PROJECT TEAM DIVERSITY, IMPLEMENTATION PROCESS OF PROJECT CONTROL SYSTEMS AND PERFORMANCE OF RURAL ROADS CONSTRUCTION PROJECTS IN KENYA

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DECLARATION

This thesis is my original work and has not been presented for an academic award in any other University.

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This research thesis is dedicated to my loving wife Roselyter and our beloved children, Stacy, Brandon and Brighton whom I greatly love and treasure.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ADB	-	Asian Development Bank
APM	-	Association for Project Managers
APMBOK	-	Association for Project Management Body of Knowledge
CDF	-	Constituency Development Fund
CPM	-	Critical Path Method
DDO	-	District Development Officer
EVA	-	Earned Value Analysis
ICT	-	Information Communication Technology
IFRTD	-	International Forum for Rural Transport Development
KeNHA	-	Kenya National Highway Authority
KeRRA	-	Kenya Rural Roads Authority
KRB	-	Kenya Roads Board
KURA	-	Kenya Urban Roads Authority
LMX	-	Leader Member Exchange
MMX	-	Member Member Exchange
NGO	-	Non-Governmental Organisation
NRRDA	-	National Rural Roads Development Agency
NTA	-	National Taxpayer s Association
PCS	-	Project Control System
PERT	-	Program Evaluation Review Technique
PMBOK	-	Project Management Body of Knowledge
PMI	-	Project Management Institute
SIT	-	Social Identity Theory
SPSS	-	Statistical Package for Social Sciences
UK	-	United Kingdom

ABSTRACT

The aim of this study was to establish the influence of project team diversity on performance of rural roads construction projects in Kenya. It also sought to establish the moderating influence of implementation process of project control systems on the relationship between project team diversity and performance of rural roads construction projects in Kenya. Six objectives were formulated for this study. The study was anchored on ecosystem theory, social identity theory and organisation control theory. The study applied pragmatism paradigm and mixed methods research approaches. Cross sectional descriptive survey and correlational research designs were adopted. A sample of 361 respondents was selected from a target population of 3680 construction workers through stratified sampling, simple random sampling and purposive sampling techniques. A questionnaire, observation and an interview guide instruments were used for collecting data. In this study, data was triangulated through comparison of qualitative data received from structured questionnaires for workers with qualitative in-depth interviews for site engineers and observation guide by the researcher. Qualitative data was analysed through checking data, developing codes, identifying themes and patterns and then summarizing the data and linking them to hypothesis and objectives. Quantitative data was then analysed and both descriptive and inferential statistics generated. Descriptive results were presented as frequency tables, percentages, arithmetic means and standard deviation while inferential statistics were obtained using Pearson's Product Moment correlation (r) and from both simple regression and multiple regression analysis. F-test was used to test the hypotheses. Tests of statistical assumptions were carried out before analysis. For objective one; $r = 0.788$, $R^2=0.62$, $F_{(4,192)} = 285.254$, $p<0.001<0.05$, therefore, H_0 was rejected and concluded that project team demographic diversity significantly influence performance of rural roads construction projects. For objective two; $r = 0.804$, $R^2=0.647$, $F_{(3,193)} = 335.874$ at $p<0.001<0.05$, H_0 was rejected and concluded that project team training diversity significantly influence performance of rural roads construction projects. For objective three $r= 0.925$, $R^2=0.855$, $F_{(2,194)} = 965.321$, at $p<0.001<0.05$, therefore, H_0 was rejected and concluded that project team experience diversity significantly influence performance of rural roads construction projects. For objective four; $r= 0.658$, $R^2=0.432$, $F_{(3,193)} = 136.735$ at $p<0.001<0.05$, therefore, H_0 was rejected and concluded that project team work-culture diversity significantly influence performance of rural roads construction projects. For objective five; $r= 0.939$, $R^2=0.882$, $F_{(4,192)} = 358.941$ at $p<0.001<0.05$, therefore, H_0 was rejected and concluded that combined project team diversities significantly influence performance of rural roads construction projects. For objective six; $R^2 = 0.887$, $\Delta R^2= 0.005$, $F_{(5,191)} = 299.871$, at $p<0.001<0.05$, therefore, H_0 was rejected and it was concluded that the strength of the relationship between combined project team diversities and performance of rural roads construction projects in Kenya depends on the implementation process of project control systems. In conclusion, the study findings provide evidence that for increased performance of rural roads construction projects in Kenya, aspects of project team diversity should be comprehensively addressed. It is therefore recommended that project teams in rural roads construction projects be constituted with an integrated diversity of the workers and that a policy to that effect be instituted and included during professional accreditation criteria for assessing performance and awarding of tenders. The findings add to Project Management Body of Knowledge by providing informative insights for project managers and other project management practitioners regarding project team diversity and performance of projects. Consequently, a similar study but with a longitudinal study approach to establish how project team diversity influences project performance, considering other intervening and contextual factors is recommended.

CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

The importance of rural road network in the national road system of most countries is vast and it accounts for more than half of their transport network. Rural poverty reduction, agricultural growth and improvement of rural infrastructure have linkage to properly constructed rural roads networks (World Bank, 1994, Booth, Hanner and Lovell, 2000). This usually happens when these roads are constructed within time, quality and schedule. A case in point is in Malaysia and Indonesia where increase in rural infrastructure was followed by economic growth and reduction in rural poverty. International organisations such as the International Forum for Rural Transport Development (IFRTD) stated that providing basic services for poor rural people remains a fundamental right and an obligation for achieving equitable and sustainable socio-economic development (IFRTD, 2009). This view was also shared by the Asian Development Bank (ADB, 2010).

The most widely acceptable measures of project performance include finish on time, finish within budget, specified quality requirements and client/customer satisfaction among other factors. However, as synthesized by Coleman and Sowa (2004), varying and sometimes conflicting definitions of performance have been used, which they consider to be partially justified because different types of organisations may need to emphasize different aspects of performance of projects. Therefore, performance would be measured in a multidimensional way using objective measures in terms of the actual presence of processes and outcomes and also subjectively in terms of staff perceptions or beliefs about processes and outcomes (Morales and Marquina, 2009). Usually these perceptions and beliefs emanate from diversity within the project team members based on demographic factors, experience factors, training and work-culture factors.

During the implementation of rural roads projects In India, National Rural Roads Development Agency (NRRDA) report (2010) indicated that weak implementation capacity can affect projects performance despite safeguards of project controls. This shortage in capacity building could be addressed through enhanced training, technical assistance and sharing of lessons learnt (NRRDA Report, 2010). The report further adds that the capacity

building for effective implementation of projects should incorporate global best practices in gender, project control systems compliance, safety and grievance redress in rural roads programmes. The impact on vulnerable groups should also be included. Deducing from NRRDA report, it means that compliance in implementing project control systems during project implementation is a vital process that would likely moderate the relationship between implementation variables and performance of the project teams.

The project performance evaluation report by African Development Bank report (ADB,2009) on Lao People's Democratic Republic on rural access roads revealed that project implementation was characterized by delays and cost overruns, some of which could have been avoided by better project management and implementation of project control systems. This was attributed to the quality and ability of the contractors which was indicated to have had weak capacity management, poor planning and organisation of works and quality of control problems that affect smooth execution of works.

The construction industry has a long-standing reputation for being adversarial, demonstrated by poor relationships between the client and project teams, which in turn lead to numerous problems including poor project performance and a low number of long-term relationships between members of project teams (Murray and Langford, 2003). Especially in developing countries, project team diversity has characterized slowness and time delay during implementation of projects (World Bank, 2009). In line with this in Botswana, Chinese contractors were instructed to deliver government projects of a quality that were durable, on time and on budget. A study conducted in the energy sector on cost overruns in Kenya concerning problems associated with pioneer power projects and process plants in Kenya revealed that 74% of cost overruns were caused by poor coordination of projects activities and lack of change management controls thus it affected adherence to cost estimates (Kagiri and Wainaina, 2009). Further, in Kenya, the foundations for vision 2030 are anchored on infrastructure development and biased towards those areas envisioned as less developed (Kenya Vision 2030, 2007). It re-emphasizes on enhanced equity and infrastructure development among other sectors reforms where highest priority was given to infrastructure under the economic pillar. This is big reason why such project should complete within cost, schedule and quality to foster rapid rural economic development.

On the social pillar, of Kenya Vision 2030, team diversity is envisaged to be observed across all the pillars. In their study, Hollingshead and Fraidin, (2003), supports this argument when

they established that most opportunities for training, learning, inferences about expertise are likely to be made on the basis of diversity in history, occupational roles, access to information, dress, race, gender, or possessions in implementation of projects. From literature, there is little attention that has been paid by scholars on project team diversity and performance of rural roads construction projects and as moderated by implementation process of project control systems. This phenomenon requires a scientific study to rigorously identify the underlying reasons. Based on this background, this study therefore focussed on project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya.

1.1.1 Performance of Rural Roads Construction Projects

The process of operationalizing project control systems would to a greater extent address the performance challenges of rural road projects. Clive (2007) and Hunt (2011) argued that workplaces, in this case construction of rural roads, were the only sites at which individuals from diverse cultures convene and collaborate, and thus refreshes and broadens the relevancy of an organization. It is by so doing that performance of construction projects is measured. The emphasis by Patroba, (2012), that weak capacity of the local construction industry, leads to over-reliance on foreign firms and inputs, and poor workmanship and delayed completion of projects, reaffirms the importance of a rigorous research to gain insight and add knowledge. Addressing these issues, we are likely to increase efficiency and effectiveness in managing the construction, upgrading, rehabilitation and maintenance of Kenya's rural roads (Development of low volume roads research capacity in Kenya inception report, 2012).

Performance of rural roads projects in Kenya has been found to be below the time, quality and cost performances. Nzoika (2006) indicates that dates of construction projects in Kenya generally go beyond their estimated completion dates. However, due to lack of research in this area, there is little information on completion delays of projects in Kenya. However, a case in point was in 2003, where Kenya had 207 stalled projects on which more than Kshs 13 billion has been spent and an equivalent amount was needed to complete them (PER, 2004). The government dropped some of these projects so as to complete the others, thus, projects were never completed on time, within budget and the quality was not ascertained.

Similarly, in constituency development projects in Kenya, a number of monitoring and controls systems were put in place for construction projects, however project overruns were experienced and to a larger extent. A study by Ngacho and Das (2014) on performance of Constituency Development Fund (CDF) construction projects in Kenya revealed that thorough monitoring systems were instituted in the CDF Act 2003 and were implemented in the CDF projects, they were still not able to guarantee performance. This happened despite many agencies concerned with monitoring and controlling the projects such as CDF monitoring Unit, the National Management Board, District Development Officer (DDO), relevant government line ministries, and other national agencies like the National Taxpayers Association (NTA). Despite all these bodies that instituted control system measures, there were still project cost, time and quality overruns. This indicates that there is a different attribute of project overruns as opposed to having technology or a number of project control systems in place. Based on this argument, then the influence of project team diversities in projects requires a rigorous study to establish its influence. A further scrutiny was carried out to establish how the implementation process of project control systems influence the relationship between project team diversity and performance of rural roads construction projects in Kenya.

In a different sector though related to this study, most researchers in ICT projects are in agreement that diversity has an influence on successful implementation of IT systems (Harris and Davison, 2002, Narayanaswamy and Henry, 2005). Narayanaswamy and Henry (2005) further agrees that creating a deeper understanding and interest for cross-cultural issues may further improve the effectiveness of project management practices. This argument had been captured by Harris and Davison (2002) who contributed to this debate by arguing that ignoring differences in project teams and organisations may inhibit information systems' implementation in global setting and increase the risk of project failure. Likewise, in the rural roads construction projects, which consisted of a more diversified project teams, requires a rigorous study to establish the role of project team diversity on performance of rural roads construction projects. Dissanayaka and Kumaransammy (1999) opined that time, cost and quality targets as well as project satisfaction tend to be the most important key to measure the overall performance of project work.

In rural roads projects, the main stakeholders include the workers, the local government, the contractor, KeRRA, Consultants, the locals of the community among others. These stakeholders are key in measuring project performance. Lim and Mohamed (1999)

considered project completion time to be the first criterion for project performance. In their study, Khosravi and Afshari (2011) ranked cost as the second most important measure of project performance. Quality of completed project is also another key aspect of measuring performance of rural roads construction projects. It is a measure of complying with relevant quality standards, and identifying ways to eliminate causes of any unsatisfactory results (PMBOK, 2013). Performance of roads can also be measured in terms of safety, client satisfaction, customer satisfaction and also employee's job satisfaction. Usage of incentives to encourage innovative improvements in rural construction was suggested by Bresnen and Marshall (2000). They proposed that issues of motivation should be right for delivering projects in rural areas in a cheaper, better and quicker manner. In the current study project performance was measured in terms of completion within cost, within quality, and within schedule and level of satisfaction by the client and the project team. Customer or community satisfaction was not included in this study because they were likely to be biased since the projects considered were under construction and they would not be informed about the project specifications and quality requirements at the time of execution.

1.1.2 Project Team Diversity

Whenever people work in groups, they need to interact or be in connection with those others who are different either demographically, by experience, training or by culture. Diversity in itself and simply put is an attribute that people use to tell that someone is different from them (Williams and O'Reilly, 1998). Broadly speaking, Mulkeen (2008) describes workplace diversity as all the differences in age, gender, sexual orientation, education, cultural background, religion, and life experience. Egan (2005) argues that individual characteristics and social systems for project teams usually create an identity based on their diversities for collaboration or for problem solving.

Levels of diversity are given in terms of secondary or primary. Primary dimensions include aspects such as ethnicity (Zopiatis, Constanti, and Theocharous, 2014), gender (Pinar, McCuddy, and Birkan, Kozak, 2011), age or generation differences (Chen and Choi, 2008), race and physical abilities while secondary dimension includes educational background, income, marital status, religious beliefs, personality and work experience. Other researchers in this area, such as Cox and Blake (1991) also include factors such as personality, cultural differences, organization structure and informal integration. In the current study and in rural roads construction setup, project team diversity in terms of demography, training, experience

and culture also is vital in contributing to levels of performance. Project team diversity would therefore be looked into in terms of demography (gender, age, and ethnicity) or psychological levels which include values, belief or culture and knowledge or skill, training and experience. It is therefore the promotion of integration and equality in workplaces of these diversity variables that enhances diversity which by extension enhances performance of organization.

In the current study the implementation process of project control systems were examined in the context of rural roads construction projects as a moderator while project team diversity may serve as a predictor variable in influencing performance of rural roads construction projects. It was therefore presumed that project team diversity and in their capacity as workers would work in such a way as to encourage or impede behaviour and attitudes that have a direct link to performance. Additionally, project teams within the construction sector and more so in road construction sector, are diverse professionally and covers a wide range of trades including engineering, architecture, planning, surveying and specialist trades. The sector stand out because of its project focus of meeting objectives, diversified workforce, time scales and deadlines, and complex project control systems. The construction industry therefore needs to address its similarity/dissimilarity professional challenges towards its workforce diversity. Further, Dainty et al (2004) argued that the industry needs to address its poor performance on people management by focusing on work cultural issues. While work-culture as argued by Dainty is one of the diversity of professionals within a construction site. Other factors such as training diversity, experience diversity and demography diversity need to be studied. As a whole the construction industry is under focus to change its emphasis on project team diversity so as to deliver projects within time, quality and cost. Ely and Thomas (2001), and Jehn et al (1999) demonstrated that diversity increases the number of different perspectives, styles, knowledge, and insights that the team can bring to complex problems. These were areas that needed deep insights especially in the construction industry since the behavioural dynamics of project team diversities bring different perspectives. This means that styles, the necessary conditions, likely consequences and overall performance implications are yet to be universally accepted (Ochieng, 2008). This study therefore established how project team diversity influences performance of the rural roads construction projects in Kenya.

Project management greatest aim is to control costs, quality and schedule and ensure satisfactory project performance. However, successful management of a construction project

in Kenya encounters many managerial and technical challenges as argued by Ochieng (2008) and Wachira and Mitullah, (2003). Their argument is general in relation to what is ailing the Kenyan construction sector. The specific managerial challenges specifically emanate from project team diversity. Cost, quality and schedule challenges coupled with project team diversity can be controlled and addressed by appropriate project team diversity during project execution.

In practice team diversity and therefore, team integration, is a major concern in project delivery throughout the project cycle. The major persisting problems in Kenya on projects success and performance include project delivery strategies such as managing project team diversities (Ochieng 2008). In addition, Baiden (2006) argues that integrating the project team, would enhance quality and optimally utilize resources effectively. The interest of this study was therefore to ascertain the extent to which project team diversity interacts with implementation of project control systems so as to foster performance. Majority of the diversity studies that have been carried out were based in developed countries while the available literature on Kenyan setting is scant, more so on road construction sector. Most of the diversity studies that have been carried out were based on a single diversity variable such as age or gender and not on multiple variables. Further little research attention has been paid to team diversity variables as an influencer on performance of rural roads construction projects in Kenya. These research gaps therefore necessitated this study on the influence of project team diversity and performance of rural roads construction projects in Kenya. The project team diversities considered included project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity and how they influence performance of rural roads construction projects.

1.1.3 Implementation Process of Project Control Systems

Projects are considered as a set of activities that must be completed in accordance to specific objectives which involve the utilization of a company's resources (Bakar et al., 2011). Organizations/companies look to forecasting tools to help them speed their progress toward performance improvement, and to guide them around pitfalls that might otherwise slow or even halt their initiatives of project performance (Zarina et al., 2014). Navon (2005) adds that a control system is an important element to identify factors affecting construction project effort.

Numerous project control techniques and tools have been developed. Such tools and techniques are used to address time, quality and cost among others. Some of the techniques such as Gantt Bar Chart, Program Evaluation and Review Technique (PERT), Critical Path Method (CPM), earned value analysis, among others, have been used. These techniques have been applied in various projects; however, there have still been project delays and overruns. Additionally, project management professionals have developed and used project management software packages such as Microsoft project, PRINCE II, Primavera, among others for enhancing controlling, but they have not been very successful or fully used in enhancing performance of projects.

In practice, project control system is usually achieved through setting performance standards usually done during planning and designing stages of project cycle and then comparing actual performance with these standards during execution phase, then taking necessary corrective actions to alleviate on the deviations (Hazir, 2015). Hazir (2015) adds that cumulatively these deviations from project activities would eventually have an impact on project schedule and cost performance. This is considered the last logical step in management and it is during the control stage of the project that addresses project overruns. Very sophisticated project control systems have been designed and implemented but still projects experience overruns and underperformance. What has not been clearly researched on include the role of the project team diversity on the implementation of these project control systems during project execution.

Project control systems address many performance criteria (cost, time, quality, risk, etc). Wi and Jung (2010) considered a project oriented virtual organization and developed an index that contains quality, time and budget components. Other researchers (Kamrul and Indra, 2010, Khosravi and Afshari, 2011) termed time to be the most important factor in the performance measurement of construction projects.

