EFFECT OF FORENSIC DOCUMENT EXAMINATION KNOWLEDGE ON TRAVEL DOCUMENT FRAUD DETECTION – A CASE OF JOMO KENYATTA INTERNATIONAL AIRPORT

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DECLARATION

This research project report is my original work and has never been presented for an award of diploma in this or any other university.

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This research project has been submitted for examination with my approval as the University Supervisor

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DEDICATION

To my family; my wife Gamar together with my lovely children Halimat, Haulat, Hussein and Hannan for the support and encouragement they have showed me during the difficult moments encountered during the preparation of this research project.

Thank you so much for your care and support.

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I am grateful to God for the strength He has given me to complete this research. I thank my supervisor Mr. George Awili for the great role he played in guiding me into making this research study a success. I wish to thank my friends for the moral support throughout the challenges faced while undertaking this task. Finally I need to recognise my family especially my wife for their unconditional support, care and understanding during the period of my study.

God bless you all

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ABBREVIATIONS AND ACRONYMS

CS: Cabinet Secretary

DIS: Document Inspection System

FDE: Forensic Document Examination

IOM: International Organization for Migration

IR: Infra Red

JKIA: Jomo Kenyatta International Airport

UNDOC: United Nations Office on Drugs and Crime

UNESCO: United Nation Educational, Scientific and Cultural Organization

UV: Ultra Violet

ABSTRACT

Fraud and use of counterfeit documents to cross borders has become common and consequently a big threat to border control and national security. The study focused on the effect of forensic document examination on travel document fraud detection – a case of Jomo Kenyatta International Airport (JKIA). The main objective of the study was to determine the effect of forensic document examination knowledge on travel document fraud detection practices at JKIA. Research questions asked on the fraud detection techniques deployed, the level of forensic document examination literacy and the influence it has on fraud detection on travel document. The study design adopted a case study. Sixty eighty (68) officers were randomly sampled from two hundred (200) immigration officers working at JKIA. Data were collected using close ended questionnaire which was then quantitatively analysed, summerized and presented with the help of computer packages. The study found that all the immigration officers at JKIA are literate with a minimum qualification of an undergraduate degree and have attained at least the basic document examination level qualification. The study found that work experience, level of training, travel document literacy and the use of documents manuals at work play a great role in travel document fraud detection and improves border management and control. The study concluded that forensic document examination has a positive impact on travel document fraud detection and it is necessary for officers to acquire it before deployment. Forgeries and counterfeits were found to be the most common forms of fraud that are encoutered at JKIA and profiling method the most succefull technique in countering and detecting travel document fraud. For policy, the study recommends that the government under the Directorate of Immigration Services (DIS) formulate policies to address the need for forensic document examination training to officers before deployment. For practice, the management need to ensure adequate provision of up-to-date document examination manuals/document brochures to the officers at their work stations and enforce regular in-house trainings and seminars. The study was limited to one stakeholder (immigration officers) at JKIA wich is not the practice in the government, multi agengencies approach.   The study was limited to JKIA only and its findings cannot be generalised for all the border points in the country. For further research, the study recommends an investigation to establish the effect of forensic document examination on travel document fraud detection focusing all the stake holders at JKIA; the impact of different levels of forensic document examination on border management and control; and on how to improve forensic document examination among service providers along border points.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The fraudulent use of identity and travel documents presents a threat to the security of countries and their citizens, the economy, and global commerce, as it facilitates a wide range of crimes and terrorism (INTERPOL, 2017). Governments the world over have policies on national security through border controls. International borders are some of the major channels for transnational crimes, now a booming illegal business worldwide (UNDOC, 2010) Some of the illegal businesses include terrorism, money laundering, cybercrime, human trafficking, smuggling of migrants, trade on protected wildlife trophies, narcotic drugs, fire arms trafficking, trade in small arms, biological weapons and other counterfeits/contrabands goods. According to Piskorski, J. and Gariup, M. (2019), more pressure is asserted on border control officers in determining the authenticity of documents presented to them as a result of increase in the number of travelers, time constraints and complexity of security features in travel documents. Globalization has created avenues for exploiting new technologies to perpetrate transnational crimes in moving goods, services, money and people instantaneously (Stigall 2013). Inadequate information on travel document fraud is available to the public probably due to the sensitivity and confidentiality among states. Forensic document examination knowledge highlights on how international criminals and terrorisits manipulate travel documents to cross borders and cause harm to states. Desimination of such information to unauthorised parties or the general public may cause unrest and securitization in the state.

Fraud and use of counterfeit documents to cross borders has become common and consequently a big threat to border control and national security. The need for forensic document examination knowledge is essential to deter this threat. Forensic document examination can reveal evidence of alterations, obliterations, erasures and page substitutions (Ajana, 2015). Such alterations that are not visible to the naked eye can be detected using technology such as photography, ultra violet (UV) and infrared (IR) imaging devices. According to Reeta et al (2017), modern crime is organized and due to rapid changes in technology and high-tech equipments, criminals are updated and active in producing counterfeit travel documents simulating the original.

JKIA is equiped with a state of the art forensic laboratory to improve travel document fraud detection. Nairobi Airport Immigration Liason (NAIL) team is composed of airport and officers from different Embassies in the country. The officers from the different Embassies are experts in the field of forensic document examination. The major fuction of NAIL team is to exchange document examination knowledge with airport officers to improve fraud detection at the airport. The research aimed to find out how immigration officers at JKIA gain forensic document examination knowledge, fraud detection practices and assess how forensic document examination knowledge affect travel document fraud detection at JKIA.

1.1.1 Forensic Document Examination

Forensic Document Examination (FDE) is a forensic science discipline in which expert examiners evaluate documents disputed in the legal system (Songer, 2015). Forensic document examination is scientific in nature with the main objective of gathering evidence from questionable documents potentially disputed by the handling authority.

Very crucial information can be gathered from questionable documents related to the document holders. Different methods may be used to collect evidence from questioned documents. Evidences may include forgery, authenticity, alterations, damage to the document, legality of the document, or any other suspicions that can be connected to the documents that can be challenged by the concerned authorities.

The main principle of FDE is to determine the authenticity of documents. Examiners determine whether documents are genuine by confirming who created the document, identify the materials used or uncover modifications done by fraudsters (Hilton, 1982). They may also examine for evidence of alterations, obliterations, erasures and page substitutions. According to Durina (2017), document examiners study methods, materials and possible machines that created the original document and compare with the documents in hand providing key information, clues and hints that can identify possible sources of the document fraud. Forensic document examination is a daily practice since the use of documents is part of daily life, investigating the authenticity of documents in situations such as alterations, forgeries, page substitutions, identity theft, photo substitutions, fraud and counterfeiting shall be part and parcel of lifestyle.

1.1.2 Document Examination Knowledge

Document examinations knowledge plays an important role in the criminal justice process. The issue of genuineness of documents presents itself in nearly all forgery prosecutions, kidnappings involving ransom notes, confidence games and embezzlements, and gambling offenses with policy slips. Apart from these, however, question document evidence may occur in nearly every other type of crime as well, including human smuggling, trafficking in humans, money laundering, homicides, thefts,

robberies, arson, burglaries, etc. (Songer, 2015). Every document has physical features and compositions that can be exploited by scientists for the purpose of understanding how and why a document was created, who created it, and whether or not the document can serve as proof that a crime was committed (Clement, 1998; Risi, 1998). Document examiners are educated and trained in the arts and sciences of testing questioned documents for both criminal and civil justice purposes (Jane, 2014).

Document examiners are often called upon to compare typewritten or computer-generated documents, analyze inks, papers and other security features, determine the age of a document, uncover forgeries and fraud and reconstruct charred or obliterated writing. A questioned document is one in which the document in its entirety, or in part, is subject to question as to its authenticity and/or origin. This may refer to any source or authenticity that is in dispute or doubtful in typewriting, signature or in other mark. The different types of questioned documents could include any document having personal or business connotations. It need not necessarily be a 'document' per se. (National Institute of Justice, 2012).

Most Common Questioned Documents include letters, bank cheques, Drivers licenses, contracts, passports, residence cards, tickets, hotel bookings/reservations, visas, identity cards, contracts and many more (Ron, 2000). Cases involving questioned documents include counterfeiting, forgeries, mail fraud, embezzlement, robbery, theft, gambling, homicide etc. The opposite of questionable documents are authentic documents, according to UNDOC (2010), it refers to documents that are incorporated with security features to protect the value of the document.

