection process of the company?

Questions related to specific skills, knowledge, and practical competence

- What knowledge is expected of graduate electrical engineering graduates?
- What kind of technical skills do you look for in electrical engineering graduates seeking employment?
- What kind of non-technical skills do you look for in electrical engineering graduates seeking employment?
- Do you think practical skills are relevant to your company?
- What do you think about the experience of electrical engineering graduates?
- To what extent do electrical engineering graduates perform at your company?
- What can be done to enhance the performance of newly recruited electrical engineering graduates?

Questions related to the criteria for the recruitment and selection

- Do you have a recruitment and selection policy at your companies?

If, yes, briefly state the policy.....

- Who is responsible for recruitment and selection at your company?
- What type of recruitment does your company engage in?
- Does your company advertise vacancies for employment?

If yes, how does your company advertise?

- Does your institution outline job analysis (i.e. Duties, Responsibilities, Skills, Etc., required for a particular job)?
- Related to the above question...Why is it necessary to outline job analysis?
- Which recruitment and selection methods do you conduct on applicants before you offer them an appointment?
- Which methods of recruitment apply to your company?
- Which methods of recruitment are not applicable in your company?
- Why is it not applicable?

Questions related to challenges associated with recruitment and selection process

- Does wrong recruitment have an impact on the performance of the company?
- Does the company face issue with impersonation? If yes, how does the company address it?
- Do nepotism and favouritism affect the selection process?
- Does the company face any competitor(s) in the hiring of electrical engineering graduates?
- Does the location of the company have an impact on the recruitment and selection process?
- Is there anything else you would like to add?

Appendix C: Information letter and consent form

Are you interested in taking part in this research project?

THE RECRUITMENT AND SELECTION PROCESS OF ENGINEERING GRADUATES: EVIDENCE FROM KUMASI METROPOLITAN AREA IN THE ASHANTI REGION OF GHANA.

This is an inquiry about participation in a research project. The primary purpose is to identify human resource managers' views on the recruitment and selection process of electrical engineering graduates in the Kumasi metropolitan area in the Ashanti region of Ghana. In this letter, I will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

This project aims to fulfil the requirements towards a master's degree in higher education at the Department of Education of the University of Oslo. I will conduct a thesis project that seeks to investigate the views of human resource managers on the recruitment and selection process of electrical engineering graduates.

The purpose of this study is to solicit views on the following question:

1. Expected skills of the engineering graduates by employers,
2. What are the criteria of the recruitment and selection process?
3. What challenges employers face when hiring electrical engineering graduates.

I will conduct a telephone interview with five human resource managers. The information gathered will be vital for addressing the challenges of conducting the recruitment and selection process of electrical engineering graduates in Kumasi metro in the Ashanti region of Ghana. The data collected will only be used for this master's thesis project. I sincerely hope that you are willing to contribute to the study and share your opinion.

Who is responsible for the research project?

The University of Oslo is the institution responsible for the project.

Why are you being asked to participate?

You are being asked to participate because you are the human resource manager involved in the recruitment and selection process of electrical engineering graduates in your company. This study solicits views on the required skills of electrical engineering graduates, the recruitment and selection process criteria, and the challenges faced by employers when hiring electrical engineering graduates.

What does participation involve for you?

The in-depth, semi-structured interviews with human resource managers are used to collect data on the recruitment and selection process of electrical engineering graduates in the Kumasi metropolitan area in the Ashanti region of Ghana. The questions in the interview are open-ended and encompass the required skills of the electrical engineering graduates, the criteria for the recruitment and selection, and the challenges faced by employers when hiring electrical engineering graduates. The interview will be recorded with a smartphone. The interview will be conducted in the English language.

Participation is voluntary

Participation in the project is voluntary. If you choose to participate, you can withdraw your consent at any time without giving a reason. Therefore, there will be no negative consequences if you choose not to participate or later decide to withdraw.

Your privacy - how we will store and use your data

I will only use your data for the purpose specified in this information letter for the master's thesis project. I will process your data confidentiality (the General Data Protection Regulation and Personal Data Act, GDPR) and follow the UIO's data guidelines and procedures based on GDPR legislation.

I will personally transcribe the interviews. During the transcription, I will assign your name with a code. The names and the corresponding codes will be stored separately from the rest of the collected data. The information will be stored on UIO's protected server for the duration of the

study and will be deleted at the end of the study. The data will be de-identified. Only my master's thesis supervisor will have access to the anonymised data after transcription. A copy of the completed thesis will be to The Norwegian Agency for Quality Assurance in Education (NOKUT). No personal information will be published. Participants will not be recognisable in the thesis.

What will happen to your data at the end of the research project?

The project is scheduled to end on May 30, 2021. The personal data, including phone recordings, will be deleted at the end of the project.

Your rights

So long as you can be identified in the collected data, you have the right to:

- Access the person that is being processed about you
- Ask for the deletion of your data
- Demand that incorrect personal data about you is corrected/rectified
- Receive a copy of your data (data portability), and
- Send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority on the processing of your data

What gives us the right to have your data?

I will process your data based on your consent.

Based on an agreement with the University of Oslo Department of Education NSD, – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is per data protection legislation.

Where can I find out more?

If you have questions about the project or want to exercise your rights, contact:
The University of Oslo, Department of Education

Student:

Lord Adu Boahene email: lorda@student.uv.uio.no telephone: +47 48 665050

Supervisor

Peter Maassen, email: peter.maassen@iped.uio.no

Yours sincerely,

Lord Adu Boahene

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Consent form

I have received and understood information about the project, Recruitment and Selection Process of Electrical Engineering Graduates in the Kumasi Metropolitan area in the Ashanti region of Ghana would have the opportunity to ask questions. Therefore, I consent to participate in a telephone interview and for my data to be processed until the project's end date approx. May 2021.

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(Signed by participant, date)