In the current study, implementation process of project control systems was measured based on the planning, installation and operation of the systems. These included the level of coordination of Project Control Systems (PCS), level of monitoring of PCS in the organisation, level of support on PCS, and simplicity in operation of PCS. This conventional criterion has been hailed for having provided a basis in evaluating the extent of success across projects (Cao and Hoffman, 2011). Toor and Ogunlana (2006) adds that implementation process of project control systems should be simple, while Willard (2005)

argues that they should be easy and timely to measure and Litsikakis (2009) remarks that they should have ability to capture the tangible benefits of the projects. This study therefore sought to establish the moderating influence of implementation process of project control systems on the relationship between project team diversity and performance of rural roads construction projects in Kenya.

1.1.4 Rural Roads Infrastructure in Kenya

Road transport in Kenya accounts for about 93% of all freight and passenger traffic. Roads are key enablers for economic, social and political development. Information obtained from Kenya Roads Board (KRB) website indicates that Kenya has a public road network of 160,886 km of which 61,946 km is currently classified while 98,940 km is unclassified. The current broad functions of the authorities reporting to the Permanent Secretary of the Ministry of Roads include Kenya Roads Board (KRB) which manage and allocate funds from the Road Maintenance Levy Fund (RMLF) in line with Kenya Roads Act 2007 which established the road authorities in Kenya whose responsibilities include; Kenya National Highways Authority (KeNHA) is responsible for management, development, rehabilitation and maintenance of national roads (class A, B, and C roads) with a total length of about 14000km; Kenya Urban Roads Authority (KURA) is responsible for management, development, rehabilitation and maintenance of all public roads in cities and municipalities except where those roads are national roads totaling to about 15,000km and Kenya Rural Roads Authority (KeRRA) is responsible for construction, upgrading, rehabilitation and maintenance of rural roads (Class D and below), special purpose roads and all unclassified roads totaling to about 136,375km. KeRRA roads covers 86% of Kenya roads network. They are spread across the country and serves higher population in relation to the other authorities, hence a reason to choose to study those projects that are under KeRRA.

The Kenyan Government vision 2030 aspires to have a well interconnected country through road network. Interconnection coupled with good roads, poverty reduction will be realized in the rural area and prosper economic growth in the country. By 2030 it will become impossible to refer to any region of our country as 'remote' in terms of infrastructure (KeRRA Annual Report, 2013). KeRRA was operationalized in 2008. Between 2009 and 2012, the authority implemented a strategic plan that has taken it through the transitional phase. During this period, there was significant improvement on the quality and number of kilometers of roads maintained and rehabilitated. The Constitution of Kenya 2010 has

necessitated the authority to develop a strategic plan that will take the authority through the second Medium Term Plan 2013-2018. Key challenges to be addressed in the strategic plan 2013-2018 among others as indicated in the R2000 Strategic Plan include: inadequate supervision, include improved funding, increased capacity, staff development and utilization and cross cutting issues such as gender, employment, and poverty alleviation (R2000 Strategic Plan, 2012).

Roads 2000 strategy requires that aspirations of Kenya's vision 2030 are achieved. Among those aspirations include social equity and diversity at workplaces. This is illustrated on gender equality (MDG No. 3) that is addressed in the Roads 2000 Strategy with 30% of employment targeted for women. Further, a third two thirds gender rule is among the mandatory requirements by the constitution of Kenya. The policy statement contained in the Sessional Paper No 5, (2006) clearly stipulates on the importance of promoting the use of local resources and labor based methods in order to maximize the poverty reduction impact of road works. The local labor is diversified with different cultures, experiences, demographics and trainings. Since the policy statement insists on the implementation of the strategy at the local level using local resources and diversified human labor, it is therefore key to establish how the diversity of the workforce influences performance of rural roads construction projects in Kenya. This argument is supported by Patroba, (2012), who argued that weak capacity of the local construction industry, leads to over-reliance on foreign firms and inputs, and poor workmanship and delayed completion of projects. This is partly what this research addressed especially managing the human factor. Further, rural road research should focus on gaining knowledge and developing systems that increase KeRRA's efficiency and effectiveness in managing the construction, upgrading, rehabilitation and maintenance of Kenya's rural roads projects. (Development of low volume roads research capacity in Kenya inception report, 2012).

1.2   Statement of the Problem

Kenya has a road network of about 180,000km out of which (Class D and below) 140,000 km belong to rural road network. Majority of the rural roads network are in the rural areas where the main economic activities including agriculture takes place. Besides accounting for 70% of the Kenya Gross Domestic Product, agriculture is the main source of raw materials for Kenyan industries. Failures of completion of the rural roads construction projects within time, quality and budget in Kenya has resulted into undeveloped rural economy. Agricultural

products from the rural areas are not reaching the market on time, the rural roads networks are inadequate, employment opportunities are gender skewed and the youths and marginalised groups are disadvantaged. These challenges are resulting in increased rural poverty and increased transport costs.

KeRRA projects were conceived premised on constitutional requirements of increasing performance of rural roads which would in many cases foster rural economic growth and reduce rural poverty. It is a requirement in the Sessional Paper No 5, (2006) that the authority develop a strategy to address inadequate supervision, improved funding, increased capacity, staff development and utilization and also address cross cutting issues such as gender, employment, and poverty alleviation. Aspirations of Kenya's vision 2030 such as social equity and diversity at workplaces emphasizes on gender equality (SDG No. 5) which is also addressed in the Roads 2000 Strategy and in the Constitution of Kenya 2010. Governments such as Malaysia and Indonesia who increased their rural infrastructure were followed by economic growth and reduction in rural poverty (World Bank, 1994, Booth, Hanner and Lovell, 2000). In India during the implementation of rural roads projects, National Rural Roads Development Agency (NRRDA) report (2010) indicated that weak implementation capacity can affect projects performance despite safeguards of project controls. The project performance evaluation report by African Development Bank report (2009) on Lao People's Democratic Republic on rural access roads revealed that project execution was characterized by delays and cost overruns, some of which could have been avoided by better project management during project execution. The fact that rural project overruns are still common and that they are being attributed to poor project team management, then there is need to establish how project team diversity in project execution influences project performance.

Many previous studies have mainly focused on identifying the poor team management factors that cause project cost and time overrun but few have examined the factors that make it difficult to control these overruns (Hoffman et al, 2007, Shane et al, 2009). In rural roads construction projects, project teams are setup with professionals from diverse backgrounds, trainings, experiences, cultures, and other differences which are blended together to deliver projects objectives (Almahmoud et al, 2012). These construction professionals work within a mix of skills and judgement (Abdul-Rahman, et al, 2010) and their differences manifest in the course of exercising their skills and judgements during project execution (Zhang et al., 2013) which leads to high level of fragmentation of the professionals due to their diversities. Such levels of diversity in project execution would lead to huge time, cost, and quality

overruns. Hence this calls for sound project team diversity in project execution so as to deliver projects on time, quality and cost (Jimoh, 2012). This gap, therefore calls for a rigorous study to ascertain how project team diversity influence performance of rural roads construction projects in Kenya.

Researchers have stressed the importance of relationship practices within teams for project success (Wang and Huang, 2006). This relationship is anchored on the fact that employees are the implementers of the projects are diverse in terms of age, race, gender, experiences, training, cultures and backgrounds. Hubbard (1990) posit that managing people effectively can have a significant impact on the results of a project since, as noted by most studies, major project failures are related to project team diversity related issues. Thus, in the current study, the influence of project team diversity on performance of rural roads construction projects were studied.

This subject has not been adequately studied in developing countries and indeed Kenya, especially on a heavily funded government institutions like KeRRA. The influence of project team diversity on performance of rural roads projects in Kenya therefore remains unknown. It is a fact that such institutions are composed of diverse workforce both individually and collectively. Based on this information and the many challenges of diversities that rural roads construction projects face, there was need for investigation of project team diversity factors influence performance of rural roads construction projects and also ascertain the role of implementation process of project control systems on this relationship. The findings of the study would provide clients, project directors, project managers, project leaders, and multinational construction organisations with a framework for balancing project team diversity in projects and implementation process of project control systems. Therefore, it was against this background that this study sought to focus on project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya.

1.3   Purpose of the Study

The purpose of this study was to examine the influence of project team diversity on performance of rural roads construction projects in Kenya. It also sought to determine the moderating influence of implementation process of project control systems on the

relationship between project team diversity and performance of rural roads construction projects in Kenya.

1.4   Objectives of the Study

The objectives of this study were:

i.   To establish how project team demographic diversity influences performance of rural roads construction projects in Kenya.

ii.   To determine how project team training diversity influences performance of rural roads construction projects in Kenya.

iii.   To establish how project team experience diversity influences performance of rural roads construction projects in Kenya.

iv.   To determine how project team work-culture diversity influences performance of rural roads construction projects in Kenya.

v.   To establish how combined project team diversities influences performance of rural roads construction projects in Kenya.

vi.   To investigate the extent to which implementation process of project control systems influences the relationship between project team diversity and performance of rural roads construction projects in Kenya.

1.5   Research Questions

This study sought to answer the following research questions:

i.   How does project team demographic diversity influences performance of rural roads construction projects in Kenya?

ii.   How does project team training diversity influences performance of rural roads construction projects in Kenya?

iii.   How does project team experience diversity influences performance of rural roads construction projects in Kenya?

iv.   How does project team work-culture diversity influences performance of rural roads construction projects in Kenya?

v.   How does combined project team diversities influences performance of rural roads construction projects in Kenya?

vi.   To what extent does implementation process of project control systems influence the relationship between project team diversity and performance of rural roads construction projects in Kenya?

1.6   Hypotheses of the Study

The study tested the following hypotheses:

i.   **H_{I1}**: Project team demographic diversity significantly influences performance of rural roads construction projects in Kenya.

ii.   **H_{I2}**: Project team training diversity significantly influences performance of rural roads construction projects in Kenya.

iii.   **H_{I3}**: Project team experience diversity significantly influences performance of rural roads construction projects in Kenya.

iv.   **H_{I4}**: Project team work-culture diversity significantly influences performance of rural roads construction projects in Kenya.

v.   **H_{I5}**: Combined project team diversities significantly influences performance of rural roads construction projects in Kenya.

vi.   **H_{I6}**: The strength of the relationship between project team diversity and performance of rural roads construction projects in Kenya depends on implementation process of project control systems.

1.7   Significance of the Study

Construction and the development of infrastructure especially roads, are fundamental to economic growth and societal advances. Substantially cost and time escalation on construction and infrastructure projects is the rule rather than the exception (Flyvbjerg et al. 2003). This study therefore provided information on project team diversity and performance of rural roads construction projects in Kenya. It also provided further information on how implementation process of project control systems moderate the relationship between project team diversity and performance of rural roads construction projects in Kenya.

It is therefore hoped that the findings of this study would increase the understanding of the influence of project team diversity on performance of rural roads construction projects. This study would also have practical implication on project managers, project planners, clients, contractors and all stakeholders involved in project team diversity on rural roads projects.

More significantly the findings gave insight into how project team diversity influence on performance of rural roads in Kenya. This information will be helpful in our society in improving the understanding how the people's diversities would foster performance when well-integrated at work places.

Information on project team diversity such as demographic diversity, training diversity, experience diversity and work-culture diversity was studied on how they influence performance of rural roads construction projects. Such information will be important in making decisions of staffing and capacity building and also in designing the project control systems. Further it is also hoped that the findings would advance knowledge on project team diversity, implementation process of project control systems and performance of rural roads construction projects and therefore form a base for future studies by those who want to pursue further research in this area.

1.8   Limitations of the Study

This study had some limitations. First, was the vast area for conducting the study. The geographical locations of KeRRA funded projects in the country were widely spread out and therefore a challenge of traversing the area within available time. To mitigate these challenges research assistants were hired and trained, and then steadily planned how they would traverse the study area and collect the information. The study area was divided into Nairobi region, Central region, Mt Kenya region, Meru region, Rift Valley region, Nyanza region and Western region. The research assistants systematically visited each project one at a time. So as to safe on time, the researcher started data cleaning, coding and verification on each day after data collection and this created time for analysis and report writing.

Second limitation was the nature of the information required. The study endeavoured to gather information on demographic diversity, training diversity, experience diversity and work-culture diversity and on performance of rural roads construction projects in Kenya. Such information was considered sensitive by some workers, project site engineers and other project practitioners. In such cases, they were assured of their anonymity and that the information would be confidential and be used for academic purposes only.

Third, some respondents who were participating in research for the first time took a lot of time in being explained to on the importance of participating in the research. The researcher minimized this by providing approval documents from the University of Nairobi, National

Commission of Science, Technology and Innovation (NACOSTI), KeRRA and from the site engineers before commencing collecting the data. Through the site engineer, this was also explained to the middle level supervisors who informed those working under them about the study and this made it easier to access the sampled workers.

The study was mainly limited to cross sectional survey research design. This would not elaborate the influence of the independent variables on the dependent variables over a period of time. This notwithstanding, efforts to triangulate the information collected by use of observations, questionnaires, in depth interviews on the key informants was put in place. The corrective measures put in place ensured that the limitations did not adversely affect the authenticity of the results of the study. Further, the study was scientifically designed based on a thorough literature review. The analysis, interpretation and reporting of the findings were rigorous. The study can therefore have a valuable contribution towards the existing body of knowledge on project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya.

1.9   Delimitation of the Study

The study was delimited to establishing the influence of project team diversity on performance of rural roads construction projects in Kenya. The predictor variables studied included project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity. The influences of these variables on performance of rural roads construction projects as moderated by implementation process of project control systems were also studied. Further, the study was based on mixed methods approach, and cross sectional descriptive survey. Simple random sampling, systematic sampling, stratified sampling and purposive sampling were used to get an appropriate sample for the study. Observation, questionnaires and in-depth interviews were used to collect data.

The study focussed on the projects funded by Kenya Rural Roads Authority (KeRRA) in Kenya. The workers working with the construction companies were targeted for the study. Casual workers who were seeking jobs from the company on daily basis were excluded from the study. This was so because their information on activities of the company would be limited and that company would not have invested on them in terms of training and professional development.

Thirty (30), KeRRA funded projects that were on-going construction were studied. Those projects that had been completed were excluded from study since the influence of the project team diversity was measured on the on-going projects (during implementation process of project control systems). Whereas this study was based on sample of projects funded by KeRRA in Kenya, the findings can be generalized to all other rural and urban artery roads in Kenya. The study included construction project workers who were directly involved in the construction tasks on those projects. Whilst there could be many factors that influences performance of rural roads construction projects, this study delimited itself to project team diversity variables which included project team demographic diversity, project team training diversity, project team experience diversity, project team work-culture diversity and implementation process of project control systems.

1.10 Assumptions of the Study

The study entailed investigating how project team diversities influences performance of rural roads construction projects. It was therefore assumed that project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity influences performance of rural roads construction projects. It was also assumed that the respondents answered the questions truthfully and objectively and that other factors not included in the current study did not influence the relationship under investigation or that they were held constant.

1.11 Operational Definition of Terms

This section gives definition of significant terms as used in the current study. These terms include:

Daily Casual worker: Members of the project team who seek job from the company on daily basis and who are paid on daily basis too.

Implementation process of project control system: In the current study, it is defined as the whole process of planning of the introduction of a control system into an organization, installation and operation of the developed project control system with an aim of improving performance of projects.

Performance of rural roads construction projects: The status of rural roads being able to be completed within time, cost, quality to the satisfaction of the users, client, and the workers.

Project team diversity: Are the differences in varieties of workers and how they look at themselves differently or similarity from the others in terms of demographic factors, training factors, experience factors and work-culture factors during their interactions during project construction. In the current study project team diversity was discussed in terms of demographic diversity, training diversity, experience diversity and work-culture diversity.

Project team demographic diversity: It refers to as the perceived differences or similarities based on varieties of demographic characteristics of the workers in terms of age, gender, religion and ethnicity during their interactions in project execution.

Project team training diversity: Refers to the perceived differences or similarities among workers based on varieties of training attributes of project team members in terms of training background, on job training and progressive training during project execution.

Project team experience diversity: Refers to the perceived similarities/dissimilarities of different experiences possessed by the project team members in terms of professional experience and on job experience.

Work engagement: Refers to work-related interactions among the workers and with the supervisors mainly in sharing of information.

1.12   Organization of the Study

The study is organized into five chapters. Chapter One is introduction. It gives the historical background to the study, statement of the problem, purpose, objectives and research questions, hypotheses of the study, significance of the study, limitations, delimitation and the assumptions of the study, definition of significant terms and organization of the study.

Chapter Two is literature review which deals with the review of the relevant literature related to the study topic, theoretical underpinnings, conceptual framework, and summary of research gaps. The third chapter is the research methodology. The chapter focuses on the research paradigm, research design, target population, sample size and sampling procedures, data collection instruments, validity and reliability of the instruments, data collection procedures, data analysis, ethical considerations and operationalization of the variables. Chapter Four covers data presentation, analysis, interpretation and discussions. Lastly, Chapter Five of this study covers on summary of findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter focuses on the review of relevant literature. It presents literature on performance of rural roads construction projects, project team diversity variables and implementation process of project control systems. Theoretical frameworks and a conceptual framework upon which this study was anchored is also discussed.

2.2   Performance of Rural Roads Construction Projects

Performance outcomes of rural roads is based on the assessment of various stakeholders such as clients, donors and project sponsors and road users who would assess the performance in terms of project finish within time, budget, cost, quality, safety and meeting the intended customer objectives, while others like the NGOs, communities, would assess performance in terms of economic and social impacts after the project completion. Few authors have argued how to measure an ongoing project. The above examples infer that the debate about how to measure project success and performance is still not conclusive (Klagegg et al, 2005). This is because every stakeholder would measure the project performance in his or her own perspectives of success. However, some researchers have argued that project completion within time, cost and scope, and maintaining quality throughout the cycle of the project, are very common dimensions of success factors as mentioned by project management professional bodies and the research community (Kamrul and Indra, 2010). This argument is in line with Atkinson (1999) who argued that a project being a one-time task is usually constrained by time, cost and quality and the project's success depends on how well these constrains are balanced. Diallo and Thuilleir (2004) in an attempt to come up with a criterion for measuring performance, they outlined a comprehensive set of evaluation criteria that includes satisfaction of beneficiaries, conformation of goods and services produced, achievement of project objectives, completion of the project in time and within budget, receiving a high national profile and receiving a good reputation among principal donors. This implies that project performance categorization depends on who the stakeholder is and in what sector performance is being measured under. Lack of the conclusion on how to measure performance, greatly informs the reason for this study, so as to establish

measurement of performance during project construction from the workers' perspective merely because they are the ones directly involved in executing the project.