1.1.3 Document Fraud Detection

Document fraud is an intentional act designed to obtain a financial advantage or an undue service. There are several types of approaches: modifying authentic documents to misrepresent information (by withdrawal, addition, modification of content) or creating false documents. To be as efficient as possible, fraud detection must combine several complementary analysis methods, which together allow an optimal appreciation of the authenticity of the elements (Antonio, 1991). Graphometric image analysis is an innovative technology that enables the detection of copy-paste, deletion or addition of content in an image. On the basis of structural and frequency analysis, it reveals ballistic traces: suspicious zones that are too perfect or too identical or different from the rest of the content.

The metadata analysis of a PDF file, for example, detects the presence or absence of certain elements in the information or structure. The content itself, obtained by OCR reading / barcode / DataMatrix can be compared with repositories such as open data (eg Finess number, RPPS, CCAM, LPP) or validated by a call to a web service (government tax services, partner agencies, INTERPOL etc). Possible; internal consistencies on items such as dates, number of pages, document numbers, invoice number or amounts may present anomalies. According to Antonio, (1991), by automating all these controls, an objective measure of the level of reliability is obtained, as well as the addition of rich information (verified elements, suspicious or anomalies) that provide valuable support for decisions.

Criminals and terrorists often make fraudulent use of both fake and genuine identity and travel documents in order to carry out their illegal activities: False documents include

Counterfeits – an unauthorized reproduction of a genuine document, Forgeries – alteration of a genuine document and Pseudo documents – documents which are not officially recognized. Genuine documents can be missused through identity theft/imposters or by acquiring them fraudulently (INTERPOL, 2017).

1.1.4 Jomo Kenyatta International Airport

Jomo Kenyatta International Airport is an international airport in Nairobi, the capital and the largest city of Kenya. Formerly called Embakasi Airport, it is located in the Embakasi suburb 18 kilometres southeast of Nairobi's central business district. JKIA is Kenya's largest aviation facility and the busiest airport in East Africa – considered Africa's premier hub and ideal getway into and out of East and Central Africa. It has scheduled flights to destinations in over 50 countries and boasts of over 40 passenger and 25 cargo airlines.

The airport served over 7 million passengers in 2016, making it the seventh busiest airport in passenger traffic on the continent (KAA, 2017). There are two terminals. Terminal 1 is arranged in a semi-circular orientation and is divided into four parts: 1A, 1B, 1C, and 1E are used for international arrivals and departures while terminal 1D is used for domestic departures and arrivals. The airport follows a whole government approach where by all government agencies work together with one objective. Different governmental agencies and non-governmental organizations including immigration, porthealth, frontier control, customs, National Police Service (NPS), Kenya Anti Terorist Unit (KAPU), airline operators, cargo handlers, clearing agents are present at JKIA.

In February 2017, the airport was awarded a Category One Status by the Federal Aviation Administration (FAA) of the United States, thus allowing possible direct flights between the US and Nairobi making it the 6th African country to be permitted to operate this route.

1.2 Research Problem

In spite of the growing research attention on forensic document examination literacy (li, 2016), most of the research studies focusing on the nexus between forensic document examination literacy and travel document fraud detection practices have been carried out with a predominant focus on developed countries, like Document Challenge II in Europe-2013 and Hot Issues and Future Direction of Forensic Document Examination in China-2016, with none addressing the issue from the context of developing countries such as Kenya. According to Piskorski and Gariup, (2019), although document inspection capabilities are of high importance in border operations, the topic is rarely discussed. The availability of research in the field of document fraud detection in public is scarce and the existing one focuses on automated systems. Countries are lacking the capacity to disseminate intelligence on fraudulent documents which is vital to border security and the lack of awareness of the benefits of forensic document examinations literacy in border control (UNDOC, 2010).

A study by Anjana (2015) in Australia on border systems that relies on data collected to facilitate and automate mechanisms of profiling to identify "high-risk" travellers was argued that use of such Big Data techniques risks augmenting the function and intensity of borders. These findings did not capture the human aspect at the borders on fraud detection rather than automation on detecting fraud.

A simplified guide to forensic document examination by Durina, (2017) criticaly focuses on examination of handwritting. Forensic examination and comparison of handwriting, which includes hand printing and signatures – on a border scenario there are numerous travel document frauds beyond handwritting and signatures. There is inadequate literature on effect of forensic document examination knowledge on travel document fraud detection. This is study is there an attempt to answer the question: "What are the effects of forensic document examination on travel document fraud detection by immigration officers at JKIA? "

1.3 Research Questions

1. What are some of the travel document fraud detection practices applied at JKIA?
2. What is the level of forensic document examination literacy among immigration officers at JKIA?
3. What influence does the level of forensic document examination literacy have on officers to travel document fraud detection practices at JKIA?

1.4 General Objectives of the Study

The main objective was to investigate the effects of forensic document examination knowlegde on travel document fraud detection practices at JKIA.

1.4.1 Specific Objectives

The specific objectives of the study were;

1. To assess the travel document fraud detection practices used at JKIA.
2. To assess and determine the level of forensic document examination knowledge at JKIA,

3. To assess the effect of forensic document examination knowledge on travel document fraud detection practices at JKIA

1.5 Justification of the Study

It is common knowledge that as a Forensic Document Examiner, it is the person's responsibility to provide a resource in terms of expertise for resolving alleged forged document issues in civil and criminal cases. For clarification purposes, the term 'forgery' is a legal term that is used to broadly define the intentional falsification of a signature or document, although there are several sub-classifications of this term as well, which depend on what kind of forgery or falsification it is. It is normally the result of the sinister intent by a person to deceive another or a legal body for financial or influential gain.

It is commonly believed that there are two of the most common types of forgery cases are signature fabrications and document alterations. Document examiners are professionally trained individuals that analyze signatures and handwriting during their primary training and furthermore their own practice as well. Some individuals also receive training at different professional conferences depending on the technique each year. To determine if the questioned writing is genuine or not, it is compared with known specimens of the purported writer such as a note or a diary or sometimes as simple as a check, although the more samples there are the better.

Travel document fraud is widely perceived as a serious problem affecting border control and the internal security of the European Union. The verification of the authenticity of travel documents is a key element of border checks and a pre-requisite for efficient border control. The continuous development and sophistication of the physical, optical, and electronic security features of travel documents currently in circulation brings

significant challenges for border control officers, who need to increasingly rely on the support of document inspection systems (DIS) using advanced functionalities and automated components. The performance of document inspection solutions, although of importance for the effectiveness of border checks, is rarely taken into consideration when assessing the risk of document fraud. Analyses tend to focus on the threat of document fraud as detected at the border, rather than also encompassing an evaluation of the vulnerabilities related to the capacities (means) deployed (human and technological). However, although some vulnerabilities are technical in nature, others are more related to the integration and up-take of new technologies in the border management process.

1.6 Significance of the Study

The research had both theoretical and practical value. From a theoretical perspective, the findings generated new knowledge regarding forensic document examination, fraud detection practices and the connection between the two. As such, the research is of immense theoretical value to academicians. From a practical perspective, the research generated useful insights that can be used to prevent or mitigate the negative-effects of poor document fraud detection practices. Finally, the research will indeed help the policy makers in the government and management at JKIA to have a clear picture of deliverables and perception of forensic document examination in border points hence map ways of providing quality forensic document examination education and up to date document machine/equipment readers.

1.7 Scope of the Study

The study was limited to Jomo Kenyatta International Airport (the main international border point in Kenya) as it is the bussiest airport with the largest number of travellers in the country. The research study targeted only one agency – immigration officers working at JKIA.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter reviews all literature on matters relating to forensic document examination on travel document fraud the researcher accessed. It covers empirical literature review, summary of literature reviewed and critique of literature reviewed and establishing literature gaps.

According to Piskorski (2019), availability of data on document examination is scarce and data is not publicly available due to its sensitive nature thus making it difficulty to participate in evidence based engagement. Learning is a result of direct experience with the environment through the processes of association and reinforcement. Individuals learn through association and exposure to the environment. One important theory that was extensively utilised in the domain of forensic document examination knowledge is the social learning theory. This theory was used to underpin the theoretical framework of this research.