While it is largely acceptable that there are various factors of measuring performance, in the current study, project performance was measured by the main and largely acceptable ways of measuring performance which included project being finished within time, cost, quality and meeting the satisfaction levels of the client and workers. This is based on the measurement and monitoring of the performance criteria of the projects as argued by Barclay and Osei-Bryson (2010) which has traditionally been associated with the variables of time, cost and quality so called iron triangle (Wi and Jung, 2010). Mostly other categories of measuring performance are usually added to this. Out of this additional criterion, scholars are not in agreement on which criteria to use in measuring performance. Some support the traditional method with some addition (Almahmoud et al., 2012, Jha and Iyer, 2007) while others suggest more other different categories (Laura et al., 2010, Toor and Ogunlana, 2010). While this debate on the acceptable project performance measurement is ongoing, in the current study therefore, performance of rural roads construction projects was measured using the traditional method in terms of rate to complete project in time, rate of completion of project within budget and acceptable quality. Other criteria such as client as well as project team satisfaction were also considered. This was based on the arguments by Toor and Ogunlana (2010) that a mix of both quantitative and qualitative performance measurement such as stakeholders' satisfaction should also be used. Similar sentiments have also been pronounced by Jha and Lyer (2007).

Additionally, in rural roads construction projects in Kenya, the main stakeholders include the client who is KeRRA, the contractor as represented by the workers among others. These stakeholders are key in ensuring project performance during construction. However, scholars have tried to establish the factors influencing performance of projects at completion, few have based their criteria on workers who are directly involved in the execution of project. Among them include Lim and Mohamed (1999) who considered project completion time to be the first criterion for project performance. Other researchers (Kamrul and Indra, 2010, Khosravi and Afshari, 2011) termed time to be the most important factor in the performance measurement of construction projects. In other studies, construction cost, has been identified as an important measure of performance in almost all studies relating to the performance of construction projects (Chan and Chan, 2004, Zuo et al., 2007, Kaliba et al., 2009). In their study, Khosravi and Afshari (2011) ranked cost as the second most important measure of

project performance. Road construction sector in Kenya has many stakeholders and hence poses challenges of measuring performance, but among the factors proposed by Diallo and Thuiller (2004) formed the factors of consideration in the current study. This study therefore adopted these parameters to measure performance based on the workers' perspectives during construction of rural roads construction projects.

Quality of completed project is also another key aspect of measuring performance of rural roads construction projects. It is a measure of complying with relevant quality standards, and identifying ways to eliminate causes of any unsatisfactory results (PMBOK, 2013). The inclusion of quality in the performance measurement of construction projects has been reported by several researchers including Jha and Iyer (2006), Palaneeswaran et al. (2007), Ogano and Pretorius (2010), Love et al. (2010) and Yung and Yip (2010). Quality as a measure of project success goes hand in hand with the measure of cost of projects. Cost as a measure of project performance was, however, ranked third by Khosravi and Afshari (2011) in their study of success measurement amongst power plant, utility and cogeneration construction projects. Chan and Chan (2004) observed that quality is an important measure of project performance because it constitutes the guarantee that the project would serve its purpose. The current study also measured performance of rural roads construction projects through the rate of re-works by the workers of already completed tasks that resulted from construction of rural roads.

Challenges of quality measurement have been many. This was articulated by Kim et al (2012) who acknowledged that in real situations, sometimes overall project quality meets project quality targets but if any single project activity does not meet the project contractor's requirements, reworks or modifications may be necessary and are associated with time delay and cost overrun. Paquin et al (2000) concurs with other scholars by saying that the earned quality method assists project managers in detecting the quality variance of project activities, and allows them to take early corrective actions by comparing actual quality with planned quality. While Martin and Tate (2001) would argue that so long as the project outcome that meets or exceeds the project contractors' expectations, is deemed successful, Kim et al (2012) adds that the project must be profitable. Further, they argue that completing the project within budget is not sufficient enough because the work must also be of acceptable quality. It is therefore true that quality is a significant criterion for measuring performance of projects and in this case, performance of rural roads construction projects in Kenya. This usually entails performing quality checks after completion of each individual activity and

corrective actions taken by either reworks or modifications if the quality is below standards. The quality expected are usually provided in the project contract document.

Workers' job satisfaction is also a very important attribute of measuring rural roads performance. The satisfaction by the workforce would foster performance of the project. While Warr (2001) defined job satisfaction as the perceived quality level of social interaction and related enjoyment within a work setting. Once the employees feel motivated and happy, then their performance increases in terms of productivity which then has a direct correlation with overall project performance. Consequently, job satisfaction implies better project team diversity within the project hence a direct correlation to performance of rural roads construction projects in Kenya.

Workers job satisfaction further relates well with innovations in rural roads construction projects. Usage of incentives to encourage innovative improvements in rural construction was broached by Bresnen and Marshall (2000). They proposed that issues of motivation should be right for delivering projects in rural areas in a cheaper, better and quicker manner. But they claim that the appropriate type of incentives to be used and aligned to the nature of the work should be those that are in line with the client. Similarly, Shapiro et al. (2007) reported that incentives in construction contracts should consist of performance bonuses based upon innovation and milestone achievements. These incentives could range from increasing salary, commendations or promotions. This approach has been advanced by Rose and Manley (2005) and Kunhee et al. (2010) who further argued that financial incentives alone would motivate contractors and thus reduce contract cost, minimize contract duration and achieve performance standards. Alternatively, and very critical for basing this study is the assertion by Tang et al. (2008) who suggested that critical for project success is the use of incentives as a method for promoting a culture within which technical and process innovation can flourish in an organisation. This study therefore measured performance of rural roads construction projects by basing on the widely-used methods of cost, schedule, quality and client and workers' satisfaction.

2.3 Project Team Demographic Diversity and Performance of Rural Roads Construction Projects

Demographic diversity variables such as age, marital status, religion, tribe/ethnicity, affects relationship among employees in workplaces. Supported by Social Identity Theory and

Social Categorization Theory, informal grouping usually form based on these factors. Gellert and Schalk (2012) carried out a study on the influence of age and age-related attitudes on the relationship and performance at work among employees that affect performance in mentally and physically demanding work settings. They conducted a research in six residential homes for the elderly in German where by data was collected from 152 respondents using questionnaire and analysed data using Multi-Hierarchical Regressions. They examined relationships at work, in-group cooperation, relationship with the leader and relationships with colleagues. They observed that individual diversity in terms of training, experience, professional background and demographic attributes can influence the quality of the relationship. In other words, age related attitudes develop at the workplaces and influences performance. This argument though the setup was in elderly homes, there was necessity for its applicability to be rigorously assessed in rural roads construction projects in Kenya, hence this study. Based on Gellert and Schalk (2012) findings, it was therefore necessary to determined how age related perceptions of workers in rural roads construction projects contribute to performance of projects. As advanced by social identity theory, members of a group would aggregate towards those other members of similar age. By so doing interactions, relationships and behaviours would either positively or negatively enhance performance.

Demographic diversity generates attitude to work and it can be either in form of age differences of employees, gender, ethnicity religion and other demographic factors. Gellert and Schalk (2012) from their study further argues that positive perceptions on experience, professional background, attitudes, age, genders shall result into high performance. This resonates well with Baumeister and Bushman (2010) who in their study argues that individual and group interests should merge for higher performance and productivity. This is in support of the social identity theory and social categorization theory. This means that individuals from different demographic diversity would merge their differences in age related experiences to merge with high productivity and performance. Based on these postulations, this study sought to establish if there is a significant influence of project demographic diversity based on perceptions of workers on age, gender, ethnicity and religion on performance of rural roads construction projects in Kenya.

While someone would think that, performance sometimes is indirectly proportional to age, Peterson and Spiker, (2005) established that there is no significant difference in performance between older and younger employees and in some cases older employees performed better

than their younger colleagues. Gellert and Schalk (2012) study tried to explain this phenomenon by arguing that experience in terms of age might be an important buffer to compensate for stress, where stress in this case is the negative response to constant, emotional, communicative, and contact intensive work that requires a high degree of interaction among employees. Other scholars like Peeters and Emmerik (2008) also argued in support of this analogy. However, Schalk et al., (2010), Streb and Voelpel (2009) and Walker (2006) argue that older workers are in practice often considered as less flexible, less adaptable to new technology, less willing to cooperate and learn new skills, as well as costlier. In furtherance to this, and due to the fact that age brings on board differences in experiences, cultures and trainings, and the integration of all these varied attributes, it was therefore important for this research to determine the level of performance of the projects when such factors are considered in influencing performance of rural roads construction projects in Kenya.

Diversity of age among the workers could be a greatest consideration among the demographic diversity. In a related study by Wegge, et al (2008), who studied on the influence of age and gender composition on group performance and self-reported health disorders, examined data from 4,538 federal tax employees working in 222 natural work unit groups. Age diversity was found to correlate positively with performance only in groups solving complex decision-making tasks. Wegge, et al (2008) further found out that age composition also had a significant effect on group performance, such that groups with a high proportion of female employees performed worse. They therefore concluded that age and gender diversity seemed to play a unique role in performance. Their study was based on volunteer participants from tax departments in North Rhine–Westphalia in Germany using questionnaires. Their study emphasized on task complexity and group size as a moderator between age and gender diversity and group performance. Therefore, the current study examined how age diversity would influences performance of the rural roads construction projects.

Gender diversity would be a factor to consider when establishing corporate performance. A study by Isabel et al (2010) on the influence of gender diversity on corporate performance was based on Spanish corporations which were listed on the Madrid Stock Exchange over a period of 2004-2006 indicated that companies with higher levels of gender diversity do not obviously outperform other companies with lower levels, in terms of several market and accounting measures. It was therefore concluded that gender diversity may not influence

corporate performance. These finding were based on the high level of management hierarchy. A study by Kunze et al (2014) investigated organisational performance consequences of age diversity. They based their studies on social categorization theory and social identity theory. The sample was 147 companies. The results indicated that low negative top managers' age stereotypes as well as high diversity-friendly human resource policies are potential organisational factors that can prevent the negative relation of age diversity with organisational performance transmitted through the negative age-discrimination climate. The above findings imply minimal influence of gender on performance of projects. It was therefore necessary to undertake the current study to establish the extent which age diversity influence performance of rural roads construction projects.

Gender as a main factor in demographic diversity, is broadly based on either sex role or gender role. Differences between male and female gender stem from the environment and culture surrounding them and that they are likely to influence the way they make decisions and approaches to work performance. Sex roles are biologically explained while gender roles focus on psychological, sociological and cultural differences (Claes, 1999). Gender with its inherent differences in personal qualities and attributes, affects how people perceive and explain leaders (Chow Hau-Siu, 2005). Based on social feminism and social learning theory, mostly men are explained as being aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader while women are explained as being affectionate, helpful, kind, sympathetic, interpersonally sensitive, nurturing, and gentle (Eagly and Diekman, 2003, Eagly and Karau, 2002). Project leadership has traditionally been associated with masculine characteristics, thus women who exhibit more feminine characteristics may not be seen as legitimate leaders. However, when women take on masculine characteristics, they are evaluated unfavourably because they are acting outside of the feminine gender role (Koch, 2005, Phelan and Rudman, 2010). Especially on lower level of management such as execution of projects in rural roads construction projects, it calls for some power strategies on project team diversity. How gender is perceived among the workers during execution of tasks and how it influences the outcome of project results was the basis of this study.

A study carried out by Sander et al (2013) on the impact of gender diversity on the performance of business teams. The teams consisted of undergraduate students from business studies class. Gender composition was manipulated for the teams. The teams with

an equal gender mix performed better that male-dominated teams in terms of sales and profits. Gender discrimination is a worldwide challenge at work places. A study was carried by Khalid and Aroosh (2014) on outcomes of gender discrimination basing on female workers in the banking sector of Pakistan. Data was collected from both males and females working in private banks through questionnaires. A sample of 166 questionnaires were used. The results revealed that gender discrimination did not have as such an impact on employee performance and organisational commitment. The above results were also tested in the current study to ascertain the influence of gender diversity on performance of rural roads construction projects.

Road construction projects as said earlier is usually a male dominant profession, and based on social learning theory those women who adopt this as a profession, could be construed to intervene and get little support from the male project team members. The perceptions of the project team on these attributes would result to either cohesion or conflict within the workers. Egan (2005) posits that gender diversity has been found to enhance employees' overall creativity and innovation because of the combination of different skills, perspectives and backgrounds that men and women tend to possess. Empirical studies conducted by Frink et al. (2003) support these positive views of diversity, even going as far as to suggest that an organization's optimal performance is achieved at maximum gender diversity (50% women). However, a study by Joecks et al, (2013) on gender diversity in the board room and firm performance based their study on critical mass theory. They collected data from 151 listed German firms for the year 2000-2005 to explore whether the link between gender diversity and firm performance follows a U-shape. They found evidence that at first gender diversity affected firm performance and only after the critical mass of about 30% women had been reached that it was associated with high performance.

Gender differences can be the underlying reason for firms' performance. In a study in the banking sector in United States, Richard (2000) explored the relationship between racial diversity of the workforce and the firm's performance of a sample size of 63 banks. The dependent variables were productivity, return on equity and market share performance. The hypothesis that racial diversity would be positively linked to firm performance was not supported. The extent to which these gender attributes influence the performance of rural roads project was the focus of this study. Further the intentions of the current study were largely enticed by the study of Wolfram and Mohr (2010) who studied on gender typicality of economic sectors and gender composition of working groups as moderating variables in

27

leadership research. In their study 455 team members answered questionnaires about their work satisfaction and their team leaders' transformational leadership, whilst 142 team leaders answered questions regarding their teams' goal fulfilment. They found a positive interrelation between transformational leadership and followers' work satisfaction for male leaders, but not for female leaders. This therefore implied that gender diversity at workplace would have a direct impact on the satisfaction of the stakeholders in projects. It was therefore necessary for a study to confirm this analogy in a rural roads construction sector hence the current study.

The issues of inequality are widely spread in all public and private entities. Construction industry is worst hit. A study done by Powell (2012) with an aim of reviewing six different ways of looking at sex, gender and leadership. The approach was to define the proportions of power and authority, leader preferences, leader stereotypes, attitudes towards women as leaders, linkages of leadership theories to gender stereotypes. The findings from this study indicated that managerial playing field continues to be tilted in favour of men and behaviours associated with the masculine gender stereotype, a phenomenon that occurs despite what leadership theories and field evidence would suggest. According to Brandt and Laiho's (2013) study, female leaders were rated by their subordinates as being more enabling and rewarding than their male counterparts, and males were rated as being more challenging than females. Prejudice on gender roles and leadership is common in the construction industry. In their discussion on a role congruity theory on prejudice toward female leaders, Eagly and Karau (2002) propose that perceived incongruity between the female gender role and the leadership role leads to two different forms of prejudice; perceiving women less favourably than men as potential occupants of leadership roles and evaluating behaviour that fulfils the prescriptions of a leader role less favourably when it is enacted by a woman.

Women do not progress at the same rate as men in men dominated working environment. Athena (2001) contributes to this argument by arguing that women's work is invisible hence are not given the same encouragement as men and usually assumed for promotion and other challenging jobs. Additionally, Bagilhole, (2002), also argues that women are found to be vulnerably disadvantaged and discriminated in male dominated occupations. Legally governments have put laws to address discrimination and representations. In UK women now form 45% of the work force (Labour Market Trends, 2001). In Kenya, the constitution insists of a representation of 30% of either gender. Gender balance has several advantages such as removal of discriminatory employment practices, provision of equal opportunities,

reduced staff turnover, reduced litigation fees, tapping skills to a wider talent, increased diversity, improved customer service and enhanced staff morale (Dainty et al., 2004). The current study sought to identify the extent to which the road construction industry in Kenya had adopted this system and the level of project team satisfaction in rural roads construction projects in Kenya.

Studies on gender role in leadership behaviour have been based at management levels and not at the implementation level. Accordingly, and based on the role on gender in influencing behaviour, this study focussed on gender diversity and project performance. The goal was to assess the extent to which gender diversity as a demographic factor influences project performance. The choice of this focus was due to the need of more information on how gender diversity manifest in project management. By carrying out this study at both the management and implementer's level of the project control systems, the study offered a new perspective on how gender diversity influences performance of rural roads construction projects. It also developed an understanding how employees and employers view diversity in rural roads construction projects and hence enhance awareness of gender and performance of projects.

Religion diversity and commitment to it at work place is a key aspect of motivation for the workers. A study by Petchsawang and Duchon (2012) on workplace spirituality, meditation and work performance expressed that people who regularly practiced meditation had higher workplace spirituality scores than people who do not regularly practice meditation. They also indicated that spirituality related to work performance.

Ethnic minorities are usually underrepresented in employment in the construction industry. Embracing on ethnic diversity would help in appealing to a wider range of customers, suppliers and the local communities in which they operate. McKay et al., (2008) carried out a study using data from a sample of 6,130 workers employed in 743 stores of a large, United States retail organization, this study assessed whether diversity climate moderated mean racial ethnic difference in sales performance. Findings indicated whites exhibited significantly higher sales performance than Hispanics but not Blacks, as moderated by diversity climate. This study considered one aspect of diversity; ethnicity and did not consider other diversity variables of demographic diversities such as gender, age and religion. Applying McKay et al., (2008) logic to this study, it is expected that employees from ethnic minority working in rural roads construction projects to expend a greater effort

to perform otherwise their work and contribution to job performance is likely to be below par due to dominancy from the majority ethnic representation. A study by Richard (2000) found a positive relation between racial diversity and firm performance in organisations pursuing a growth strategy. However, in the current study, ethnic diversity was expected to influences performance of rural roads construction projects. This study also considered other demographic variables such as gender and age. This is supported by Social Categorization Theory which says that social grouping shall be based among other factors such as ethnicity, age, sex and gender and these groupings would largely contribute to levels of performance in terms of how they are being perceived.

The previous studies indicate mixed results sometimes either a small, positive or negative or no influence at all of demographic diversity on performance of projects. These mixed results indicate that the influence of demographic diversity on performance of projects depends on the contextual factors. Consequently, the findings of the previous studies could not be generalized to all projects in all sectors. Hence it was necessary for the current study to establish the influence of project team demographic diversity on performance of rural roads construction projects in Kenya.

2.4 Project Team Training Diversity and Performance of Rural Roads Construction Projects

Training is one of the key issues of maintaining performance and eventually minimizes project overruns. Further, it is usually not easy to find a job without a comprehensive prior training. Myaskovsky et al., (2005) carried out a study to ascertain the combined impact of gender composition and training method on both the performance and interpersonal behaviours exhibited in small work groups. The groups were trained to assemble the portion of a radio and tested one week after. Myaskovsky et al., (2005) results indicated that groups whose members were trained together took longer to assemble their radios and made more errors than groups whose members were trained apart. The results emphasized the importance of understanding project team training diversity especially when discharging skilled judgment on tasks where other professionals are taking part. They also argue that when workers are trained separately, may rely on stereotypical, inaccurate beliefs to identify each other. A strong and mentoring culture usually practiced by most organizations probably considers the importance of project team training diversity among workers.