2.2 The Social Learning Theory

Social learning theory (Bandura, 1977) explains the relationship between learning process and social behaviour. In this theory, learning process can be achieved through observation and social behaviour as an intrinsic reinforcement the form of internal rewards, such as pride, satisfaction, and a sense of accomplishment. Learning is a cognitive process that happens within a social context where a person's behavior is shaped by social factors. Individuals learn from one another through different social processes. Such processes include observation where a person is able to learn new skills

through imitation of what other people are doing. Reinforcement is also used in the social learning process whereby desired behavior is controlled and achieved through introduction of reward and punishments. Within the context of forensic document examination literacy, some social attributes are working with an experienced officer, understanding set standards of operations and following the rules on scrutinizing travel documents. A research study carried out by Alkan et al (1998) demonstrated that forensic document examination literacy could be attained through setting standard criteria, implementation of certain rules and disciplines, good observation skills and efficient control mechanisms. A combination of working with a document examiner expert, on the job training, experience, training cannot be compared to self study on travel document examination (UNDOC, 2010)

2.3 Literature Review

The Document Challenge II was performed in Europe in 2013 by UK National Document Fraud Unit (NDFU), the Forensic Science Institute of the German Bundeskriminalamt (BKA), the German Federal Office for Information Security (BSI), the Royal Netherlands Marechaussee and the Portuguese Immigration and Borders Service (SEF). Two hundred and thirteen documents, seven document inspection systems and thirty-nine border control officers deployed in the context of Frontex coordinated Joint Action Lusitania participated in the exercise with the objective of examining document inspection performance in border control and understanding the complexity of the task of detecting fraud in travel documents. The outcome of the challenge II was that human capacity outperfomed machine and equipment on detecting fraud.

2.4 Document Examination Literacy on Fraud Detection

A study of dataset created for experiment was conducted in a laboratory. The sample was made up of on 121 travel documents detected at UK and Dutch borders. The documents were made up of both fraudulent and genuine ones.78.5% were passports, Identity cards comprised of 19.8% cards and visas were at 1.6%.

Test 121 dataset was again broken down into: (a) Test 121(96) – the data consisted of equal number of genuine and false documents, and (b) Test 121(25), was made up of false documents.

All the documents were classified into three categories in terms of authenticity detection difficulty level (i.e., 'difficult (DIF)', 'medium (MED)' and 'easy (EAS)').

Table 2.1: Evaluation Data Set Statistics:

Dataset	Genuine	False	DIF%	MED%	EAS%
Test121	53	68	17.4	24	58.6
Test121(96)	48	48	14.6	24	61.4
Test121(25)	5	20	28	24	48

Source: The challenge of detecting false documents at the border: By Piskorski Jacub.

The participants for the challenge were; 2 experienced document experts (Master Testers), 3 administrative staff without experience in documents and 39 border guards from 15 different European States

Observation made during the task was to be analyzed in three ways. The first way was by assessing humans inspecting the authenticity of documents. The second way was by both human and automated Document Inspection System (DIS) to examine the authenticity of

documents. The final method was through the use of automated document inspection system alone without the input of human in assessing the authenticity of documents.

The main findings of the exercise were; the accuracy of humans on classification of documents to either be false or genuine is 65%. Experienced (document experts) testers are better than border guards in both coverage and precision. *Machine only:* DIS results and interpretation was unclear and poses serious vulnerability - thus highlighting the need for human interface.

The findings showed that machines were outperformed by far by trained and experienced border control officers. The findings therefore clearly show the need of automated systems to be manned by trained officers. The deployment of automated systems alone or with non-experienced and untrained officers represents vulnerability for the detection of false documents.

In general, experienced and trained border control officers outperformed the machines by far. The findings therefore clearly show the need of automated systems to be manned by trained officers. The deployment of automated systems alone or with non-experienced and untrained officers represents vulnerability for the detection of false documents.

The results and observations collected during the exercise highlighted that qualitative experience in detection of falsifications in travel documents is paramount compared to length of service. Trained officers effectiveness in document inspection tends to increase compared to non-trained officers. The generally performance depends on the intrinsic characteristics of the document inspected, lack of reference knowledge affect effectiveness of human capacities.

Both the study and the exercise showed that there was a direct effect of forensic document examination on fraud detection practices of travel documents. Piskorski, 2019 highlighted that the availability of research in the field of document fraud detection in public is scarce and the existing one focuses on automated systems. Most studies on forensic document knowledge are carried out in the first world and information is not meant for the general public. Developing countries are subject to international crimes thus fraud detection practices at border points must be enhanced through forensic document examination knowledge.

2.5 Conceptual Framework

Figure 2.1 below is a **Conceptual Model** illustrating the main variables of this study. The framework links the independent and dependent variables of the proposed research through direct and indirect channels.

Figure 2.1: Conceptual Model

Independent variable	Intervening Factors	Dependent Variable

Forensic Document Examination Knowledge
-Level of Training
- Skills
- Competencies

Document Examination Knowledge

Lack of Document Examination Knowledge

Travel Document Fraud Detection
- Counterfeit/fraud detection,
- Effective border (control) management,
- Improved national security.
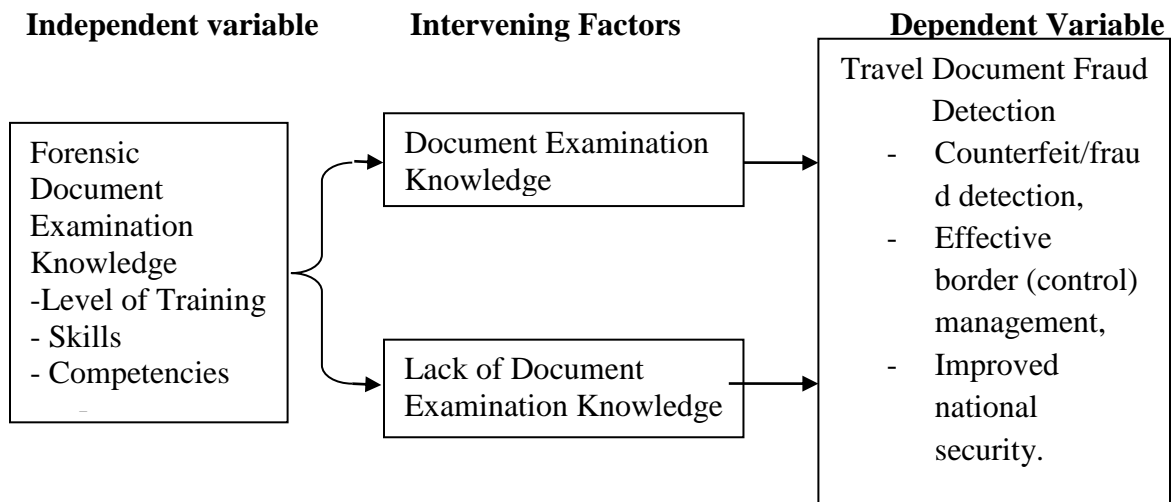
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights on how data were sourced, processed and analyzed. It contains the information on the target population, research design, sample size and sampling procedure, the research instrument, validity and reliability of instruments for the data collected and analysed.

3.2 Research Design

This study adopted descriptive design which was based upon two what questions. It does not seek to explain phenomena, predict future occurrences, or to form hypothesis based on problem formulation and concept clarification. Thus the descriptive design was more appropriate for the research study. The appropriate design to use for a given study depends on the nature of the research questions which underpin that study (Creswell, 2014)

3.3 Target Population

The population targeted in the research comprised of a specific group of border point officers. In particularly the target population of this study were 200 immigration officers working at JKIA.

3.4 Sample Size and Sampling Procedure

Estimation of the ideal sample size for a research, given the size of the target population and the desired level of precision (margin error), may be estimated through the use of the Cochran formula. The Cochran formula allows you to calculate an ideal sample size given a desired level of precision, desired confidence level, and the estimated proportion

of the attribute present in the population (Pawar, 2014). The formula is represented by the equation:

$$n_0 = \frac{Z^2 pq}{e^2}$$

In the formula, n_o is the ideal sample size,

Z refers to the corresponding z value (which is obtained from a Z table = 1.645),

P is the size of the target population (200),

q Is defined as 1-p.

e is the margin of error (10%).

Given a confidence interval of 90%, a margin of error level of ±10%, and a target population of 200; the ideal sample size generated via the Cochran formula is 68. Shown below;

no = (1.645 x 1.645) (0.5 x 0.5)

10% x 10%

No = 2.706 x 0.25

0.01

no = 0.6765

0.01

no = 67.65 ⟹ 68

In other words, a sample size of 68 migration officers was used (Creswell, 2014). The sample size was consistent with what Mugenda and Mugenda (2003) suggested that a social research should have at least 30 respondents.

The sample was selected through the use of the simple random method, which is a type of probability sampling method. Since every member of the target population has an equal and known chance of being selected, this sampling technique is associated with low levels of sampling bias, thereby ensuring a high degree of validity and reliability. A list of the immigration officers working at JKIA was assigned random numbers and the elements of the population sorted based on the random numbers. The first 68 elements on the list consisted of the random sample from the target population.

3.5 Data Collection

This research used structured questionnaires to generate primary data from immigration officers at JKIA. The questionnaire had both open and closed ended questions and provided comparable information which allowed for meaningful analysis. A questionnaire was administered to the selected respondents. This enabled the researcher to collect information more easily and within reasonable time (Kombo and Tromp, 2006). Given the nature of working at JKIA and the scare of Corona virus pandemic, the questionnaires were emailed, time was given to the respondents to fill them and thereafter collected and collated to generate data.

3.6 Data Analysis Procedures

Consistent with the descriptive research design of the study, data analysis was done using descriptive statistic, the collected data were analysed using Statistical Package for Social

Science (SPSS) program. Data were collected, edited, coded and analysed. Editing provided the opportunity for identification and correction of errors in responses, inconsistencies, wrong entries and ommisions. The final data were corrected in preparation for coding and tabulation according to the major variables included in the questionnaire. The coding system was incoporated in data analysis and Ms-Excel.

3.7 Ethical Considerations

For this study to be undertaken permission was sought, and granted, from the Directorate of Immigration Services (DIS) through the Kenya Institute of Migration Studies (KIMS) under the department of Population Studies and Research Institute (PSRI), University of Nairobi (UON). Participation was voluntary. Informed consent was obtained from the respondents before their participation in filling the questionnaires. Anonymity and confidentiality of responses was guaranteed in order to increase the chances of high quality and honesty of the responses and protect the respective respondent's privacy.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter covers data analysis and findings of the research. The data are summarized in form of frequencies and then presented in tables and figures. The analyzed data are interpreted in line with the aim of the study that is to identify the effect of forensic document examination knowledge on travel document fraud detection with a case at JKIA Out of the sixty eight (68) questionnaires administered to the sampled population, fifty one (51) responded. This gave a response rate of 75 percent.

4.2. Socio-Demographic Distribution

The study required personal information of the applicants to be stated. This was considered important as it would form a basis on how the research would be conducted, concluded and thereon recommendations made.

4.2.1. Education Level

The respondents were required to state their highest level of education. The findings are shown in table 4.1.

Table 4.1 Population Sample

Education Level	Frequency	Percent	Valid Percent
Masters	13	25.4	25
Undergraduate	38	74.5	75
Total	**51**	**100**	**100**

25% of the respondents had attained master's degree in different fields and 75% had undergraduate degrees. This high level of education from the respondents would be very important to determine the effect of forensic document examination knowledge on fraud detection.

4.2.2 Working Experience

The aim of the section was to allow respondents to indicate the number of years worked in the department of migration at JKIA. The results are shown in figure 4.1 below,
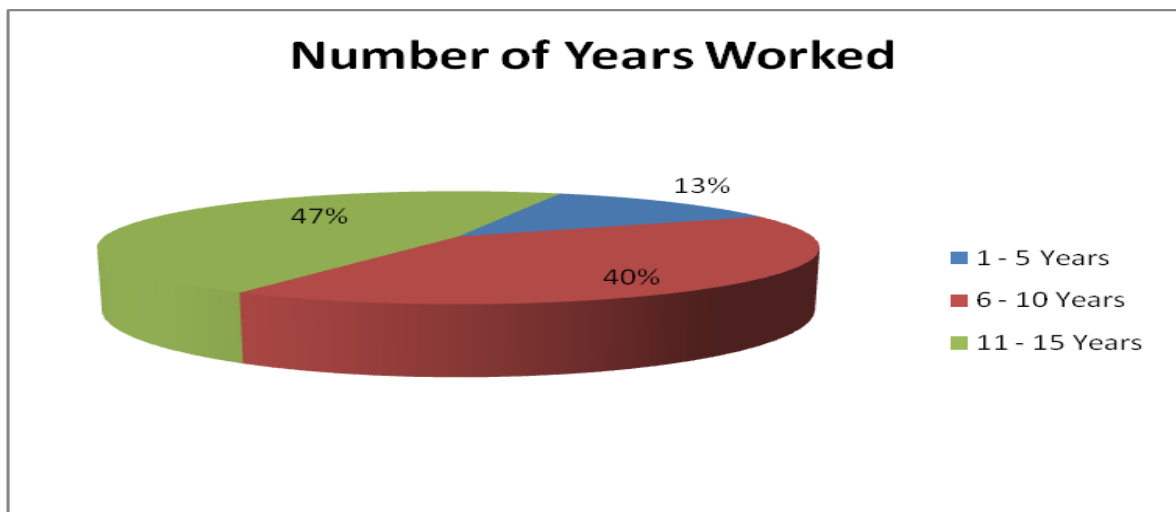
Figure 4.1 Years in Service at JKIA with the Directorate of Immigration Services
From figure 4.1 above, a majority of the respondents have worked for more than 11 years, making up 47% of all the immigration officers at JKIA. This is followed by 40% having worked for more than six years but less than 11 years. 13% is recorded on officers who have worked for more than one year and up to 5years. None of the officers indicates that the department has not recruited recently caused by the government directive to freeze on permanent employment of civil servants from July 2019 in a radical policy to reform the public service.

4.3 Document Fraud Detection Practices

The study required to assess travel document fraud detection practices at JKIA. This was considered important as it would form a basis of understanding the effect of fraud document examination knowledge on detecting travel document fraud.

4.3.1 Techniques for Detecting Document Fraud

The respondents were required to state the methods/techniques practised at the airport to detect travel document fraud. The findings are shown in table 4.2.

Table 4.2 Practices/Techniques for Detecting Document Fraud

Technique/Practice	Frequency	Percent	Valid Percent
Profiling	18	35.2	35
Interviewing	8	15.6	16
Stop Lists	11	21.5	22
Machine & Equipment	14	27.4	27
Total	**51**	**100**	**100**

Looking at the techniques and methods for detecting document fraud the findings from table 4.2 above, a lot of document fraud is detected through profiling. Profiling involves physical, perusal and handling of documents by the respondents at the primary level. It is also important to note that interviewing method is the least among the other methods/techniques in detecting document fraud because of it being conducted by senior (secondary) officers. The use of machine and equipment has outshone stop lists by 5%. This may be compounded by the long procedures in updating and enforcing the stop lists.

4.3.2. Fraudulently Acquired Documents

The respondents were required to indicate the nature of occurance of travel documents fraud encountered at their workplace. The results are shown in figure 4.2 below,
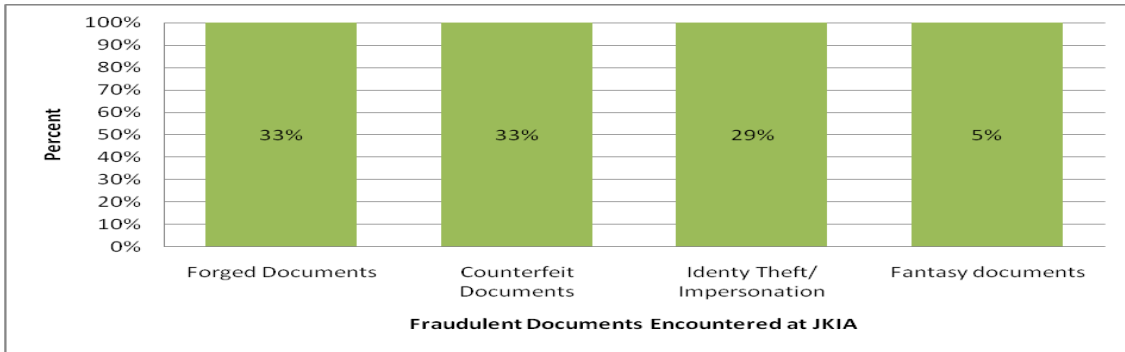
Figure 4.2 Fraudulently Acquired Documents

ICAO strict measures and restrictions on the production of electronic travel documents has led to the decline in fantasy documents as shown in figure 4.5 above. Forged and counterfeit documents registered a uniform score of 33%; this is an indication that fraudsters are more engaged in forgeries and counterfeiting to deceive officers to cross borders. Tough and harsh penalties on identity theft have led to a decline in the vice.