Training project teams together enhances group performance with an aim of developing transactive memory system (Myaskovsky et al., 2005). Group training is perceived to be a complimentary approach to the trainees. Myaskovsky et al., (2005) based on his study further argues that group training enables each worker to end up not only knowing about him/herself but also learns about what other group members know about the task. By so doing when group members cannot recall certain information themselves, they can turn to each other for information. Myaskovsky et al., (2005) argues that during group training, relationships are developed based on the social identity theory and social categorization theory based on the training diversity attributes and that personalized relationships would create perceived high quality relationships and hence influence employee performance (Graen et al, 2004). In the current study, training background diversity, on job training diversity and progressive training diversity were studied based on their influence on performance of rural roads construction projects in Kenya.

Training background diversity of the workers is usually the initial basis upon which recruitment takes place. In the field of construction Walesh (2000) carried out a study by examining the education needs of civil engineers. Walesh (2000) reported that engineering oriented employers are now seeking workers with exceptional people skills in addition to technical competency. Diversified individual skills and qualifications are sought for and this brings about a debate as to why there is a significant interest in examining the impact of the personal characteristics of an individual, such as skill, personality, experience and motivation, on the effectiveness of individuals in job performance (Dulaimi, 2005). In examining these factors, he further adds that workers' behaviour depends on factors such as age, gender, and educational level. Silverstein (2008) contributes to this debate by arguing that limitations of age and education can be compensated, through practice, training and experience. Notably, these were the same project team training diversity factors considered in the current study albeit based on performance of rural roads construction project context in Kenya.

Progressive training of the project team together enhances performance. A study by Khan (2012) on the impact of training and motivation on performance of employees, concluded that training contributes greatly to employee's performance. Scholars have drummed support for education, training and experience as the three sources from which project managers can develop their knowledge and skills. Dulaimi (2005), in his study on influence of academic education and formal training on Project Managers' behaviour. The results indicated that for

an academic and professional development programmes to provide the right balance (in content and emphasize), technical knowledge and the people management skills should be mandatory for young professionals. The current study therefore endeavoured to establish how project team training diversity would influence on performance of rural roads construction projects in Kenya.

Training should be geared towards obtaining a specific skill which can be defined. In this regard, training would be taken as practical and job oriented and is in terms of methods and procedures. The current study would argue that once there is a mismatch between the project team training diversities, the leaders should be trained so as to improve the leadership and get situational controls especially during execution of projects. Dulaimi (2005) is of the same opinion in arguing that training is a source of motivation of construction workers and also it improves the individual's performance thus doubles up performance. The current study was based on these arguments however in the context of rural roads construction projects in Kenya.

2.5 Project Team Experience Diversity and Performance of Rural Roads Construction Projects

Road contractors hold experience of the workers seriously. It is therefore believed that road contractors rely so much on their long-term employees to deliver projects. Experience is an important source for the development of construction project managers where managers would develop new knowledge and skills through doing things (Dulaimi, 2005). Those who have learnt through experience usually after a long time are motivated by their experience. This is explained by the expectancy theory of motivation that individuals are motivated by future expectations based on previous experience of performing a particular task in certain way and the outcome of such performance (Porter et al, 1975). This way of obtaining experience would limit the practitioners to either develop or acquire new knowledge and skills. The challenges begin where those experiences are diversified within the team members to an extent that they bring about conflicts of interests. When such interests and conflicts prevail; time, cost and quality overruns are likely. The extreme results out of the above conflicts are costly disputes that may cause projects delay and minimize the realization of project objectives.

On job experience is coupled with the period one has worked in the company or the period one has worked with their trade. Generally, it is referred to as tenure in other studies. Tenure points out to a positive influence on performance through enhancing performance. However, one should be aware of the job burnout which results to poor job performance (Maslach et al, 2001). On a research study based on employees in a store of a large United States retail company, it was established that job immobility is also known to be a function of poor performance (McKay et al., 2008). On the other hand, it was also established that performance increased with the age of employees, which, according to the authors could be explained by cohort differences in work ethics, perhaps related to increased motivation and subsequent performance among older workers due to experience. It was also established that other factors also influence high performance such as working full time and the positive diversity climate in a store. In concluding their study, McKay et al., (2008) argued that one must take into account that factors such as diversity climate perceptions and consequently variables such as race, mediate the relationships between job tenure and organisational commitment on one hand and employee retention and turnover on the other, all in all influencing performance. This approach was also applied in the current study to establish how tenure or on job experience as an indicator of experience influences performance of rural roads construction projects in Kenya.

A study by Kotur and Anbazhagan (2014) investigated on factors education and work experience and how they influence the performance levels of the workers in the Chittoor Sugar factory located at the Chittoor town of South India. They used a sample size of 112 workers and 32 supervisors. It was established that the two variables under investigation had direct effect on the performance of the workers to varying degree where by workers in the medium range on educational qualification perform better compared those in the extremes and the same holds good in the case of work experience as well.

Most project practitioners are looking for project managers with a professional experience in leadership skills as opposed to technical skills. This is supported by Dulaimi (2005) who did a research on the influence of academic education and formal training on the project manager's behaviour and found out that with an increased emphasize on project management systems, most construction firms are seeking professionals with better management skills rather than technical skills. Current construction project managers are focused on meeting the project targets in terms of budget, quality and time, but not the means on how to achieve these results. Toor and Ofori (2008) supports this argument by saying that managers are

presumed to be production oriented since they manage project teams in day to day work while project leaders are presumed to be relationship oriented and they lead people to achieve long term objectives. In this case leaders are meant to motivate, inspire high standards of performance, and set values grounded on dedication and devotion in influencing the project team to achieve high performance by creating those stimulating conditions in the implementation process of project control systems. Leaders validate, confirm, encourage, support, and believe in people's potential and ensure to let people realize their best potential for the betterment of the organization (Rock, 2006). The current study sought to unravel the influence of project team experience diversity on performance of rural roads construction projects in Kenya.

2.6 Project Team Work-culture Diversity and Performance of Rural Roads Construction Projects

The degree of energy amongst the workers depends on how they are engaged and how they interact within themselves and with their bosses. Jessica et al, (2017) did a study on the impact of organisational interventions on work engagements and performance. They used a quasi-experiment design with control group. Primary school teachers (n = 102) participated in the study at two time point within two weeks. The results showed that work engagement had a positive intervention on self-rating of job performance. Ann et al, (2016) carried out a study to investigate whether both individual and team work engagement are associated with team members' perceived performance. Data was collected from 1078 Finnish educational sector employees working in 102 teams. Multi-level analysis revealed that both individual and team work engagement were associated with high levels of perceived team performance. This implies that by increasing work engagement, it is possible to enhance performance.

Constant work engagement of workers builds a motivated workforce which ultimately promotes performance. Bakker, Gierveld and Van Rijkswijk, (2006) conducted a study on engagement and performance among 105 school principals and 232 teachers. The results of their study showed significant and positive associations between school principals' work engagement scores and teacher-ratings of performance and leadership. More specifically, results of structural equation modelling showed that engaged principals scored higher on in-role and extra-role performance. Boermans et al (2014) explored the effects of collective team work engagements and organisational constraints during the military deployment on individual-level psychological outcomes. Sample was 971 dutch peacekeepers within 93

teams who were deployed between the end of 2008 and beginning of 2010. Multilevel regression analyses demonstrated that team members reported less fatigue symptoms after deployment if they were highly engaged teams during deployment. All the above studies indicated that work engagement promotes performance of the team. It was under that premise that this study sought to establish how work engagement promotes performance of rural roads construction project.

Teamwork is mostly an important aspect in organisations. It reduces conflicts and build cohesiveness among the individuals. A study by Manzoor et al (2011) analysed the effect of teamwork on employee performance. Among the teamwork factors analysed included spirit de corps, team trust and recognition and rewards which were all found to be positively related to employee performance. The study collected data using the questionnaire, it was analysed using regression and correlation techniques. A study by Lindsjorn et al (2016) on teamwork quality and project success in software development targeted a sample of 477 respondents from 71 agile software teams in 26 companies and analysed using structural equation modelling. A positive effect of teamwork quality on team performance was found when team members and team leaders rated team performance.

Employing a culturally diversified workforce improves on workplace culture. Team culture makes staff feel more responsible and accountable by promoting self-management and collaborative teamwork-culture. By so doing the project team are able to set their goals and monitor their own performance. Hammer and Champy (1993) postulates that culture is a determining factor in successful implementation of re-engineering processes. They add that culture contains beliefs and values necessary for those processes. They belief that once people develop culture, they would work cooperatively with high levels of coordination, integration and teamwork which are key ingredients of trust, honesty and performance in an organisation. A report by Peters and Allison (2011) for equality and human rights commission on UK construction industry found out that women experience an inhospitable culture but tend to 'walk rather than talk' and would leave the sector when it becomes unbearable. However, the study found evidence that suggested that increased numbers of women in the workforce improved the workplace culture. The current study therefore sought to establish the extent which work-culture diversity influences performance of rural roads construction projects.

Multi-cultural team integration is a challenge in a project team setup. Multi-cultural teams are said to perform better in areas of problem identification and resolution due to their diversity and this is a required skill of a manager. Hofstede (1980) argued that 80% of the differences in employee's attitudes and behaviours are influenced by national culture and still that applies up to today. Hofstede (1991) and Trompenaars and Hampden (1997) discussed different levels of culture. Hofstede discussed gender, generation, social class, regional as well as national and organisational levels, while Trompenaars discussed national, corporate and professional levels of culture. For this study, the researcher focussed on social class and organisational cultures to establish the diversity challenges, if any that arise from the construction workers from different social class and organisational cultures.

Establishing project teams of varied cultures enhances variety which is an asset in ensuring harmony and cohesiveness in teamwork and team building. A study by Bamgbade et al. (2014) sought to establish the cultural diversity of construction firms in Abuja Nigeria. The study aimed at determining the best managerial style that will mitigate the problem of cultural diversity through the use of embedded mixed methods methodology. This was achieved by interviewing ten managers/supervisors of construction sites and self-administration of 277 well-structured questionnaires. The results of the interview and questionnaires analysis showed that construction firms in Abuja have not really acquired the managerial skill needed to effectively manage the diverse workforce. The study by Bamgbade et al. (2014) focused more on management and did not consider work-culture diversity as an influence on performance of rural roads construction projects which the current study focussed on.

Some researchers have argued that, culture equals to collective identity, and this leads to multiple cultures within an organisation including the external cultures as well as national culture (Chevrier, 2009). Depending on the group agenda then collective identity would be very powerful and eventually result to group agenda (Zander et al, 2004). Conflicting interpretations of collective identities might actually be constructive and functional (Mahadevan, 2009), and eventually those identities or culture diversity among the project team would come in handy to enhance performance. Culture(s) in organizations can be studied from either subjective (interpretative) or objective perspectives (Burrell and Morgan, 1979). Interpretative approaches usually lead to qualitative research whereas objective approaches lead to quantitative research (Yeganeh and Su, 2006). This study employed both subjective and objective approaches.

Influence of culture on performance of rural roads would depend on either the heterogeneity or homogeneity of cultures of the workers. The outcome from such situations has provided mixed results. Barinaga (2007) carried out a study by following an international project group for over 17 months, observing how group members discussed and made sense of what went on. While the study found out how members used discourses on national culture and cultural diversity to address confusion, misunderstanding, justify decisions and to give the group reasons for being (Barinaga, 2007), they did not establish the influence of work engagement, teamwork and decision making culture which was addressed in the current study. When discussing cultural diversity in project teams and their importance, it was argued that diversity broadens the available pool of resources through networks, knowledge, perspectives, insights, experiences among others that groups can use to deal with complex problems, thus enhancing group creativity and improving group performance and eventually project performance. Based on the above arguments, it was necessary to establish the extent to which project team work-culture diversity influences performance of rural roads construction projects in Kenya.

2.7   Combined project team diversities and Performance of Rural Roads Construction Projects

Researches on diversity and performance have been carried out and their relationships linked directly. Researchers have focused on how to enhance team performance in projects during their execution (Mathieu et al, 2008). This is measured during the execution phase of the project or after completion of the projects. Scholars who have researched in this area have also argued that the factors affecting team dynamics and performance require to be investigated (Mathieu et al., 2008). Further, some researchers have added that when individual interests (goals) coincide with group interest (group goal) then it is expected that the liking of each other increases and that the group productivity increases as well (Baumeister and Bushman, 2010). This kind of relationship would foster or derail performance depending on the context. Occasioned from these arguments and remaining in line within their recommendations of exploring on diversity, the current study investigated the influence of combined project team diversities on performance of rural roads construction projects in Kenya.

A study by Ali et al (2014) looked at the combination of age and gender diversity and how it affected performance. The study sampled 288 large organisations listed on the Australian

Securities Exchange, with 1-year time lag between diversities (age and gender) and performance (employee productivity and return on assets). The results indicated a positive linear relationship between gender diversity and employee productivity, a negative linear relationship between age diversity and return on assets. Combined diversity that the current study has considered among professionals in terms of demographic, training, experience and work-culture diversity, would also be a factor to consider when assessing their influence on performance. Olubunmi et al (2014) carried out a study on diversity among construction professionals in Nigeria. They adopted a survey research design targeting 112 construction professionals such as architects, civil engineers, builders and quantity surveyors. The findings indicated that significant difference exists in the construction professionals' perception of construction site management practices in the construction industry. The current study therefore targeted the actual workers involved in the implementation process of project control systems and how their perceptions on diversity among them influenced performance of rural roads construction projects in Kenya.

Investigations examining the relationship between demographic diversity and team performance indicate mixed results. This means that demographic differences vary differently based on the sector of study. This has been established by authors such as Tsui and Gutek (1999), van Knippenberg, De Dreu, and Homan (2004). Pelled (1996) and Webber and Donahue (2001) found no support for a demographic diversity team performance relationship for highly job-related or less job-related diversities. In a follow, up to Webber and Donahue, Horwitz and Horwitz (2007) found that task-related (highly job related) demographic diversity is positively related to the quality and quantity of team performance, whereas bio-demographic (less job related) diversity has no relationship with team performance. It is therefore discouraging to examine this relationship (van Knippenberg and Schippers, 2007), however, other options include search for mediators (Kearney and Gebert, 2009). A case in point is by Joshi and Roh (2009), who sought to understand how contextual factors shape performance relationship. In line with the above arguments, the current study sought to establish the influence of combined project team diversities on performance of rural roads construction projects in Kenya.

Diverse groups in all aspects of diversity should outperform homogeneous. Some studies support this argument that there would be few conflicts (Jehn and Chatman, 2000) while others talk of cohesion in such groups (De Chermont and Quinones, (2003). Heterogeneous groups are more likely to possess a diverse range of task relevant knowledge, expertise and

talents, therefore generating better solutions (Dunphy, 2004) and exposure to divergent and potentially unexpected views may result in more inventive and innovative ideas and solutions (De Dreu and West, 2001). As an important aspect of diversity, studies showed that having employees from different ethnic backgrounds can enhance productivity and improve return on investment and market performance (Richard, 2000). Furthermore, diverse employees bring novel ideas, creativity, cultural skills, and language skills to the organization. The current study therefore sought to establish the combined influence of project team diversity on performance of rural roads construction projects in Kenya.

2.8 Combined project team diversities, Implementation Process of Project Control Systems and Performance of Rural Roads Construction Projects

A project control system is classified into tasks that are systematically performed. To ensure the gains of any projects then a properly procured, installed and operationalized project control systems must be put in place. The importance of coordination, monitoring of the project through control systems cannot be overemphasized. Olawale and Sun (2015) carried out a study in the UK construction industry with an aim of addressing the main deficiencies prevailing upon project cost and time control practices for construction projects in the UK. A questionnaire survey was carried out on 250 top companies followed by an in-depth interview with experienced practitioners. A list of 65 good practices were recommended for the key project control tasks; planning (determining project objectives and activities, time schedules and milestones), monitoring (checking if the activities are carried out as planned, within time and cost), reporting (presenting information in agreed format and transmitted via appropriate media) and analysing (determine whether the project is behaving as predicted). Olawale and Sun (2015) points out that in the construction industry, which mainly deals with one-off projects, the influences of uncertainties are more prevalent hence necessitating the need for study of these factors and in this case project team diversity and its influence on implementation process of project control systems.

In studying implementation process of project control systems, it is prudent to first understand some of the project control systems that are used in projects. The study by Olawale and Sun (2015) found out that Gantt Bar Chart, CPM and the top three packages used in project management were Microsoft Project, Asta Power Projects and Primavera. On the implementation of project control system, Olawale and Sun (2015) found out that implementation of schedule controls starts with assessment of the resources available in the

company to ensure there are adequate levels of personnel required to deliver the project. The second stage involves the development of a visual representation of the project duration most often using scheduling software packages, while the third stage is monitoring and reporting. The fourth stage was the analysis of the information acquired through monitoring and reporting and the final stage was action. The motivation of the current study was to establish the extent of implementation process of project control systems in terms of planning, installation and operationalization in rural roads construction projects. Further it was important that Olawale and Sun (2015) study was contextualized in the Kenya rural roads construction industry where more often than not, the process of implementation of project control systems is not well documented. While Olawale and Sun (2015) insists on formal procedures of project control systems, Tuuli et al (2010) recommends the inclusion of informal control mechanisms during the construction of projects to augment the formal control systems. The current study therefore established the extent to which implementation process of project control systems either formal or informal as used in the rural roads setup influences performance of those projects.

Full participation in the implementation process of project control systems by the workers would improve performance. Bianca et al (2017) did a study on high job performance through co-developing of performance measures with employees. The survey data was collected from 95 employees as well as 88 of their manager. Employee participation in developing performance measures was found to be related to job performance via perceived measurements of quality and employee's perceived control over performing well. They explained that when employees participated in the development of the performance measures, then they are likely to perceive them to be of high quality and then develop a perceived control over performing well in their jobs. A study by Inmyxai and Takahashi (2012) on factors mediating gender and firm performance in Lao micro, small and medium sized enterprises. One of the factors studied was networks participation and adoption of ICT. A sample size of 1,534 companies made up of 896 males headed firms with 1 to 99 employees. The findings showed that networks mediated the relationship between gender and firm performance where high levels were registered among the male gender.

Hazir (2015) reviewed the problems, approaches and analytical models on project control systems and argued that an effective project control system is one which is flexible, cost effective, useful, ethical, timely, accurate and precise, simple to operate, easy to maintain and fully documented. Further he posits that project control systems include tools, policies

and methods. An example of an intervention and control policy would contain a what, how, where, when and by whom to prevent, intervene and correct (Hazir, 2015). The current research indulged on the effectiveness of the implementation process of project control systems in terms of planning, installation and operationalization and how it correlates with performance of rural roads construction projects in Kenya.