4.4 Sources and Levels of Document Examination Knowledge

The study required the respondents to state the sources, levels and effect of document examination knowledge. This was considered important as it would form a basis of conclusion and thereon recommendations.

4.4.1 Source of Document Examination Knowledge

The respondents were subjected to explain how they acquired document examination knowledge. In this study, induction course, in-house training, document manuals and

consultation with experienced officers were used to gauge the sources of document examination attained. The findings are indicated on figure 4.3 below,
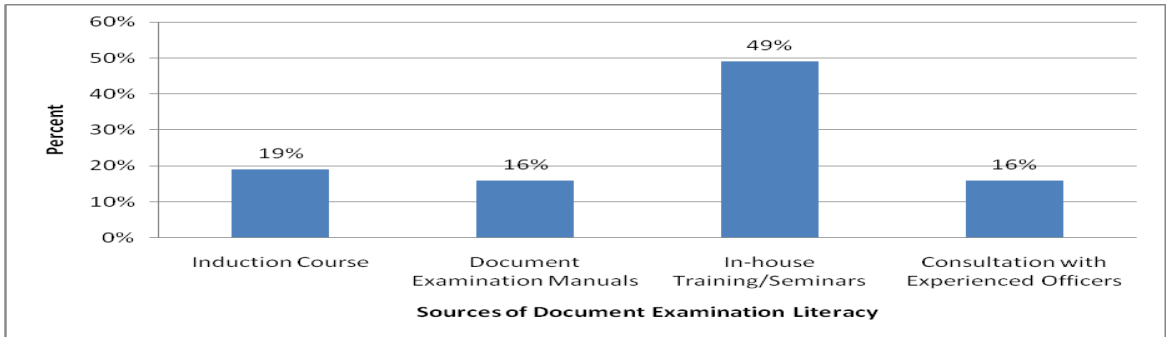
Figure 4.3 Source of Document Examination Knowledge

49% of the respondents acquired document examination knowledge from in-house trainings and seminars where as 19% acquired from participating in mandatory induction course. Knowledge from document examination manuals and consulting with experienced officers scored 16% respectively. This is an indication that the department of immigration has invested heavily on in-house training thus majority (almost half) of the respondents source of knowledge is from training and seminars.

4.4.2 Travel Document Examination Level

The respondents were required to indicate what level they have acquired on travel document examination. The results are shown in figure 4.4 below,
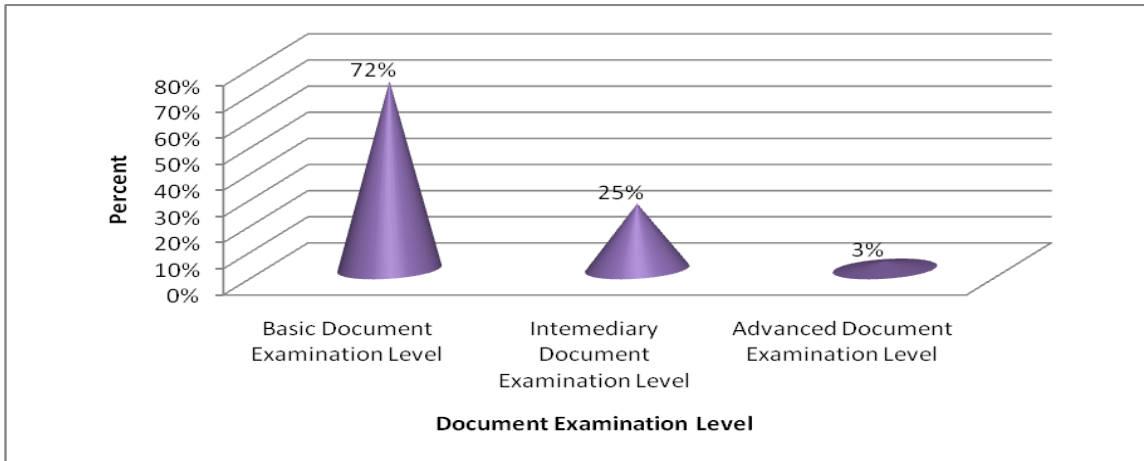
Figure 4.4 Level of Document Examination Training

72% of the respondents have attained basic document examination qualification. In house training and seminars as illustrated in the figure above has initiated a high percentage of the respondents to acquire at least the basic document examination level. Intermediary level scored 25% and a mere 3% of the respondents have an advanced document examination qualification. A low percentage at advanced level is an indication that there are no readily available institutions offering the course in the country and its high cost that the respondents cannot afford.

4.5 Effect of Forensic Document Examination Knowledge on Travel Document Fraud Detection Practices at JKIA

The respondents were requested to indicate if there is a need for forensic document examination knowledge before being deployed to their work stations. Fraud detectaion practices were looked at in terms of the use of document manuals, profiling, interviewing, and use of machine & equipment to monitor stop lists.

4.5.1 Need for Forensic Document Examination

The respondents were required to indicate if there was a need for them to acquire forensic document examination before being deployed to their border. The results are indicated in figure 4.5 below,
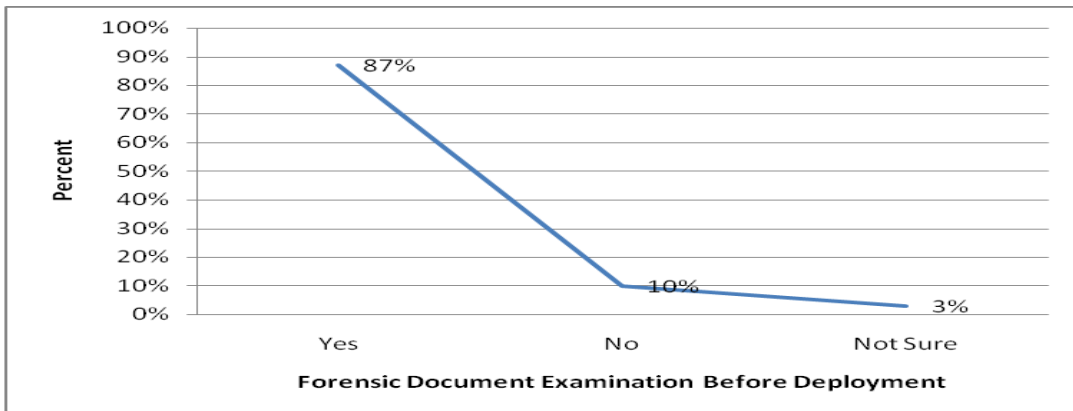
Figure 4.5 Need for Forensic Document Examination

As far as the need for document examination before deployment is concerned, the findings shown in figure 4.5 above indicates that document examination is a necessity for officers with a total of 87% considering it necessary. The rest 3% are not sure and 10% are of the opinion that it is not necessary. This very high percentage confirms that document examination literacy is integral in border control and management.

4.5.2 Document Manuals and Fraud Detection

Respondents were asked if they agree or not that document examination literacy has an effect on detecting document fraud by the use of document manuals. The findings are shown on figure 4.6 below,
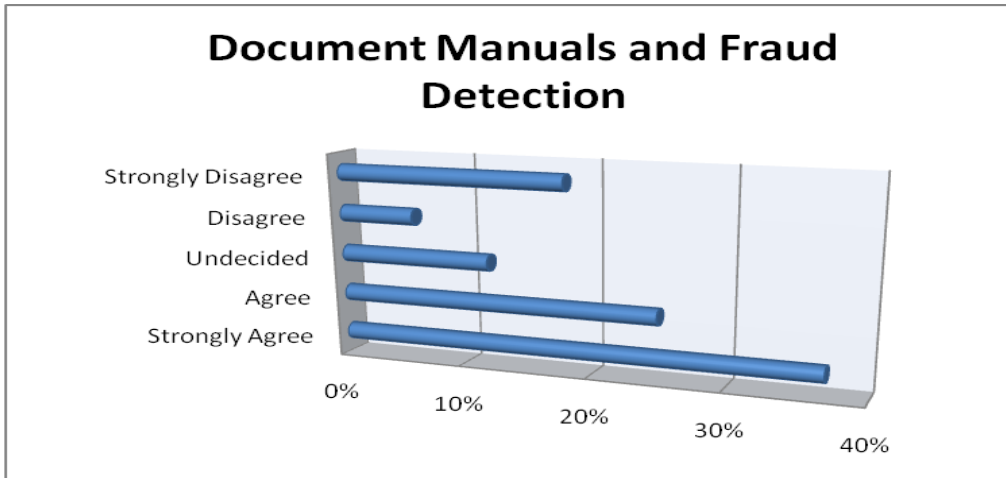
Figure 4.6 Use of Document Manuals in Fraud Detection

Looking at the respondents in percentage figure 4.6 above, a total of 62% (37% and 25) strongly agree and agree respectively that using document manuals helps in improving fraud detection. It is also worthy noting that 12% of the respondents were undecided on the matter. However, some respondents do not consider this factor, 6% of them disagree whereas 18% strongly disagree. The fact that majority of the respondents agree and strongly agree is an indication that document examination manuals play a big part in improving fraud detection practices.