An effective and efficient implementation process would influence the outcomes of projects in the area of promotion and prevention programs. For example, Dane and Schneider (1998) found that only 39 of 162 (24%) of published mental health prevention studies appearing between 1980 and 1994 described any steps that were taken to document implementation, and of these 39, only 13 assessed if implementation affected outcomes. Durlak (1997) reported that less than 5% of the 1,200 prevention studies appearing by the end of 1995 in mental and physical health and education provided any data on program implementation. Later, Durlak (1998) described the results of 11 representative investigations that related implementation to outcomes. Dusenbury et al. (2003) examined several hundred outcome studies covering a 25-year period of drug prevention research but briefly summarized data from only nine reports providing information on the relationship between implementation and outcomes. Finally, in their review of 32 evidence-based mental health prevention programs, Domitrovich and Greenberg (2000) noted that only 13 studies conducted analyses relating implementation to outcomes. These analyses clearly demonstrate that there are mixed feelings about the extent and rates that the implementation process of project controls would result into a positive performance. The current study therefore opines that the context of the implementation process of the project control systems matters a lot and that is why this study was based on the rural roads construction projects setup so as to establish the extent to which implementation process of the project controls influences performance.

During installation of the project control systems, user involvement in planning and installation of project control systems has been adopted with mixed feelings. Ideally every project manager's wish is to have a system in place that is acceptable and where users' express satisfaction hence reason for user involvement. Davis and Olson (1985) gave several reasons for user involvement in implementation of computer based information systems. The study by Ismail et al (2012) on management factors for successful Industrialized Building System (IBS) projects implementation, a 12% of 314 respondents from the questionnaire survey disclosed that good working collaboration, effective communication channel and team member involvement during the design stage are the top three (3) most influential

management-related factors towards the successful implementation of IBS projects in Malaysia. The result reinforced that good coordination between all parties play the main role towards successful implementation of IBS project. These reaffirms the connotation that involving the user in planning, installation and operations of the project control systems included decreasing user resistance, and improving system quality which by extension would improve on performance of outcomes however in their argument the motivational and diversity characteristics were ignored which made the correlation difficult. Project team must be openly and actively involved in project control system planning (Berrington and Oblich,1995) and should be consulted at all stages on the implementation process. The current study sought to establish the extent to which project team was involved in the planning, installation and operation of project control systems and how this influenced performance of the rural roads construction projects in Kenya.

Operationalization of project control systems usually works hand in hand with coordination and monitoring of these control systems. For example, in a review of 59 mentoring studies, DuBois et al. (2002) found that programs that monitored implementation, obtained effect sizes three times larger than programs that reported no monitoring (mean effects of 0.18 vs. 0.06, respectively). Similarly, Smith et al. (2004) reported that although 14 whole-school antibullying programs obtained modest effects overall, those that monitored implementation obtained twice the mean effects on self-reported rates of bullying and victimization than those that did not monitor implementation. Tobler (1986) reported that 29% of the outcomes derived from 143 drug prevention studies were drawn from interventions that were improperly implemented, and comparisons suggested that well-implemented programs achieved effect sizes 0.34 greater than poorly implemented programs. In the largest relevant meta-analysis, Wilson et al. (2003) reviewed 221 school-based prevention programs targeting aggressive behaviours. A regression analysis indicated that implementation was the second most important variable overall after risk factor, and the most important program feature that influenced outcomes. Hence it mattered a lot in this study to determine how coordination and monitoring during the operationalization of the implementation process of project control systems influenced performance of rural roads construction projects in Kenya.

For an effective and efficient project control system, it requires that it must be simple and easy to use, reliable and acceptable by the users. This was reaffirmed by Kinyanjui (2014) who carried out a study on the influence of contextual and cognitive factors on the

relationship between performance contracting system and organizational performance in government ministries in Kenya. Targeting 103,010 public servants, he sampled 310 respondents and he used both the descriptive research design and correlational research design. The indicators for organizational performance were rate of customer satisfaction, rate of employee satisfaction and level of participation in corporate social responsibilities. The results indicated that whilst performance contracting implementer participation was not found to significantly influence organizational performance, performance contracting tools positively influenced organizational performance and performance contracting targets negatively influenced organizational performance. Therefore, performance contracting tools and targets influenced the outcome of organizational performance. Kinyanjui (2014) further argues that in order to improve on organizational performance, it is necessary that performance contracting tools be simple to use, reliable, simplified and valid and that the process of setting targets requires to be more participatory. In addition, that the targets set should directly impact on customer satisfaction, employee satisfaction and social responsibilities. Using a similar approach and reasoning, the current study sought to address the role of implementing the project control systems on performance of rural rods construction project. This study therefore sought to fill the gap in Kinyanjui (2014) study by investigating further how implementation process of project control systems influences performance of rural roads construction projects in Kenya.

Project control systems usually give better control of projects. Ling and Ang (2013) carried out a study with an aim to identify control systems that give rise to better construction project performance. The study was carried out in Singapore on construction firms. A questionnaire survey was used where by data were collected via electronic mails. The study found out that in all the 16 control mechanisms that were studied, they were significantly correlated with project outcomes. They found out that schedule performance may be predicted by adequacy of float and stringency of criteria to select suppliers while quality outcome was most significantly affected by competency of quality manager, rather than the hard systems adopted in the project. Ling and Ang (2013) study puts across a strong argument that merely having good project management practices and adequate resources are not sufficient to achieve good project outcomes. Instead, construction projects need to have control systems in place, as they play an important role in project outcomes. This is also supported by Gong (2001) who argued that construction firms may also need to adopt adequate control systems to help improve project outcomes. Bourne and Walker (2005) also adds to this debate by

arguing that construction projects face a lot of uncertainties and unplanned events and hence a control system put in place may help in improving project outcomes. These previous studies therefore support the current study that having an effective implementation process of project control systems in place, would offer a guaranteed positive performance in rural roads construction projects in Kenya.

Monitoring and controlling process group consists of those processes required to track, review, and orchestrate the process and performance of the project (PMBOK, 2013). The pursuit of excellence in project management has resulted to an increased importance of coordination, monitoring and control functions in projects (Hazir 2015). Meredith and Mantel (2011) remarks that focus should be put on responsibility and authority by ensuring better control, coordination and facilitation during the implementation of the project control systems. However, employing effective project monitoring and controlling systems has become essential in project based organizations (Shtub et al., 2005). In practice and usually during implementation of projects, effective project control systems are usually achieved through setting performance standards usually done during planning and designing stages of project cycle and then comparing actual performance with these standards, then taking necessary corrective actions to alleviate on the deviations (Hazir, 2015). Cumulatively these deviations from project activities would eventually have an impact on project schedule, quality and cost. In the current study the level of coordination and facilitation was studied on rural roads construction projects to ascertain the effectiveness in the implementing project control systems. For these reasons, a rigorous study was necessary to establish the factors that make it difficult for the implementation process of project control systems to provide better performance of rural roads construction projects in Kenya.

Of particular interest for the current study is how project team diversities influence rural roads construction projects in Kenya and the outcome when they interact with implementation process of project control systems. Considerations of a project team diversity in the implementation process of project control systems would promote an effective implementation process of project control systems. Claire et al., (2006) in their study argued that it would be beneficial to consider the impediments to implementation of control systems in a wider sense to include consideration of the entire human and organization issues that help make the system more successful. Such factors as identified in the study by Claire et al., (2006) included a range of internal and external factors. This claim then calls for an in-depth analysis on these factors. Implementation process of project control

systems need to be looked at jointly by investigating how implementation process of project control systems influence the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. The study by Claire et al., (2006) explored the interplay of structural, social and technical factors which, when combined, can complicate the implementation of ICT systems. The current study however featured the role of combined project team diversities as an independent variable.

In the Kenyan construction sector, despite many monitoring and controls systems put in place for construction projects, still project overruns were experienced and to a larger extent. A study by Ngacho and Das (2014) on performance of Constituency Development Fund (CDF) construction projects in Kenya revealed that thorough monitoring systems were instituted in the CDF Act 2003 and were implemented in the CDF projects, they were still not able to guarantee performance. This happened despite many agencies concerned with monitoring and controlling the projects such as CDF monitoring Unit, the National Management Board, District Development Officer (DDO), relevant government line ministries, and other national agencies like the National Taxpayers Association (NTA). Despite all these bodies that instituted control system measures, there were still project cost, time and quality overruns. This indicates that there is a different attribute of project overruns as opposed to having technology or a number of project control systems in place. Based on this argument, then the influence of project team diversities on projects requires a rigorous study to establish the factors that moderates the relationship. In other words, it means that it is not how powerfully integrated project control systems are so as to check project overruns but a scrutiny on how the implementation process of project control systems influence the relationship between project team diversity and performance of rural roads construction projects in Kenya.

Individuals in a project look at each other and then realize how different they are. More so being different means one has their own different experiences, qualifications, training and culture that can be shared so as to make right decisions when working as a team. The integration and involvement of the project teams results into realizing the benefits of diversity. It is the interactions of the team during the implementation of project controls that contributes to positive relationships in performance of projects. A study by Hobman et al., (2004) examined on perceived dissimilarity and its association with work group involvement. They used a longitudinal study with nurses' departments of a public hospital. This is the question being addressed in the current study; if a perceived dissimilarity and its

45

association with work group involvement study needs to be carried out in rural roads projects setting by using the cross-sectional survey research design. Hobman et al., (2004) study is similar to the current study in the sense that the variables they referred to as visible dissimilarity attributes included age, gender and ethnicity which are same in the current study and hereby referred to as demographic diversity. Work value dissimilarity was referred to as differences in work standards that guide behavioural choices when approaching tasks which in the current study are same as training diversity and cultural diversity and informational dissimilarity was referred to as differences from other group members on characteristics such as professional background, tenure, and work experience which in the current study is referred to as experience diversity. Hobman et al., (2004) argues that their study was based on a subjective measurement since the perceived dissimilarity is more salient to an individual. In agreement to these findings, Maznevski (1994) also argued that, diversity can lead to higher performance when members of the team understand each other, combine and build on each other's ideas. The current study therefore incorporated subjective measurement to establish the influence of implementation process of project control systems on the relationship between project team diversity and performance of rural roads construction projects.

Sometimes one aspect of project team diversity cannot be separated from the other diversities and therefore very important when studying these diversities, there is need to investigate them when combined. For example, an older generation within project teams are known to combine age with experience, training, and are usually culturally sensitized. They are therefore predicted to be effective in implementation process of project control systems. Leaviss, Gibb and Bust, (2008) argues that the construction sector stands to lose valuable skills and experience with retirement of older generation and that a void is left behind from lost experience. In their research on meeting the challenges of an ageing society, older workers in the construction industry were found to be committed, valuable and appreciated for their skill, but as a caution, they also remarked that, as they get aged they slow down and become less productive. However, when it reaches such levels, site engineers are required to determine whether older workers are retained for their experience, work ethic and knowledge to pass on to younger workers. The applicability of this perceptions on rural roads construction projects in Kenya context was explored in the current study.

2.9   Theoretical Framework

This study was premised on various concepts and constructs touching on three key theories. These theories included ecosystems theory, social identity theory and organizational control theory.

2.9.1   Ecosystem Theory

Ecosystem theory is taken from the biological ecosystem, where it is assumed that the whole ecosystem and the process of evolution can only be understood at the level of the complex ecosystem. The ecosystem was defined formally by Sir Arthur Tansley and was brought into common application by Odum (1953) who used the ecosystem as an organizing concept. Other proponents of this theory were Elton (1958) who studied on ecology of invasions by animals and plants, and MacArthur (1958) who studied on fluctuations of animal populations and a measure of community stability.

The theory states that within an ecosystem, there exists a symbiotic network that is characterised with mutual dependence, constraints, diversity and the laws of survival and development do exist. While within the symbiosis and diversity, competition is vital but also cooperation among the subjects promotes evolution and innovation as well as maintaining a sustainable development of the biological world (Chen et al., 2014). This theory explains the relationships that exist within construction settings and to a greater extent informs the current study. An ecosystem is capable of adaptation and sustainability over a period of time. Within a rural road construction setup, a human ecosystem is generated by project team diversities during implementation of project controls and execution of tasks.

Project team members forms an ecosystem with variety of diversity variables (such as training, experience, demographic and culture) and this plays the integral part of the human ecosystem. These relationships when packaged together form what is commonly referred to as social order subsystem. Machlis (1997) argues that, the social order subsystem includes three key mechanisms for ordering behaviour: personal identities (such as age or gender), norms (rules for behaving), and hierarchies (of wealth or power). Hence, certain predictions resulting from individual interactions in the construction setup are created when one can identify various diversities such as age, gender, status, and power of individuals or groups, and such expectations allow the social system to function. This therefore further informs this study that at the rural road construction setting whereby demographic, training, experience,

47

and work-culture diversities as varied as they may be provide a closely neat and sustainable environment among the project team where they can share, interact and develop as a team. Combining this social order subsystem and implementation process of project control systems, measurement of performance of roads, results into a human ecosystem. The adaptation to such a system would either foster or derail performance hence a reason why in this study, it was determined to establish how the interactions of the workers with varied diversities within the construction setup, influences performance of rural roads construction projects as moderated by the implementation process of project control systems.

Within a project, project team is closely linked with an aim of delivering the objectives of the project. Just like various biological groups that depend on each other in natural ecological systems, each member within the project team of the construction group depends on each other for co-existence hence ensuring a balanced construction ecosystem. Like species in a biological ecosystem, each individual member within the construction ecosystem, no matter how strong or diverse they are, ultimately, they share their fate with the group of members (Iansiti and Levien, 2004). These groupings could either be in terms of demographic diversity, training diversity, experience diversity or culture diversity within the construction settings. Adner and Kapoor (2010) argues that individuals in an ecosystem need to constantly adjust their behaviours in response to changes in the external environment and especially in this case for rural roads construction ecosystem.

The quality of the interaction of the individuals with varied diversities within a project team would trigger integration to form a prosperous ecosystem hence achieve better and quicker development and performance (Basole and Karla, 2012). Previous studies on companies that developed successful ecosystems and made it the most influential company at the time include IBM-Intel-Microsoft ecosystem. Among the principles for successful ecosystems include management commitment, all member participation which for this case all member participation comes to play during implementation process of project control systems and management commitment for project team diversity.

Discussion about the ecosystem theory cannot be complete without mentioning the General Systems Theory. General Systems Theory is concerned with how systems operate in an integrated manner which is the same as in ecosystem theory where by in this case the social order system operating in a construction setup. Additionally, Katz and Kahn (1978) summarize the idea of systems theory as a knowledge framework that focuses on structures,

relationships, and interdependence between elements. In the current study, the relationships between project team diversity, implementation process of project control systems and performance of rural roads construction projects was established based on the theory of ecosystem and as emphasized by the systems theory. General systems theory considers the input-throughput-output component and their interactions both within themselves and with the external environment requires coordination and integration by the managerial system, in order to maximize value for the organization (Randolph and Blackburn, 1989). In the current study, project control systems where the environment in which projects team diversities are practiced as external factors. These external factors were coordinated and managed to ensure performance of rural roads construction projects.

2.9.2   Social Identity Theory

Social Identity Theory (SIT), was first proposed by Tajfel (1978). SIT assumes that we show all kinds of group behaviour such as solidarity, within our groups and discrimination against outgroups as part of social identity processes, with the aim to achieve positive self- esteem and self enhancement. The SIT satisfactorily explains in terms of personality or interpersonal interactions. People will always identify with a certain attribute where they feel motivated and a sense of belonging. According to Tajfel and turner (1979) people categorize themselves and others as belonging to different social groups and they evaluate these categorization, membership as well as value placed on it is defined as social identity. Other proponents of this theory include Oakes, (1987), Oakes, Turner, & Haslam, (1991).

Social Identity Theory works hand in hand with motivation. Individuals must have a motive to belong to a group or a team. This motivation is broadly divided into either internal or external. Based on Dwivedula and Bredillet (2010), the internal motivation includes the needs based theories where satisfactions of individuals' need at the workplace are influenced by their own behaviour (Ravikiran et al., 2013). Intrinsic motivation includes individual motives related to one's self or identity that demonstrates only those practices that are consistent with their self. These identities border on the diversities of project team such as demographic factors, culture, experience and training diversities. Social Identity Theory and Self-Determination Theory suggested that individuals will gravitate towards social groups that complement their values; so much so, that individuals internalize the values of the referent social group with their own self. This has been known to produce a strong affective commitment (Gagne and Deci 2005, Meyer et al 2004). Such commitments in

implementation process of project control systems shall result to effectiveness and good performance and by extension informal social groupings if not managed well will affect project performance. Also, based on fault line model, it suggests that when a group is split into subgroups, people associate their identities more with their subgroups than with their entire groups.

Project team diversity and individual's liking for rewards, and also how the individual adjusts the efforts in relation to the outcomes achieved (Ravikiran et al., 2013) will also determine on the project team performance. While there are numerous qualifications of motivation; social identity variables such as age, gender and managerial behaviour; and organizational variables, such as nature of work, job design and human resource policies, (Gonzales and Guillen, 2008). In the current study, team motivation is key in managing project team diversity and this was studied in terms of how it influences performance of rural roads construction projects. From organizational literature, it suggests that organizational success can never be reached without qualified and motivated personnel (Hubbard, 1990). In today's highly competitive environment, managing people effectively can also have a significant impact on the results of a project since, as Hubbard (1990) noted, most major project failures are related to project team diversity.

Similarly, social categorization theory which is a subset of Social Identity Theory suggests that team members categorize other team members into subgroups (Tajfel and Turner, 1979), which can form the basis for group distinction. Team members may develop an intergroup bias (in some conditions (van Knippenberg et al., 2004) and favour and cooperate with members of their in-group more than with members of an out-group. As such, team members with similar demographic attributes, as opposed to differing demographic attributes, may be more attracted to and may cooperate more with one another, which suggests that homogeneous teams should outperform heterogeneous teams. Sourouklis and Tsagdis (2013) in a review of 23 relevant papers found that organizational diversity has positive effects on a number of key performance indicators such as commitment, productivity, staff turnover, and satisfaction. Borrowing from expectance theory so as to add value to this argument, members of a team will interact with other members of different classes according to their demographic classes. Demographic characteristics that are easily observable surface-level variables such as age, sex, and race are more likely to evoke responses that result from basic social categorization.

From a Social Identity Theory perspective, when employees do not share the predominant traits of the group, they may face negative consequences, such as exclusion or fewer interactions, bias and discrimination (Foley et al., 2005). These negative consequences further impact on employee perceptions of the workplace, as well as their job attitudes and performance. On the other hand, a certain level of innate comfort from working with those who share similar membership traits can also lead to positive work outcomes (Hogg and Terry, 2001).

2.9.3   Organizational Control Theory

Organization control theory is based on the premise of efficient functioning of all subsections within an organization. Organization theory dates back to 1947 where Max Weber (1947) proposed that power was principally exemplified within organizations by the process of control. Max Weber (1947) argued that managers should not rule through arbitrary personal whim but by a formal system of rules. In his arguments, he advocated for levelling of social classes, training and social equality.

Organization theory as postulated by Weber was modified by Henri Fayol in 1949. Fayol (1949) brought forward practical realism by outlining a series of principles of management by which the organization might be effectively controlled, among others and those that are similar to this study include equity, scalar chain, remuneration of personnel, and unity of direction, division of labour, discipline and unit of command. Later in 1979, Ouchi (1979) developed a framework model that has been used in many empirical studies on organizational control. Ouchi (1979) proposes task programmability (ability to specify the steps that need to be followed) and outcome measurability (ability to measure outputs) as main determinants in choice of the models for managers in choosing the project control modes. Ouchi (1979) agrees with Max Weber (1949) that information necessary for task completion is contained in rules where behaviour control is enshrined. This is possible when a task is well understood hence easy to specify the behaviours to achieve the planned tasks.

Drawing from these theories, this study sought to understand the influence of project team diversity on performance of rural roads construction projects as moderated by implementation process of project control systems based on ecosystem theory, social identity theory and organisational control theory.

2.10 Conceptual Framework

The conceptual framework in figure 1 depicts the concepts upon which this study was based. It indicates the independent variable, dependent variable and the moderating variables whose relationships were being investigated.

MODERATING VARIABLE

Implementation Process of
Project Control Systems
- Planning
- Installation
- Operation

INDEPENDENT
VARIABLES

H_16

H_15

Project Team Diversity

Project team demographic diversity
- Age
- Gender
- Ethnicity
- Religion

Project team training diversity
- Training background
- On job training
- Progressive training

Project team experience diversity
- Professional experience
- On job experience

Project team work-culture diversity
- Work Engagement
- Teamwork
- Decision making

DEPENDENT
VARIABLE

Performance of Rural Roads Construction Projects

- Completion of project within time
- Completion of project within budget.
- Quality of work
- Client satisfaction
- Workers' satisfaction

H_11

H_12

H_13

H_14

Figure 1: Conceptual Framework of Project Team Diversity, Implementation Process of Project Control Systems and Performance of Rural Roads Construction Projects

The conceptual framework illustrates the presumed relationship of the variables to be studied. The dependent variable is performance of rural roads construction projects. The indictors that were used to measure performance of rural roads construction projects included; Completion of projects within time, completion of projects within budget, Quality of work, level of client satisfaction, and level of customer satisfaction project team satisfaction. This was based on the measurement and monitoring of the performance criteria of the projects (Barclay and Osei-Bryson, 2010) which has traditionally been associated with the variables of time, cost and quality based on the so-called iron triangle (Wi and Jung, 2010) and also job satisfaction as advanced by Shapiro et al (2007).

Project team diversity was the independent variable. In the current study, project team diversity was studied in terms of demographic diversity, training diversity, experience diversity and work-culture diversity. Gellert and Schalk (2012) observed that individual diversity in terms of training, experience, professional background and demographic attributes can influence the quality of the relationship between Project Team Diversity and performance of rural roads construction projects.

The moderating variable in the current study was the implementation process of project control systems (PCS) whereby in the current study it was measured in terms of planning, installation and operation. Hazir (2015) argues that a project control system should be simple to operate. Sweis et al. (2008) postulated that the level of coordination among project team members is an important control mechanism in implementing process of project control systems. Faraj and Sproull (2000) emphasized the importance of expertise coordination in implementation process of project control systems.

2.11   Summary of Literature Review

This chapter covered literature review, theoretical underpinnings of the study and the conceptual framework. In empirical literature review, relevant literatures on the variables under study were reviewed. These included literature on performance of rural roads construction projects, project team demographic diversity and performance of rural roads construction projects, project team training diversity and performance of rural roads construction projects, project team experience diversity and performance of rural roads construction projects, project team work-culture

diversity and performance of rural roads construction projects, combined project team diversities and performance of rural roads construction projects, implementation process of project control systems and performance of rural roads construction projects and lastly combined project team diversities, implementation process of project control systems and performance of rural roads construction projects in Kenya.

The theories underpinning this study included ecosystem theory, social identity theory and organisational control theory. Ecosystem theory because like species in a biological ecosystem, each individual member within the construction ecosystem, no matter how strong or diverse they are, ultimately, they share their fate with the group of members (Iansiti and Levien, 2004) and live in harmony. Subsystem groupings in terms of demographic diversity, training diversity, experience diversity or culture diversity within the construction settings works as a balanced ecosystem Adner and Kapoor (2010). Social identity theory was adopted because individuals must have a motive to belong to a group or a team and these motives and identities border on the diversities of project team such as demographic factors, culture, experience and training diversities. When employees do not share the predominant traits of the group, they may face negative consequences, such as exclusion or fewer interactions, bias and discrimination (Foley et al., 2005). Finally, organisation control theory was employed because information necessary for task completion is contained in rules where behaviour control is enshrined (Weber, 1949). The conceptual framework illustrating the relationships of the variables was also discussed.

Table 2.1: Summary of Research Gaps

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
Project team demographic diversity and performance of rural roads construction projects					
Gellert and Schalk (2012)	The study examined the influence of age and age-related attitudes on relationship factors and work performance.	The study explored the influence of age and age-related attitudes on the relationship quality among employees, affecting performance in mentally and physically demanding work settings.	Results showed that age-related attitudes (intergenerational cooperation and the perception of older employees' capabilities) are important factors influencing the perceived quality level of in-group cooperation. Also, relationship factors influence perceived employee performance, and job satisfaction.	The study findings were key however they need to be re tested in a different set up to confirm their generalization.	This study therefore focussed on the influence of project team demographic diversity on performance of rural roads project in Kenya.
Powell (2012)	Intersection of sex, gender, and leadership.	The proportions of women in positions of power and authority, stereotypes, attitudes toward women as leaders, linkages of leadership theories to gender stereotypes, and sex differences in leaders' effectiveness were reviewed.	The managerial playing field continues to be tilted in favour of men and behaviours associated with the masculine gender stereotype, a phenomenon that occurs despite what leadership theories and field evidence would suggest.	The study emphasized on sex and gender however other demographic factors such as ethnicity, religion was not considered	The influence of project team demographic diversity on performance of rural roads project was studied.
Khalid and Aroosh (2014)	Outcomes of gender discrimination	Data was collected from both males and females working in private banks through questionnaires. A sample of 166	The results revealed that gender discrimination did not have as such an impact on employee performance and organisational commitment	There was need to ascertain the study in a different sector.	Focus in the current study was to ascertain the influence of gender diversity on performance of rural

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
		questionnaires were used.			roads construction projects.
Brandt and Laiho (2013)	Discovery if similar personality types exhibit the same kind of leadership behaviour irrespective of gender.	The quantitative analysis involving 459 leaders (283 men and 176 women) and 378 subordinates working in various fields. Leaders rated their leadership behaviour and subordinates also appraised them.	Results indicated differences in leadership behaviour by gender, in that women exhibited more enabling behaviour, and men more challenging behaviour. Further, gender and personality had an impact on leadership behaviour, as viewed by both leaders and subordinates	The study covered a wide spread fields or industries hence the findings are not specific to any field since different fields have different challenges.	The influence of project team demographic diversity on performance of rural roads project
McKay, Avery & Morris (2008).	Influence of diversity climate mean racial ethnic difference in employee sales performance	Data from a sample of 6,130 workers employed in 743 stores of a large, U.S. retail organization. Email questionnaires were used.	Findings indicated whites exhibited significantly higher sales performance than Hispanics but not Blacks, as moderated by diversity climate.	This study considered one aspect of diversity; ethnicity and did not considered other demographic diversity variables.	The influence of project team demographic diversity on performance of rural roads construction projects in Kenya.
Project team training diversity and performance of rural roads construction projects					
Myaskovsky, Unikel & Dew (2005).	the purpose was to examine the effects of gender diversity on performance and interpersonal behaviour in small work groups	A combined impact of gender composition and training method on both the performance and interpersonal behaviours exhibited in small work groups. Participants were trained in groups and individuals on how	Analyses indicated that groups whose members were trained together took longer to assemble their radios and made more errors than groups whose members were trained apart. No performance differences were found between mixed gender and same-gender groups. However, women were less	The study did not focus on background training, on job training and progressive training diversity and how it could influence performance.	This study focussed on influence on project team training diversity on the performance of rural roads construction projects.

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
		to assemble a radio and then tested.	task-oriented in mixed-gender than in same-gender groups, but men were more task-oriented in mixed-gender than in same-gender groups. Further, solo women were less talkative than women in the majority, whereas men were more talkative when they were solos rather than in the majority.		
Project team experience diversity and performance of rural roads construction projects					
Dulaimi (2005)	Influence of academic education and formal training on the project manager's behaviour	A survey research design was employed was conducted	The findings showed that with an increased emphasize on project management systems, most construction firms are seeking professionals with better management skills rather than technical skills.	The study did not establish the influence of project team experience diversity on performance of projects	This study focussed on influence of project team experience diversity on performance of rural roads construction projects.
Kotur and Anbazhagan (2014)	Investigated on factors education and work experience and how they influence the performance levels of the workers	A survey design was used. They used a sample size of 112 workers and 32 supervisors for the survey.	It was established that the two variables under investigation had direct effect on the performance of the workers to varying degree where by workers in the medium range on educational qualification perform better compared those in the extremes and the same holds good in the case of work experience as well.	It was necessary to establish if the factor experience also has some degree on influence on performance in a rural roads construction projects.	This study focussed on influence of project team experience diversity on performance of rural roads construction projects.

57

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
Project team work-culture diversity and performance of rural roads construction projects					
Barinaga (2007)	Cultural diversity at work: National culture as a discourse organizing an international project group	A study by following an international project group for over 17 months, observing how group members discussed and made sense of what went on.	The key finding indicated how members used discourses on national culture and cultural diversity to address confusion and misunderstanding and to justify decisions and to give the group reasons for being.	The study did not establish the influence of individual beliefs, team organisations and team commitment which was addressed in the current study.	This study focussed on influence of project team work-culture diversity on performance of rural roads construction projects in Kenya.
Ann et al (2016)	Focused on whether individual and team work engagement are associated with team members' perceived performance.	A survey methodology where data was collected from 1078 Finnish educational sector employees working in 102 teams. Multi-level analysis was used for analysis.	Results revealed that both individual and team work engagement were associated with high levels of perceived team performance	There was need to assess the same study in a different sector.	This study focussed on influence of project team teamwork culture diversity on performance of rural roads construction projects in Kenya.
Bamgbade, Jimoh, & Kuroshi (2014).	Establish the cultural diversity of construction firms in Abuja Nigeria	The study was carried out by interviewing ten managers/ supervisors of construction sites and self-administration of 277 well-structured questionnaires	The results showed that construction firms in Abuja have not really acquired the managerial skill needed at to effectively manage the diverse workforce	The study's sample size used is smaller than the current study and also it did not consider the culture diversity as a moderating factor.	This study focussed on influence of project team work-culture diversity on performance of rural roads construction projects.
Bakker, Gierveld and Van Rijkswijk (2006)	Study on engagement and performance.	A survey among 105 school principals and 232 teachers.	The results of their study showed significant and positive associations between school principals' work engagement scores and teacher-ratings of performance and leadership.	Researching on a different sector.	This study focussed on influence of project team work-culture diversity on performance of rural

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
					roads construction projects.
Manzoor et al (2011)	The study focused on the effect of teamwork on employee performance	The study collected data using the questionnaire, it was analysed using regression and correlation techniques	The result indicated a significant positive impact of predictors on the response variable and recommended adoption of teamwork activities so as to shove performance.	Needed to reassess the influence of teamwork culture on performance in a different sector.	This study focussed on influence of project team teamwork-culture diversity on performance of rural roads construction projects.
Lindsjorn et al (2016)	The study on teamwork quality and project success in software development.	A sample of 477 respondents from 71 agile software teams in 26 companies analysed using structural equation modelling.	A positive effect of teamwork quality on team performance was found when team members and team leaders rated team performance.	The study was carried on an agile software teams however needed to ascertain the results in a different sector in this case on rural roads construction projects.	This study focussed on influence of project team teamwork-culture diversity on performance of rural roads construction projects.
Combined project team diversities and performance of rural roads construction projects					
Olubunmi, Olaniyi, & Fisayo, (2014).	The study was to investigate diversity among construction professionals on their perception of construction site management practices	This paper adopted a survey research design where well-structured questionnaires were used.	There was a significant difference in the construction diversity among construction professionals' perception of construction site management practices in the construction industry.	The study based their target population on the senior management practitioners and left out the views of the lowers cadre of workers. Did not also establish the combined diversity influence on performance of projects.	This study focussed on on how combined diversity of the project team members influences performance of rural roads construction projects.

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
Ali et al (2014	Combination of age and gender diversity and how it affected performance	The study sampled 288 large organisations listed on the Australian Securities Exchange, with 1-year time lag between diversities (age and gender) and performance (employee productivity and return on assets).	The results indicated a positive linear relationship between gender diversity and employee productivity, a negative linear relationship between age diversity and return on assets.	The study did not establish how combined diversity influences performance.	the current study has considered among professionals in terms of demographic, training, experience and work-culture diversity, would also be a factor to consider when assessing their influence on performance.
Combined project team diversities, implementation process of project control systems and performance of rural roads construction projects					
Olawale and Sun (2015)	The aim of this study was to address the main deficiencies with the prevailing project cost and time control practices for construction projects in the UK.	The study adopted a mixed research methodology. A questionnaire survey was carried out with 250 top companies followed by in-depth interviews with 15 experienced practitioners from these companies. The Delphi method was also used.	The study identified the commonly used techniques and tools for project control systems. It also found out that during the project control system stages of planning, monitoring, reporting and analysis, procedures enhanced performance. Another revelation of the study was that the use of ad hoc nature of key stages of the project control process that sustained performance of projects.	Although the study identified the most commonly used project control techniques and software packages used during project construction, it did not study the factors that influence their implementation and performance.	This study focused on the influence of implementation process of projects control systems on performance of rural roads construction projects.
Babatunde, S. A., & Dandago,	Internal control system deficiency and capital project	Survey design. A sample of two hundred and twenty-eight capital	This study found out that internal control system deficiency had a significant negative effect on capital	The study failed to assess the role of project team diversity in the failure of	To ascertain the influence of implementation process of project

60

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
K. I. (2013).	mismanagement in the Nigerian public sector	projects (228) were surveyed.	project management in the Nigerian Public Sector.	projects during the implementation of the internal project controls.	control systems on performance of rural roads construction projects in Kenya.
Ling and Ang (2013)	Control systems and construction project performance.	Research design was questionnaire survey. Data were collected via Electronic mails. The sampling frame was Singapore-based construction firms.	All the 16 control mechanisms were significantly correlated with project outcomes. These included; adequacy of project information, adequacy of float and quality of techniques.	Although the study considered the relationship between project control systems and performance, it was important to focus on the Kenyan sector.	This study focussed on the influence of implementation process of project control systems on performance of rural roads construction projects.
Kinyanjui (2014)	To establish the relationship between performance in Government Ministries in Kenya and the implementation of performance contracting (PC) system	Descriptive survey design and correlational research design was used. Self-administered structured questionnaires and interview guides were used to collect data.	The results indicated that whilst performance contracting implementer participation was not found to significantly influence organizational performance, performance contracting tools positively influenced organizational performance and performance contracting targets negatively influenced organizational performance.	The study did not address the human resource diversity and the interactions as a major contributor to the success of implementing the project control systems through participatory process.	This study therefore sought to fill the gap in Kinyanjui (2014) study by investigating further how the implementation process of project control systems influences performance of rural roads construction projects in Kenya.
Hobman, Bodia, &	Perceived dissimilarity and its association with	The research design used included longitudinal study with nurses'	Diversity leads to higher performance when members of the team understand each other,	Replication of the same study in a rural roads construction projects and also using	This study focussed on the influence of implementation process of projects

Study by	Focus of the Study	Methodology	Findings	Gaps in Knowledge	Focus of the Current Study
Gallois, (2004).	work group involvement	departments of a public hospital.	combine and build on each other's ideas	cross section survey research design	control systems on the relationship between combined project team diversities and performance of rural roads
Claire, Dainty, & Amanda, (2006).	The aim was to explore the interplay of structural, social and technical factors which, when combined, can complicate the implementation of ICT systems.	An analysis of the implementation process and the socio-technical systems.	The findings of this work have clear resonances for an industry renowned for its conservative culture and slow uptake of new technologies. They also underscore the importance of developing flexible implementation approaches which are able to cope with an organization's external environment and changing requirements.	While the study recommends, a flexible implementation approaches to cope with external processes, they did not consider the influence of project team diversity factors.	This study focussed on the influence of implementation process of projects control systems on the relationship between combined project team diversities and performance of rural roads

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Introduction

This chapter describes the research methodology that was used to conduct the study. This includes: research paradigm, research design, target population, sample size and sampling procedures, research instruments, data collection procedures, data analysis techniques, ethical consideration and operational definition of study variables.

3.2   Research Paradigm

The research paradigm helps the researcher with a specific direction to conduct the research by offering the framework, methods and ways of defining data (Collis and Hussay, 2003). In the current study, research paradigm was conceptualized based on Morgan (2007) who argues that paradigms are systems of beliefs and practices that influence how researchers select both the questions they study and methods that they use to study them. This study was guided by pragmatism paradigm considering that it used mixed methods of data collection and analysis. In the current study the mixed methods research provided a more understanding of the complex phenomenon that would otherwise not have been accessible by using one approach alone (Creswell and Plano, 2011, Morse and Niehaus, 2009). In addition to this, Baker (2015) argue that the conscious use of paradigms can offer a framework for researchers to help guide their decisions during the inquiry process. In the current study, therefore, when studying the influence of project team diversity on performance of rural roads construction projects, both quantitative and qualitative approaches was used to collect and analyse data. For this study, pragmatism paradigm was selected based on Biesta (2010) who argued that pragmatism paradigm would break down the hierarchies between positivist and constructivist ways of knowing in order to look at what is meaningful from both.

The strategy that was employed in the current study was the sequential mixed method strategy. Strategies of inquiry are types of qualitative, quantitative, and mixed methods designs or models that provide specific direction for procedures in a research design (Creswell 2012). The tools of

data collection included the structured questionnaire, observation guide and interview guide. This was appropriate since realities surrounding the phenomenon of project team diversity and performance of rural roads construction projects could be studied both subjectively and objectively (Creswell and Plano, 2011). Mixed methods involve the use of both qualitative and quantitative approaches so that the overall strength is greater than either qualitative or quantitative research (Creswell and Plano, 2011).