4.5.3 Reasons for Deportation/Repatriation

The respondents were asked if they had deported/repatriated travellers and rank the frequency of their encounter with deportation/repatriation on three categories, namely effecting court orders, pursuance of stop lists and irregular migrants. All of the respondents indicated that, in their operations, they have deported/repatriated travellers. The results are summerised in table 4.3 below,

Table 4.3 Reasons for Deportation/Repatriation

Reason	Frequency	Percent	Valid Percent
Effecting Court Orders	23	45.1	45
Pursuance of Stop Lists	15	29.4	29
Irregular Migrants	13	25.5	26
Total	**51**	**100**	**100**

Under the Kenyan constitution, Cabinet Secretary has the capacity to declare an individual a prohibited immigrant or a persona non grata. Law courts in Kenya have the mandate to deport/repatriate individuals involved in any crimes (not necessarily migration offences). As a result, table 4.3 above shows high rates of deportation and repatriation (45%) on effecting court orders compared to the other listed reasons; some of the deportations/repatriations are not migration related matters but as a result of enforcement by other authorities like courts of law and others. Pursuance of Stop Lists records the second major reason at 29%. Stop Lists are incorporated from different security agencies and international organizations like International Criminal Police Organization (INTERPOL), Anti Terrorist Police Unit (ATPU), Anti Narcotics Police Unit (ANU), International Criminal Court (ICC), Law Courts of different jurisdictions and many more. Irregular migrants scored 26% which is the lowest amongst the listed reasons for deportation/repatriation: the principle of **Non-refoulement** - asylum seekers cannot be deported/repatriated back. Victims of human smuggling and trafficking have a right to counseling due to the stigma and torture thus cannot be deported/repatriated and/or prosecuted.

4.5.4. Effect of Work Experience in Improving Fraud Detection

The respondents were asked if they agreed that work experience on travel document examination knowledge improves fraud detection at JKIA. The findings are shown in figure 4.7 below,
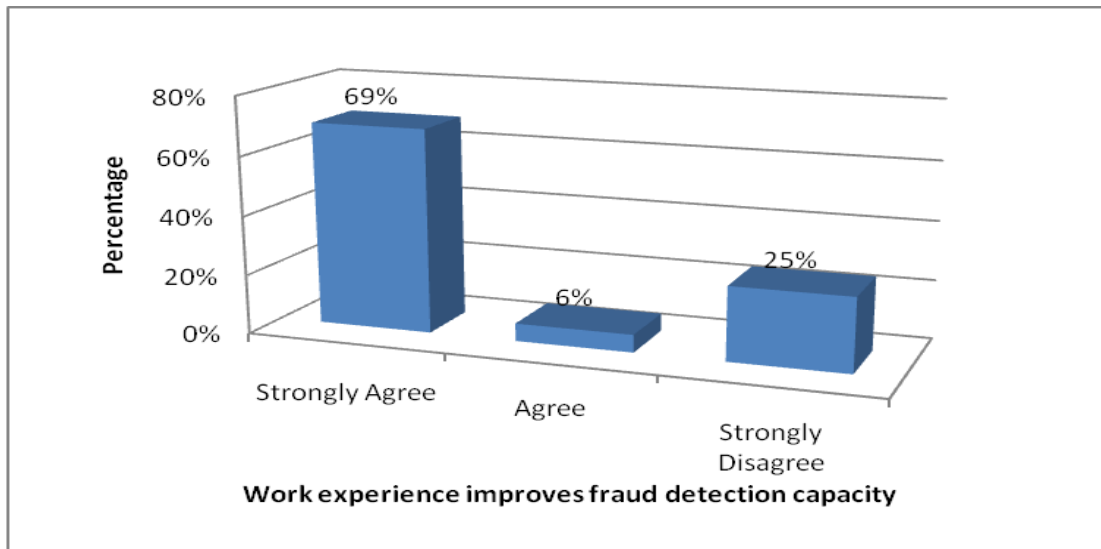
Figure 4.7 Effect of Work Experience on Improving Fraud Detection

Work experience is essential in meeting objectives and improving the organizational image. As observed from figure 4.8 above, work experience has improved fraud detection at JKIA thus improving border control and management. As a result, JKIA was awarded as the best-improved airport in Africa in the prestigious 2017 Airports Council International (ACI) Airport Service Quality ASQ) awards. 25% strongly disagree and object work experience in improving fraud detection capacity. A high number of respondents who strongly disagreed represent the old generation officers and officers who did not embrace change in technology, document examination literacy is digitized and experience is gained through appreciating and embracing change in technology.

30

4.5.5 Forensic Document Examination Training Level and Effect on Fraud Detection

The researcher had sought to find out if the training level in forensic document examination knowledge has an effect on fraud detection. The findings are illustrated below on figure 4.8,
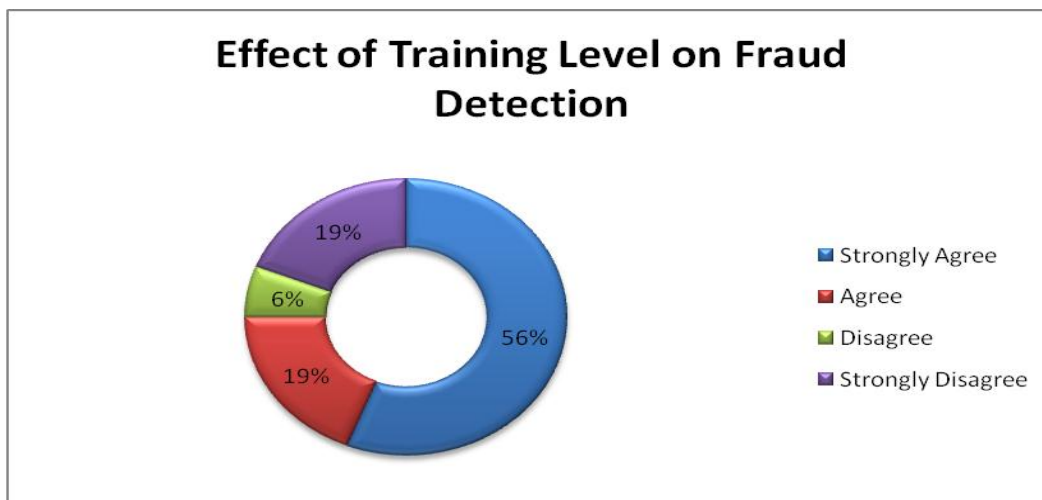
Figure 4.8 Level of Training Effect on Fraud Detection

Change in technology, enhanced document forgeries and sophistication in counterfeiting in the modern world need competent and well trained personnel. Well trained personnel are not only hard to beat on document fraud but are experts in their field of detecting fraud. From the above figure 19% and 69% of the respondents agree and strongly agree respectively that a higher level of training has a positive effect on fraud detection due to knowledge and expertise gained in training. They're more exposed, technically oriented and proactive in performing their duties. Consequently, a total of 25% of the respondents are disagreeing and strongly disagree on the concept.

4.6 Discussion of Findings

In this study, the researcher was guided by the following objectives; to assess the travel document fraud detection practices used, to assess and determine the level of forensic document examination literacy and to assess the effect of forensic document examination literacy on travel document fraud detection practices at JKIA.

4.6.1 Response Rate

The researcher conducted simple random sampling method. Sixty eighty (68) officers were randomly sampled from two hundred (200) immigration officers working at JKIA. Sixty eight (68) questionnaires were administered and fifty one (51) responded. This response rate was 75 percent (%).

4.6.2 Number of Years Worked at the Investigation and Prosecution Section

The researcher had sought to find out the level of education of the respondents. Majority of the respondents (75%) indicated that they had atleast attained an undergraduate degree and (25%) had attained masters's degree. This shows that the all of the respondents had the requisite knowledge to be able to respond to the issues raised in the questionnaire.