3.2.1 Research Design

Research design is a structured plan of investigation so conceived as to obtain answers to research questions (Cooper and Schindler, 2006). This study adopted descriptive cross sectional survey and correlational research design. In descriptive cross sectional survey, either the entire or part of the population is selected for study where independent or dependent variables are measured at the same point in time using a single questionnaire (Bhattacherje, 2012). In the current study, the target population was studied by use of a representative sample. This design was appropriate since quantitative data collected was usable in hypothesis testing so as to get an objective conclusion as proposed by Cooper and Schindler (2006). Further, it offered an opportunity for development of a broad understanding of the phenomena by collecting data from road construction workers, and analysed for testing the relationships on how the implementation process of project control systems influences the relationship between project team diversity and performance of rural roads construction projects in Kenya.

Further in the current study, the influence of implementation process of project control systems on the relationship between project team diversity variables and performance of rural roads construction projects, was studied hence a correlational research design. Creswell (2012) describes correlational research design as a measurement of two or more factors to determine or estimate the extent to which the values for the factors are related or change in an identifiable pattern. Therefore, both descriptive and correlational research design were used in the current study. Descriptive research design described the phenomena while correlations research design explained the relationships by using simple and multiple regression models. Thus, the research strategy used in the current study was mixed methods whereby data was collected and analysed through both quantitative and qualitative approaches while the tools used in collecting data was the questionnaire schedules, interview guides and observation.

3.3 Target Population

The target population comprised of the road construction companies' workers undertaking projects sponsored by Kenya Rural Roads Authority (KeRRA) in Kenya. This comprised of the workers and the site engineer. The unit of analysis was the on-going road construction projects and the respondents were selected from workers of the construction companies involved in the construction tasks. According to KeRRA report (2015), the construction projects that were on-going during the period of study in Kenya were thirty projects (See Appendix VI). The total contractually employed workers in various construction companies involved in the actual construction of KeRRA funded projects under design and construction department were 3680 employees (KeRRA PC report 2015). This formed the target population of this study (See Appendix VII).

These projects were spread out in 21 counties in Kenya. As such the target population was delimited to the workers employed to work in KeRRA funded projects at the time of the study period. Workers targeted included those who were working on site where the projects were being constructed so as to effectively measure the project team diversity on performance. Workers targeted included site engineers and those working in departments such as surveying, mechanical, civil, soil, transport, workshop, laboratory, concrete works, bitumen and materials. The daily casual workers were excluded from the study since they were not permanent employees of the companies and were likely to be bias since the aspects of training diversity, experience diversity, and work-culture diversity and social interactions among them in relation to performance of the project would not have been developed among such group of workers or would not be directly involved in company activities. Further the companies would not have invested in them in terms of training, welfare and other developmental aspects.

The sampling frame for the projects and counties where constructions of the rural roads were being carried out was based on KeRRA Performance Contract (2015) report (See Appendix VI). The sampling frame tabulates the county, project contract number, project name, the contractor name and number of workers. Studies on construction projects have in many cases worked with small sample sizes. Ogunlana et al (1996) investigated the causes of delay in projects in Thailand basing their research on a sample of 12 projects; Uher (1996) investigated the cost of estimating practices in the Australian construction industry using a sample of 10 projects. Long et al (2002)

argues that whereas a large sample is better, but under some circumstances it is not possible due to other constraints to get large samples. In this case, they say that central limit theorem is applicable. In the current study, 30 projects were studied and was in line with the earlier studies.

3.4   Sample size and Sampling Procedures

In this section, the sample size and the sampling procedures used are discussed. Kothari (2010) explains that a sample size refers to the number of items to be selected from the universe to constitute a sample while sampling procedures refers to the technique used in selecting the items of the sample.

3.4.1 Sample Size

The 30 on-going KeRRA funded projects in Kenya were located in 21 counties (KeRRA PC report 2015). All the thirty projects were studied. The number of workers to participate from each project were proportionately stratified, however based on the nominal list of employees obtained from the respective companies, the workers were then systematically sampled to participate in the study. Site Engineers in each project were purposively selected to participate in the study as key informers. The workers targeted were those from all that were responsible for the actual execution of the project.

Sample size that was used for the study was obtained using Slovin's formula denoted by the population size and the acceptable margin of error of 0.05 as indicated in the following formula which has been proposed by Alemeda et al (2010):

$$\text{Sample Size } (n) = \frac{N}{(1+Ne^2)}$$

Where:

n = Number of samples
N = Population size
e = Marginal error (0.05)
Calculating the sample size,

$$n = \frac{3680}{(1 + 3680x0.05^2)} = \text{Sample size} = 361$$

3.4.2 Sampling Procedures

The sampling unit for the study was the rural roads construction projects. The sample design used was a combination of proportionate stratified sampling to obtain the sample size from each project, systematic sampling was then used to sample the respondents from each project who were to be administered with the questionnaire. Purposive sampling was also used to identify key informant interviewees who in this case were the site agents/engineers.

In the current study, 30 site agents from the 30 projects were purposively selected to participate in the in-depth interviews while stratified sampling was used to select 361 respondents from the 30 projects. In each of the 30 projects, workers to participate from each project were proportionately stratified. A nominal list of employees was obtained from the respective companies. Based on the number that was proportionately sampled from the project to take part in the study, the start point was determined through simple random sampling. Workers who were then systematically sampled participated in the study. The stratified sample frame is shown in Appendix VII. The site engineers were not included during the systematic sampling.

Sekaran (2003) supports this method of sampling by saying that a systematic sampling technique from a homogenous research category reduces a sampling error and gives a sample size that is more representative. Creswell (2012) also argues that purposive selection of participants or site or documents for study would help the researcher understand the problem of the research question. Merriam (1998) also supports this by adding that purposeful sampling is based on the assumption that the investigator wants to discover, understand and gain insight and therefore must select a sample from which the most can be learned.

3.5 Research Instruments

Data was obtained using the questionnaires, interview guides and observation. For this study, data collected entailed all the responses on the study variables which include project team diversity, implementation process of project control systems and performance of rural roads construction projects. Data obtained using the questionnaire was triangulated with the data obtained through the interview guides, and observation guide. The research instruments were administered by the researcher.

3.5.1 Questionnaire for Workers

Structured questionnaires were used to collect information from the respondents. A questionnaire as explained by Bhattacherje (2012) is a research instrument consisting of a set of questions (items) intended to capture responses from respondents in a standardized manner. The questionnaire method was preferred because of the large number of respondents targeted and the quantitative nature of information sought. This method was chosen because it offers the respondents an opportunity to appreciate the importance of the study since it touched on the project team diversity, implementation process of project control systems and performance of rural roads construction projects, an area in which they actively took part as road construction workers. Data collection was done during the period of 3rd February 2016 to 26th March 2016. The questionnaire was divided into seven sections (See Appendix III).

Section 1 of the questionnaire collected information about respondents' demographic information. The purpose of this section was to get background information of the respondents. Section 2 sought to obtain information on performance of rural roads construction projects; Section 3 sought information on implementation process of project control systems; Section 4,5,6 and 7 sought information addressing on the influence of project team demographic diversity, project team training diversity, project team experience diversity, project team work-culture diversity respectfully. The items for measuring the study variables of demographic, training and experience diversity were adapted from the study carried out by Hobman et al. (2004) whose Cronbach alpha for demographic diversity was 0.82, for experience diversity was 0.87. In his study the respondents was asked to rate the importance of these project team

diversity practices in a Likert Scale of 1 to 5, with 1 indicating "strongly disagree", and 5 indicating "strongly agree".

In measuring importance of culture diversity, measuring items were modified from Churchill (1979) whose items have been widely used as a paradigm for development of sound multi-item measures for assessment instrument. The instrument has been used by other researchers such as Amyx (2006) in assessing the importance of cultural diversity in the education environment scale development and testing.

3.5.2 Interview Guide for Site Engineers

The interview guide (Appendix II) was used to collect qualitative data from the key informants who in the current study were the site agents/engineers. Bhattacherje (2012) posits that, interviews are a more personalized form of data collection method than questionnaires, and are conducted by trained interviewers using the same research protocol as questionnaire surveys (i.e., a standardized set of questions). In addition, Bhattacherje (2012) adds that in interviews, the interviewer has the opportunity to clarify any issues raised by the respondent or ask probing or follow-up questions. In the current study, the contractor's project site engineers commonly referred to as site agents, in charge of the projects were purposively selected for interview using open ended questions. Interviews took an average time of 20-25 minutes and were commonly held at the site offices of the site engineers. The interviews were held during the period of 3rd February 2016 to 26th March 2016. Information on project team diversity, implementation process of project control systems and performance of rural roads construction projects were collected. The information collected targeted the in-depth information on the variables under study in the questionnaire. As the interview progressed the interviewee was given opportunity to elaborate more on relevant information.

The interview guide was divided into three sections. The first section was the introduction where introductions and purposes of the interview were expressed. This section enabled the interviewer to create rapport with the interviewee. The second section of the guide sought to obtain information on the project team diversity variables, implementation process of project control systems and performance of rural roads construction projects. The third section of the

questionnaire sought to obtain any general information from the interviewee and thanking them for taking part in the study.

3.5.3 Observation

Observation provided the researcher with an opportunity to check on nonverbal expressions by checking on the subjects' interactions, communications, time spent on activities and observe events within the site. It also offers an opportunity to observe the issues realised from questionnaires and those discussed during the interviews (Kawulich, 2005). The researcher used observer-as-participant stance. This enabled the researcher to observe and interact closely enough with project team members to establish the reality without directly participating in the activities. Among the things observed include: construction activities taking place at the site, workmanship of the workers, mixing ratios and quality of materials during construction at the site and compaction of materials during road construction. A detailed observation guide is attached in Appendix IV.

During observation, the researcher minimized biasness of the instrument by engaging different observers for triangulation of the data collected. In addition, the researcher also sought to improve participant's reaction to observation by creating rapport through close interaction which over time the participants under observation got used to the observer and started to behave naturally. Further, ethical issues relating to privacy, trust, disclosure, cultural sensitivity and anonymity were practiced throughout the period of study. These practices addressed the limitations of observation.

3.5.4 Pilot Testing of the Research Instruments

The research instruments were pilot tested on two KeRRA funded projects in Kiambu County. A total of 38 questionnaires was administered and two interviews were carried out. According to Connelly (2008), he suggests that a pilot study sample size should be 10% of the projected study sample size. This pilot test was to ensure the clarity of the questions asked, and that if the respondents understood the questions. Kiambu County was purposively selected due to its proximity to Nairobi and the researcher was able to meet the time and budget requirements. The data obtained was analysed for validity and reliability using the Cronbach alpha technique. The

research instrument was then improved and adjusted to meet the validity and reliability requirements. Those who participated in the pilot testing of the research instruments were exempted from participating in the main study.

3.5.5 Validity of the Research Instruments

Validity of the instruments was tested to ensure that the items in the instrument were able to measure the intended constructs. The key validity that was measured included content validity, criterion related validity and construct validity. Kothari (2010) defines content validity of the instrument as the extent to which a measuring instrument provides adequate coverage of the topic under study. He also argues that a measure is said to possess construct validity to the degree that it confirms to predicted correlations with other theoretical propositions (Kothari, 2010). Criterion-related validity relates to ability of the instrument to predict some outcome or estimate the existence of some current condition (Kothari, 2010). In the current study, validity for the questionnaire was achieved while designing the instrument. This was realised through an intensive literature review hence adaption and modification of the already tested instruments to fit into this study and also by advice from the experts both from university academicians, the thesis supervisors and practitioners. The recommendations were used to make the necessary corrections in the research tools.

Validity for the interview guide was ensured through careful record keeping through voice recording during interviews and note taking. In addition, respondent validation was used whereby interviewees were invited to check and comment on the transcribed manuscripts. Peer briefing using my supervisors and qualified colleagues in this field was also used in assessing the authenticity of the data whether the final themes and concepts created, adequately reflected the phenomena being investigated. Also, the researcher stayed in the field for two months collecting data until there was data saturation. Data triangulation was also exercised by using other data collection methods such as observation and the questionnaire. Observation research instrument was carried out by a research assistant and the researcher. This way, the validity of the instrument was enhanced since data obtained from each was compared and biases minimized. Throughout the period of data collection, the researcher endeavored to account for personal biases and ensured depth and breadth of the collected data.

3.5.6 Reliability of the Research Instruments

Reliability of the research instrument is used to ensure that the research instrument is able to measure the consistency, precision, repeatability, trustworthiness of a test (Chakrabartty, 2013). It is also used to measure internal consistency of scores obtained by the instrument. To establish the reliability of the instruments in the study, pilot testing was done on respondents from a road construction project in Kiambu County and then Cronbach's alpha was calculated. A scale is said to be reliable, if Cronbach's coefficient alpha of the scale is well above the threshold value of 0.7 and the acceptable minimum of 0.6 (Hair et al., 2006).

Consequently Spearman-Brown formula was used to determine the reliability of the entire test, where by reliability:

$R = \frac{2r}{1+r}$ where

R = denotes estimated reliability of the entire test.

r = the correlation between two halves which are assumed to be strictly parallel (Kaplan and Saccuzzo, 2001).

Acceptable values of alpha range from 0.70 to 1 (Bland and Altman, 1997). In the current study a composite reliability value of 0.738 was achieved and the results of reliabilities of other study variables were as shown in Table 3.1.

Table 3.1: Reliability of Variables

Variable	No of items	Cronbach's Alpha Coefficient (α)
Project team demographic diversity	13	0.740
Project team training diversity	10	0.652
Project team experience diversity	10	0.780
Project team work-culture diversity	15	0.685
Implementation process of project control systems	12	0.784
Performance of rural roads construction projects	13	0.787
Composite Cronbach's Alpha Coefficient		**0.738**

The results in Table 3.1 indicates that performance of rural roads construction projects had the highest reliability of 0.787 followed by implementation process of project control systems which had a reliability of 0.784. Project team experience had a reliability of 0.78. The composite reliability was 0.738. Since the Cronbach's alpha coefficient obtained was more than 0.7 which is desirable and 0.6 being the minimum acceptable (Sekaran,2003, Hair et al, 2006), it was therefore concluded that the internal consistent reliability measures used were high and to have adequately measured the study's variables and were therefore considered for further analysis. The above reliabilities were obtained based on data obtained from a pilot study. The instrument was then modified by incorporating the results from the pilot study. This way, it assisted in improving the validity and final reliability of the instrument.

3.6   Data Collection Procedures

Before embarking on data collection, relevant approvals were first obtained. It started with an introductory letter from the University of Nairobi, Graduate School introducing the researcher to relevant authorities for field data collection. This letter was used to obtain the permit for research from the National Commission for Science, Technology and Innovation (NACOSTI) (see Appendix VIII). Secondly approvals were obtained from KeRRA headquarters and subsequently the sampled road construction companies. Contact details of all project site engineers and resident engineers were obtained from KeRRA headquarters. Follow up calls and emails were then made to book an appointment. During the appointment, the significant of the study was explained and then sought permission to issue the questionnaires to their workers and interviews to the site engineers. The data collection from the field was done with an aid of three research assistants. By use of the research assistant, it improved the return rate of the questionnaires since any clarifications on the questionnaire were handled in-situ.

The research assistants were trained on research ethics and on the research instrument and its administration, interview skills and data recording. An introductory letter for the research assistant to collect data on the researcher's behalf was given to the research assistants. A letter of data transmittal (See Appendix I) was given to the respondents before administering the questionnaires and a consent to voluntarily participate in study was first sought from the respondents before filling in the questionnaire.

3.7   Data Analysis Techniques

The data collected using the questionnaire was checked for completeness. It was then subjected to Normality test which was first checked visibly by using plots, by significance tests of comparing the sample distribution to a normal one (Field, 2009) and Kolmogorov-Smirnov test statistic (KS-test) and Shapiro-Wilk test (SW-test) which were carried out to provide inferential statistics on normality using the SPSS. Test of multicollinearity was tested by use of Variance Inflation Factor (VIF) whose values were between 1 and 8 within all the variables. Marquardt (1970) argues that VIF values greater than 10 indicate severe multicollinearity. In the current study, there was no multicollinearity. Test for homoscedasticity and heteroscedasticity prior to estimation of regression coefficients and testing of hypotheses was also carried out. This was checked by visual examination of plot of standardized residuals (the errors).

Descriptive analysis was then carried out. Measures of central tendency and measures of dispersion; mean, standard deviation, percentages and frequency distributions was used to analyse non-parametric data such as understanding the respondents' characteristics, while inferential statistics was used to test the hypotheses which would further be used to generalize the findings from the sample studied to population.

Statistical Package for Social Sciences (SPSS), IBM version 23, tool was used to generate descriptive and inferential statistics. Level of significance alpha was set at 0.05 and the confidence level at 95%. Measures of central tendencies were used on finite data values. This was so because data was normally distributed and clustered around the average value. Based on the standard deviation from the average, data was therefore measured if it had a strong or weak tendency.

Qualitative data obtained from questionnaire, in-depth interviews and observation were analysed separately. Bogdan and Biklen (2003) define qualitative data analysis as working with the data, organizing them, breaking them into manageable units, coding them and synthesizing them, and searching for patterns. The aim for searching for patterns was to be able to explain or identify the influencing links from the data collected. Therefore, qualitative data process involved analysing transcripts, identifying themes within those data and gathering together examples of those themes from the text (Burnard et al., 2008).

Data triangulation was ensured so as to strengthen the validity and reliability of the data collected. Data was therefore collected from different participants and different sites of the setting. Data obtained was therefore cross-checked for consistency of specific and factual data items as recorded in data collection instruments. In this study, therefore data was triangulated through comparison of qualitative data received from structured questionnaires for workers with qualitative in-depth interviews for site engineers and observation guide by the researcher. Further, data obtained from the structured questionnaire was analysed both descriptively and inferentially. The results were then corroborated with those obtained from the structured in-depth interviews and observation guide.

Pearson's Product Moment Correlation Coefficient (r) and regression analysis was used to analyse the influence. Pearson's Product Moment Correlation Coefficient (r) was used to describe the strength of the relationship between the independent predictor variable and dependent criterion variable. This was so because Pearson's Product Moment Correlation Coefficient (r) is widely used in social sciences as a measure of the strength of linear dependence between two variables (Huber, 2004). This was ascertained by plotting the scatter diagrams which indicated a linear relationship between independent and dependent variable. The test was carried out on a two-tail test. This allowed for either influence to the positive or negative direction. The hypothesis was tested at 95% confidence level and significant level of 0.05.

Multiple regression analysis was used to analyse the influence of combined project team diversities on performance of rural roads construction projects. The hypotheses with a linear relationship was analysed using simple regression analysis and Pearson's Product Moment Correlation (r) was used for interpretation. Interpretation of the results for the linear relationships of this study was based on; for a weak correlation, "r" ranging from + 0.10 to + 0.29; in a moderate correlation, "r" ranging between + 0.30 and + 0.49; while in a strong correlation, "r" ranging from + 0.5 and + 1.0 (Shirley et al. (2005). Multiple regression analysis was used for research hypotheses whose relationships were non-linear. This was based on studies by other construction management researchers who used Multiple Linear Regression for Likert scale measures (Chan et al., 2004, Pinto et al., 2009, Doloi, 2013).