4.6.3 Techniques for Detecting Document Fraud

The respondents were asked to indicate the techniques/methods practiced to detect document fraud at the airport. The top four practices were profiling (35.5%), use of machines and equipment (27.4%), use of stoplist (21.5%) and intervewing (15.6%). This indicates that human intervention in travel document fraud supercedes use of machines and equipment. Cummulatively most cases of travel document fraud are detected through profiling and intervewing (61.1%).

4.6.4 Source of Document Examination Knowledge

The respondents were subjected to explain how they acquired document examination knowledge. Majority of the respondents acquired document examination knowledge through in-house training (49%), 19% of the respondent acquired it through induction course and 15% of the respondents respectively acquired it through working with experienced officers and by the use of document manuals. It is worthy noting that in-house training has a higher impact on impacting document examination knowledge to the respondents.

4.6.5 Forensic Document Examination Training Level and Effect on Fraud Detection

The respondents were asked to give their opinion if forensic document examination knolwledge has an effect on travel document fraud detection at JKIA. The majority of the respondents (56%) strongly agree that it has direct effect to fraud detection, 19% of the respondents agree on the same where another 19% of the respondets strongly disagree and the remaining respondents (6%) disagree. Cumulatively 25% of the respondent's opinion is against it, higher level of forensic document examination has no effect on fraud detection.

4.7. Comparison with Social Learning Theory

According to Bandura (1977) learning process can be achieved through observation and social behaviour. This theory explains the relationship between learning process and social behaviour, learning is a cognitive process that happens within a social context where a person's behavior is shaped by social factors. Research findings showed that

working with an experienced officer improves fraud detection practices and majority of the respondents acquired document examination knowledge from training and seminars as elaborated in figure 4.8. It is evident that learning takes place as a result of interaction and imitating behaviour from the most experienced officers.

4.8 Comparison with Key Findings with Empirical Studies

Findings in this study supports the findings on Document Challenge in Europe in 2013 (Piskorski, J. and Gariup, M. (2019), where document examination knowledge was found to improve fraud detection. Results highlighted that trained officers effectiveness in document inspection is higher compared to non-trained officers and the generally performance depends on the intrinsic characteristics of the document inspected. Lack of reference knowledge affect effectiveness of human capacities. Finally the exercise showed that there was a direct effect of forensic document examination on fraud detection practices of travel documents.

Findings in the research study showed that majority of the respondents strongly agree that the use of document manuals improves human capacity in document fraud detection. Higher Training level of officers has a strong positive effect on fraud detection practices as potrayed in figure 4.8 and finally human capacity in fraud detection practices is more effective than the use of document readers, machines and equipment.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the key findings, then draws conclusions and gives recommendations from the findings on effect of forensic document examination knowledge on fraud detection practices. It also gives limitations of the study and suggestions for further research.

5.2 Summary of Findings

One major finding of this study was that all the particcipants were literate and had at least an undergraduate degree qualification and majority of them had basic knowledge on forensic document examination. Half of the respondents acquired forensic document examination knowledge from in-house trainings and seminars. Irrespective of their level of education, all the respondents acknowledge the necessity of document examination knowledge before deployment to their work station. The study also found that profiling was the most efficient and effective fraud detection practice with three quarters of the respondents supporting it.

The findings showed that the majority of the participants highly felt that a higher level of training on forensic document examination has a positive effect on fraud detection and as well as a positive effect on border management and control. The study also found that half of the respondents believe that work experience improves forensic document examination knowledge that has positively affected document fraud detection practices at JKIA.

5.3 Conclusion

In conclusion, the study shows that forensic document examination knowledge has a very high impact on travel document fraud detection and officers should acquire forencic document examination knowledge before being deployed to their work stations. At least a basic document examination level qualification is requisite in detecting fraud on travel documents. Majority of the respondents have acquired basic document examination knowledge from in-house training and seminars, a very small percentage have acquired advanced travel document examination qualification which is a big worry considering the nature, activities, density and size of JKIA.

It is evident that work experience (long duration of time in service) plays a great role in travel document fraud detection. This may be as a result of the regular in-house training and seminars held at the JKIA. In addition, long serving officers have had more opportunities of being exposed to numerous and different types of travel document fraud while on duty in comparison to employees who had served for a short duration of time. Profiling was the most succefull technique in detecting fraud. Majority of the respondents preferred profiling over the other methods and techniques to deter fraud; this is attributed to the physical contact of the travel document, the presence of the travel document holder and the examiner. Travel document examiners have the opportunity to physical monitor the body reaction of the document holder in profiling compared to the use of detecting machines and equipment.

It is also less evident that the respondents are directly involved in deportations and repatriations of migrants (border management and control). Most deportations and repatriations are effected through court orders and directives from the Cabinet Secretary

in the Ministry of Interior and Coordination of National Government. Deportations and repatriations as a result of irregular migrants is very low due to the legal aspects and provisions in terms of human rights violations, opportunities to regularize their migration status and international laws like refugee laws that protect assylum seekers and migrants that may be persecuted on their return.

From the study, in regard to attitude on work experience, level of training, documents manuals and travel document knowledge having positive effect on detection ability and border security/management; it is evedent that more than half of the respondents had positive attitude. Respondents are supporting the use of travel document manuals and document examination literacy a requisite before deployment to work. Level of document training and work experience is core on border management and fraud detection as it enhances levels of authority and consultation channels in times of difficulty in operations.

From the findings of this study we can conclude that all the respondents were literate with a minimum of an undergraduate degree and have worked for more than one year. Majority of the respondents have acquired at least basic document examination level from training and seminars. Forgeries and counterfeits are the common document frauds encoutered at JKIA and profilling practice/technique has been a great success in countering travel document fraud. Most deportations and repatriations are effected by court orders and directives from higher authorities.

5.4 Recommendations

Based on the findings from the study the following recommendations are made:

5.4.1 Policy Recommendations

The study recommends that the government through the directorate of immigration services to come up with policies to address the need of forensic document examination knowledge to officers before deployment. In this regard it should be implemented in the compulsory induction course, induction stage process and certification provision for qualified officers. The government to establish an accredited institution offering travel document examination knowlegde to border officers and other government agencies. It is worthy noting that the reseach found that there is no accredited institution in the country offering the course on forensic document examination.

5.4.2 Recommendations for Management Practice

Regular in-house trainings and seminars to polish and remind officers on document examination practices and provision of up-to date document examination manuals and document brochures to the officers at their work stations.

5.4.3 Limitations of the Study

This study was limited to effect of forensic document examination knowledge on travel document fraud detection at JKIA and its findings cannot be used as a generalization to the other existing border points in the country.

In carrying out data collection, the researcher was limited to only immigration officers at the border point (JKIA) where as different agencies work at border points and are directly involved in handling travel documents

Further, from the targeted population of sixty eight (68) immigration officers as respondents for the study, only 75% responded. There is likelihood that the no response rate of 25% could affect the outcome of the study.

5.4.4 Recommendations for Further Studies

This study was limited to effect of forensic document examination knowledge on travel document fraud detection practices which focused only on immigration officers at JKIA. Several agencies working at JKIA are entitled to handle travel documents in execution of their duties like customs officers, porthealth officers, anti terrost police unit, airline service providers and others. Similar studies should be conducted on the effect of forensic document examination knowledge on travel document fraud detection focusing all the agencies involved in handling of travel documents at JKIA.

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APPENDICES

APPENDIX I: CONFIDENTIALITY LETTER

Dear Respondent,

RE: RESEARCH STUDY

My name is Rashid Khator, a postgraduate student at the University of Nairobi. I am currently working on my research project which centers on "Effect of Forensic Document examination on Travel Document Fraud Detection at Jomo Kenyatta International Airport." As you are aware, the success of preventing transnational crimes terorism depends upon proper scrutinazation and clearance of authentic travel documents at border points. This research aims to assess the effect of forensic document examination literacy on travel document fraud detection at JKIA. The success of the research substantially depends on your cooperation. I hereby request you to respond to the questionnaire as honestly as possible and to the best of your knowledge.

Privacy, protection and consent

For respect of your personal privacy and to allow you to express your personal opinions freely without fear of repercussion please be assured that your identity and responses will remain anonymous and purely for academic purpose. Collected raw data from this study will be disposed off after submission of the final recommendations of the study.

APPENDIX II: QUESTIONNAIRE
Section 1: Demographic Profile

Please answer the questions below, as appropriate.

1. Indicate your highest level of education

    a. Postgraduate Diploma (specify) ……………….................………

    b. Undergraduate Degree (specify) …….................…………………

    c. Masters Degree (specify)   ....……………………

    d. Others specify   …………….................………….....……

2. Please indicate the number of years you have been in service

    a. Less than 1   [ ]

    b. 1 – 5   [ ]

    c. 6 – 10   [ ]

    d. 11 – 15   [ ]

    e. Above 15   [ ]

Section 2: Forensic Document Examination Literacy

Please answer the questions below by ticking one of the boxes for each question, as appropriate.

3. Do you have additional knowledge on forensic document examination?

    a. Yes   [ ]

b. No   [ ]   (proceed to question 4)

4. What is the source of your document examination knowledge?

    a. Induction course   [ ]

    b. Document examination manuals   [ ]

    c. Trainings/Seminars   [ ]

    d. Consultation with experienced officer   [ ]

    e. Others (please specify) ………………………   [ ]

5. What level of training have you attained in documents examination?

    a. Basic document examination level   [ ]

    b. Intermediary document examination level [ ]

    c. Advanced document training level   [ ]

    d. Others (please specify) …………………………   [ ]

    e. None   [ ]

6. Have you ever encountered any travel documents fraud while on duty?

    a. Yes   [ ]

    b. No   [ ]

    c. Not sure   [ ]

7. What method did you use to detect the document fraud?

    a. By profiling   [ ]

    b. By Interviewing   [ ]

    c. By use of Stop lists   [ ]

    d. By use of machine and equipment   [ ]

8. Do you think forensic document examination is necessary before deployment to the work station?

    a. Yes   [ ]

    b. No   [ ]

    c. Not sure   [ ]

Section 3: Personal Travel Document Fraud Detection Practices

9. Please tick the fraudulent documents encountered at work while practicing fraud detection (multiple answers are accepted)

    a. Forged documents   [ ]

    b. Counterfeit documents   [ ]

    c. Identity theft / impersonation   [ ]

    d. Fantasy documents   [ ]

10. What are the mostly applied border management practices at your work place?

a. Allow/Deny entry   [ ]

b. Allow /Deny departure   [ ]

c. Transit facilitation   [ ]

d. Deportation and repatriation   [ ]

e. Prosecution (on migration offenses)   [ ]

11. Have you ever been involved in deportation/repatriation?

a. Yes   [ ]

b. No   [ ]

12. What were the reasons for deportation/repatriation?

a. Effecting Court orders   [ ]

b. Pursuance of the Stop lists   [ ]

c. Irregular migrants (holders of counterfeit documents) [ ]

d. Others (specify)……......…………………………….........

13. Rate the extent to which you agree or disagree with the following statements. The
    numbers represent the following: (1) Strongly agree (2) Agree (3) Undecided (4)
    Disagree (5) Strongly disagree

No.	Item	1	2	3	4	5	Remarks/Explanations
a.	Work experience improves fraud detection capacity.						
b.	Level of training has positive effect on fraud detection expertise.						
c.	Consultations with colleagues have positive effect on fraud detection ability.						
d.	Using document manuals helps improve fraud detection capability.						
e.	Travel Document literacy has positive effect on border security and management						

Thank you for your cooperation!

APPENDIX III: Z-SCORE TABLE

STANDARD NORMAL DISTRIBUTION: Table Values Represent AREA to the LEFT of the Z score.

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.50000	.50399	.50798	.51197	.51595	.51994	.52392	.52790	.53188	.53586
0.1	.53983	.54380	.54776	.55172	.55567	.55962	.56356	.56749	.57142	.57535
0.2	.57926	.58317	.58706	.59095	.59483	.59871	.60257	.60642	.61026	.61409
0.3	.61791	.62172	.62552	.62930	.63307	.63683	.64058	.64431	.64803	.65173
0.4	.65542	.65910	.66276	.66640	.67003	.67364	.67724	.68082	.68439	.68793
0.5	.69146	.69497	.69847	.70194	.70540	.70884	.71226	.71566	.71904	.72240
0.6	.72575	.72907	.73237	.73565	.73891	.74215	.74537	.74857	.75175	.75490
0.7	.75804	.76115	.76424	.76730	.77035	.77337	.77637	.77935	.78230	.78524
0.8	.78814	.79103	.79389	.79673	.79955	.80234	.80511	.80785	.81057	.81327
0.9	.81594	.81859	.82121	.82381	.82639	.82894	.83147	.83398	.83646	.83891
1.0	.84134	.84375	.84614	.84849	.85083	.85314	.85543	.85769	.85993	.86214
1.1	.86433	.86650	.86864	.87076	.87286	.87493	.87698	.87900	.88100	.88298
1.2	.88493	.88686	.88877	.89065	.89251	.89435	.89617	.89796	.89973	.90147
1.3	.90320	.90490	.90658	.90824	.90988	.91149	.91309	.91466	.91621	.91774
1.4	.91924	.92073	.92220	.92364	.92507	.92647	.92785	.92922	.93056	.93189
1.5	.93319	.93448	.93574	.93699	.93822	.93943	.94062	.94179	.94295	.94408
1.6	.94520	.94630	.94738	.94845	.94950	.95053	.95154	.95254	.95352	.95449
1.7	.95543	.95637	.95728	.95818	.95907	.95994	.96080	.96164	.96246	.96327
1.8	.96407	.96485	.96562	.96638	.96712	.96784	.96856	.96926	.96995	.97062
1.9	.97128	.97193	.97257	.97320	.97381	.97441	.97500	.97558	.97615	.97670
2.0	.97725	.97778	.97831	.97882	.97932	.97982	.98030	.98077	.98124	.98169
2.1	.98214	.98257	.98300	.98341	.98382	.98422	.98461	.98500	.98537	.98574
2.2	.98610	.98645	.98679	.98713	.98745	.98778	.98809	.98840	.98870	.98899
2.3	.98928	.98956	.98983	.99010	.99036	.99061	.99086	.99111	.99134	.99158
2.4	.99180	.99202	.99224	.99245	.99266	.99286	.99305	.99324	.99343	.99361
2.5	.99379	.99396	.99413	.99430	.99446	.99461	.99477	.99492	.99506	.99520
2.6	.99534	.99547	.99560	.99573	.99585	.99598	.99609	.99621	.99632	.99643
2.7	.99653	.99664	.99674	.99683	.99693	.99702	.99711	.99720	.99728	.99736
2.8	.99744	.99752	.99760	.99767	.99774	.99781	.99788	.99795	.99801	.99807
2.9	.99813	.99819	.99825	.99831	.99836	.99841	.99846	.99851	.99856	.99861
3.0	.99865	.99869	.99874	.99878	.99882	.99886	.99889	.99893	.99896	.99900
3.1	.99903	.99906	.99910	.99913	.99916	.99918	.99921	.99924	.99926	.99929
3.2	.99931	.99934	.99936	.99938	.99940	.99942	.99944	.99946	.99948	.99950
3.3	.99952	.99953	.99955	.99957	.99958	.99960	.99961	.99962	.99964	.99965
3.4	.99966	.99968	.99969	.99970	.99971	.99972	.99973	.99974	.99975	.99976
3.5	.99977	.99978	.99978	.99979	.99980	.99981	.99981	.99982	.99983	.99983
3.6	.99984	.99985	.99985	.99986	.99986	.99987	.99987	.99988	.99988	.99989
3.7	.99989	.99990	.99990	.99990	.99991	.99991	.99992	.99992	.99992	.99992
3.8	.99993	.99993	.99993	.99994	.99994	.99994	.99994	.99995	.99995	.99995
3.9	.99995	.99995	.99996	.99996	.99996	.99996	.99996	.99996	.99997	.99997

APPENDIX IV: PLAGIARISM SCORE

EFFECT OF FORENSIC DOCUMENT EXAMINATION
KNOWLEDGE ON TRAVEL DOCUMENT FRAUD DETECTION
– A CASE OF JOMO KENYATTA INTERNATIONAL AIRPORT

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in collaboration with **Maastricht University**

University of Nairobi

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RE: CERTIFICATE OF CORRECTION: RASHID IBRAHIM KHATOR Q68/31472/2019

This is to certify that Mr. Rashid Ibrahim Khator has effected corrections from the board of examiners.

George Awili

Supervisor.