The values of coefficient of determination (R^2), showed the degree or amount of variation in the performance of rural roads construction projects attributed to all the predictor variables (s). The

intercept term in the regression analysis reveals the common variance, explained by all the independent variables. The Beta values showed the amount of change in the performance of rural roads construction projects attributable to the amount of change in the predictor variable thus demonstrating how the performance of rural roads construction projects alters when one unit of the independent variable increases or decreases, and the F - ratio measured the model fit, or simply a measure of how well the equation line would develop fit with the observed data. The statistical significance of each hypothesized relationship was interpreted based on the F values.

3.7.1 Regression Models

Regression models were developed for analysis of the relationships of the variables under study. In regression, this study adopted the conceptual and statistical models for simple moderation as proposed by Baron and Kenny (1986) who defined a moderator as a qualitative (for example sex, race, class) or quantitative for (example level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. They depicted both the conceptual and statistical models as shown in Figure 2:
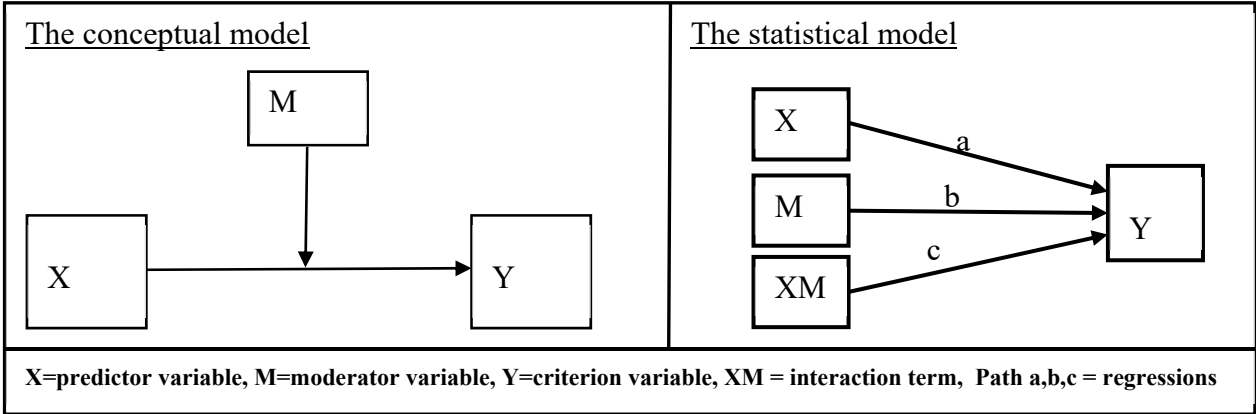
Source: Baron and Kenny (1986)

Figure 2. Conceptual and Statistical Models for Simple Moderation

Figure 2 indicates a conceptual model used in the current study during testing of variables on how the moderator influences the relationship between the independent variable and the dependent variable while the statistical model indicates regressions carried out in that '*path a*'

76

as the predictor influencing on Y, '*path b*' as the moderator influencing on Y while '*path c*' as the interaction term influencing on Y. The moderator hypothesis was supported when the interaction (*path c*) was significant.

The variables were denoted as follows:

Dependent variables:

Y -   Performance of rural roads construction projects
        Indicators; Completion of project within time, Completion of project within Budget, Quality of work, Level of client satisfaction, Project workers' satisfaction.

Moderating variable:

X_1 -   Implementation process of project control systems:

Independent variables:

X_2	-	Project team demographic diversity
X_3	-	Project team training diversity
X_4	-	Project team experience diversity
X_5	-	Project team work-culture diversity
X_6	-	Combined project team diversities
β_0	-	Constant term
$\beta_1, \beta_2, \beta_3, ... \beta_n$	-	Beta coefficients
$X_1, X_2, X_3, ...X_n$	-	Predictor variables
ε	-	Error term

3.7.1.0   Regression Model for Objective One

Objective One was linear hence the following regression model guided the data analysis;

Model 1

H$_{01}$: Project team demographic diversity does not significantly influence performance of rural roads construction projects in Kenya.

Performance of rural roads construction projects = f (Project team demographic diversity)

$$Y = f(X_2, \varepsilon)$$
$$Y = \beta_0 + \beta_1 X_2 + \varepsilon$$

Where ε is a random error

3.7.1.2 Regression Model for Objective Two

Objective Two was linear hence the following regression model guided the data analysis;

Model 2

H$_{02}$: Project team training diversity does not significantly influence performance of rural roads construction projects in Kenya.

Performance of rural roads construction projects = f (Project team training diversity)

$$Y = f(X_3, \varepsilon)$$
$$Y = \beta_0 + \beta_3 X_3 + \varepsilon$$

Where ε is a random error

3.7.1.3 Regression Model for Objective Three

Objective Three was linear hence the following regression model guided the data analysis;

Model 3

H$_{03}$: Project team experience diversity does not significantly influence performance of rural roads construction projects in Kenya.

Performance of rural roads construction projects = f (Project team experience diversity).

$$Y = f(X_4, \varepsilon)$$

$$Y = \beta_0 + \beta_4 X_4 + \varepsilon$$

Where ε is a random error

3.7.1.4 Regression Model for Objective Four

Objective Four was linear hence the following regression model guided the data analysis;

Model 4

H_{04}: Project team work-culture diversity does not significantly influence performance of rural roads construction projects in Kenya.

Performance of rural roads construction projects = f (Project team work-culture diversity)

$$Y = f(X_5, \varepsilon)$$
$$Y = \beta_0 + \beta_5 X_5 + \varepsilon$$

Where ε is a random error

3.7.1.5 Regression Model for Objective Five

Objective Five was non-linear hence the following regression model guided the data analysis;

Model 5

H_{05}: Combined project team diversities does not significantly influence performance of rural roads construction projects in Kenya.

Performance of rural roads construction projects = f (Project team demographic diversity, Project team training diversity, Project team experience diversity, Project team work-culture diversity)

$$Y = f(X_2, X_3, X_4, X_5, \varepsilon)$$
$$Y = \beta_0 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where ε is a random error

3.7.1.6 Regression model for objective six

Objective Six was non-linear hence the following regression model guided the data analysis;

Model 6

H_{06}: The significant influence between combined project team diversities and performance of rural roads project does not depend on implementation process of project control systems.

Performance of rural roads construction projects = f (Implementation process of PCSs (Project team demographic diversity + Project team training diversity + Project team experience diversity + Project team work-culture diversity)).

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_1 X_2 X_3 X_4 X_5 + \varepsilon$

Where ε is a random error

3.7.2 Tests of Hypothesis

Various hypotheses were tested in line with the objectives of study. Table 3.2 illustrates the summary of the research objectives, null hypotheses, model type of analysis and the interpretation of the results.

Table 3.2: Summary of Statistical Tests of Hypotheses

Objective	Null Hypotheses	Model	Type of analyses	Interpretation of Results
1. To establish how project team demographic diversity influences performance of rural roads construction projects in Kenya.	H_{01}: Project team demographic diversity does not influence performance of rural roads construction projects in Kenya.	Using a linear regression analysis $Y = \beta_0 + \beta_2 X_2 + \varepsilon$ Y = Performance of rural roads projects X_2 = project team demographic diversity β_0 = Constant term β_2 = Beta coefficients ε = Error term	Linear regression	
2. To determine how project team training diversity influences performance of rural roads construction projects in Kenya.	H_{02}: Project team training diversity does not influence performance of rural roads construction projects in Kenya.	Using a linear regression analysis $Y = \beta_0 + \beta_3 X_3 + \varepsilon$ Y = Performance of rural roads projects X_3 = project team training diversity β_0 = Constant term β_3 = Beta coefficients ε = Error term	Linear regression	Reject H_0 – if p>0.05 Fail to reject H_1 if p<0.05 Strength relationships of r values $+0.10<r<0.29$ was a weak correlation $0.30<r<0.49$ was moderate correlation $+0.5 < r < 1$ was a strong relationship.
3. To establish how project team experience diversity influences performance of rural roads construction projects in Kenya.	H_{03}: Project team experience diversity does not influence performance of rural roads construction projects in Kenya.	Using a linear regression analysis $Y = \beta_0 + \beta_4 X_4 + \varepsilon$ Y = Performance of rural roads projects X_4 = project team experience diversity β_0 = Constant term β_4 = Beta coefficients ε = Error term	Linear regression	
4. To determine how project team work-culture diversity influences performance of rural roads	H_{04}: Project team work-culture diversity does not influence performance of rural roads construction projects in Kenya.	Using a linear regression analysis $Y = \beta_0 + \beta_5 X_5 + \varepsilon$ Y = Performance of rural roads projects X_5 = project team work-culture diversity β_0 = Constant term	Linear regression	

Objective	Null Hypotheses	Model	Type of analyses	Interpretation of Results
construction projects in Kenya.		$\beta_5 =$ Beta coefficients $\varepsilon =$ Error term		
5. To establish how combined project team diversities influences performance of rural roads construction projects in Kenya.	H_{05}: Combined project team diversities does not influence performance of rural roads construction projects in Kenya.	Using a Multiple Regression analysis $Y = \beta_0 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \varepsilon$ $Y =$ Performance of rural roads projects $X_2 =$ project team demographic diversity $X_3 =$ project team training diversity $X_4 =$ project team experience diversity $X_5 =$ project team work-culture diversity $\beta_0 =$ Constant term $\beta_2, \beta_3, \beta_4, \beta_5 =$ Beta coefficients $\varepsilon =$ Error term	Multiple regression	Reject H_0 – if $p>0.05$ Fail to reject H_1 if $p<0.05$ Strength relationships of r values $+0.10<r<0.29$ was a weak correlation $0.30<r<0.49$ was moderate correlation $+0.5 < r < 1$ was a strong relationship.
6. To establish the extent to which implementation process of project control systems influences the relationship between project team diversity and performance of rural roads construction projects in Kenya.	H_{06}: The significant relationship between project team diversity and performance of rural roads construction projects does not depend on implementation process of project control systems.	Using multiple regression analysis $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_1 X_2 X_3 X_4 X_5 + \varepsilon$ $Y =$ Performance of rural roads projects $X_1 =$ Implementation process of PCSs $X_2 =$ project team demographic diversity $X_3 =$ project team training diversity $X_4 =$ project team experience diversity $X_5 =$ project team work-culture diversity $\beta_0 =$ Constant term $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, =$ Beta coefficients, $\varepsilon =$ Error term	Multiple regression	

3.8   Ethical Consideration

Ethical considerations were observed throughout the research process. The basic aspects of social considerations in social science research were considered. These included obtaining research permit from NACOSTI and then writing an introductory letter to KeRRA for approval to visit her projects to carry out the study. Further a letter for transmittal of data to the respondents was written explaining to the respondent on reasons as to why the research was important and the importance of the respondent participating in the study by giving truthful and objective information. They were also informed that the research was purely for academic purposes. They were assured that the information obtained would be anonymous. A consent form was then issued and signed by the respondents before they embarked on filling the questionnaire. Creswell (2003) argues that the researcher has an obligation to respect the rights, needs, values and desires of the informants.

At all times the researcher adhered to ethical issues including; informed consent (Appendix V), honesty and trust, privacy, anonymity, disclosure, cultural sensitivity, harm and risk policy and voluntary participation. During data analysis and reporting, the researcher endeavoured to practice acceptable analytical methods and reporting.

3.9   Operationalization of Variables

This section describes the operationalization of variables as depicted in the conceptual framework and hypothesized in the identified hypotheses. The dependent variables were performance of rural roads construction projects measured by; completion of project activities within time, budget and quality, client satisfaction and project workers' satisfaction. The independent variables include project team diversity such as demographic diversity, training diversity, experience diversity and work-culture diversity. The moderating variables include implementation process of project control systems. The operationalization of study variables is shown in Table 3.2.

Table 3.3: Operationalization of Variables

Objective	Variables	Indicators	Measurement	Measuring Scale	Statistical analysis	Tools of analysis
1. To establish the extent to which project team demographic diversity influences performance of rural roads construction projects in Kenya.	**Dependent variable;** Performance of rural roads construction projects	• Project completion within time • Project completion within budget • Quality of work • Client satisfaction • Project workers' satisfaction	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the five indicator items measuring this variable	Interval	Parametric	Descriptive analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
	Independent variable: Project team demographic diversity	• Age • Gender • Ethnicity • Religion	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the four indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
2. To investigate the extent to which project team training diversity influences performance of rural roads construction projects in Kenya.	**Independent variable:** Project team training diversity	• Training background diversity • On job training diversity • Progressive training diversity	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
3. To establish the extent to which project team experience diversity influences performance of	**Independent variable:** Project team experience diversity	• Professional experience diversity • On job experience diversity	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the two indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Pearson's Correlation and Linear

Objective	Variables	Indicators	Measurement	Measuring Scale	Statistical analysis	Tools of analysis
rural roads construction projects in Kenya.						regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
4. To examine the extent to which project team work-culture diversity influences performance of rural roads construction projects in Kenya.	**Independent variable:** Project team work-culture diversity	• Work engagement culture • Team work culture • Decision making culture	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
5. To investigate the extent to which combined project team diversities influences performance of rural roads construction projects in Kenya.	**Independent variables:** Combined project team diversities	• Project team demographic diversity • Project team training diversity • Project team experience diversity • Project team work-culture diversity)	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the four indicator items measuring this variable	Interval	Parametric	Multiple regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis
6. To investigate the extent to which implementation of project control systems influences the relationship between combined project team diversities and performance of rural roads construction projects in Kenya.	**Independent variable:** Implementation process of project control systems	• Planning • Installing • Operation	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the three indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Pearson's Correlation and Linear regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis

Objective	Variables	Indicators	Measurement	Measuring Scale	Statistical analysis	Tools of analysis
	Independent variables: Implementation process of project control systems, Combined project team diversities	• -Implementation process of project control systems • -Project team demographic diversity • -Project team training diversity • -Project team experience diversity • -Project team work-culture diversity)	• A composite index was obtained by calculating the average of the total sum of the responses of each respondent over the five indicator items measuring this variable	Interval	Parametric	Descriptive analysis, Multiple regression analysis
			• Observation • Open ended questions		Non-parametric	Descriptive analysis

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1   Introduction

This chapter presents the study results which have been analysed and discussed in line with the study objectives using the following thematic and sub-thematic areas: the first section is on the response rate of the respondents, the second section presents the demographic profiles of respondents, the third section presents tests of statistical assumptions and analysis of the Likert-type of data, the fourth section presents the analysis, presentation, interpretation and discussion of the relationships under investigation in the current study. Descriptive analysis was first done for each research objective by use of the arithmetic mean and the standard deviation. It was then followed by inferential analysis by use of linear or multiple regression analysis. Qualitative analysis on questionnaires, observations and in-depth interviews were also carried out for each research objective. The dependent variable of the study was performance of rural roads construction projects while project team diversity was the independent variable and implementation process of project control systems was the moderating variable.

4.2   Questionnaire Return Rate

Questionnaires were administered to a sample size of 361 (331 workers and 30 site engineers) out of the targeted population of 3680 workers from 30 (thirty) KeRRA funded rural roads construction projects. Out of 331 questionnaires for workers, a total of 209 questionnaires were filled and returned. However, 12 questionnaires were incomplete and therefore were not used in the analysis. The sample response rate was 63.14% which was regarded as representative sample for further analysis and enough for statistical generalizations. Saunders et al (2003) argues that 30-50% response rate offers a threshold for statistical generalizations. In-depth interviews were also conducted on 12 (twelve) site Engineers out of the targeted 30 (thirty) respondents.

4.3 Demographic Profiles of the Respondents

This section provides the background information of the respondents. The profile of the respondents was given based on the items in the research instruments used in the study. This was therefore given in terms of gender, age, level of education, period employed in the construction job, period employed in the construction company and the position held in the construction company. These are further discussed in the following subsequent themes:

4.3.1 Distribution of Respondents by Gender

The study sought to establish the gender of the respondents who participated in the study. Respondents were asked to indicate their gender. The purpose was to establish the distribution of the gender that took part in the study. The findings are represented in Table 4.1.

Table 4.1: Distribution of Respondents by Gender

Gender	Frequency	Percentage %
Male	188	95.4
Female	9	4.6
Total	**197**	**100**

Table 4.1 indicate that 188(95.4) % of the respondents who participated in the study were male while 9(4.6) % were female. The data therefore reveals that one gender dominates the construction industry which is against the government policy in Kenya that requires that at least each gender in an organisation should have a minimum of 30% representation. However, it confirms the belief that construction jobs are heavily manual and mostly a preserve for male gender.

4.3.2 Distribution of Respondents by Age Bracket

The study also sought to establish the distribution of the age groups of the respondents who participated in the study. This was vital so as to ascertain that all age groups had an equal chance of participating in the study. Respondents were asked to indicate their age brackets. The age groups were grouped into eight categories. The pertinent responses are shown in Table 4.2.

Table 4.2: Distribution of Respondents by Age group

Age Bracket	Frequency F	Percentage %
18-25	25	12.7
26-30	41	20.8
31-35	37	18.8
36-40	26	13.2
41-45	18	9.1
46-50	10	5.1
51-55	18	9.1
Over 55	22	11.2
Total	**197**	**100**

Table 4.2 reveals that the distribution of respondents of age group between 18-25 years was 25(12.7) %, and those between 26-30 years were 41(20.8) %, while those between 31-35 years were 37(18.8) %. Those between 36-40 years were 26(13.2) % while those between 41-45 years were 18(9.1) %. Between 46-50 years were 10(5.1) %, while those between 51-55 years were 18(9.1) % and those above 55 years were 22(11.2) %. These results indicate that majority of the respondents were of age between 26-30 years which is the prime age group for youths seeking employment and that they would enthusiastically be interested in participating in the study.

4.3.3 Distribution of Respondents by Highest Level of Education

The study was also aimed at establishing distribution of the level of education obtained by the respondents who participated in the study. This was important since it implicated on how to respond to questions and how well they understood project team diversity and project implementation process of project control systems. They were asked to indicate the highest level of education obtained. The findings are represented in Table 4.3.

Table 4.3: Distribution of Respondents by Highest Level of Education

Highest level of education	Frequency F	Percentage %
Undergraduate degree	2	1
Diploma	25	12.7
Post-Secondary Artisan Certificate	38	19.3
Other	132	67
Masters	0	0
PhD	0	0
Total	**197**	**100**

The research findings in Table 4.3 indicated that 2(1) % of the respondents were holding an undergraduate degree which in this case was the highest level of education realised by the construction workers, while 25(12.7) % had diploma. 38(19.3) % had a post-secondary artisan certificate while 132(67) % had a form four education and below. The results showed that majority of the construction workers did not have any formal education in the respective areas of their work especially the higher education. Most of them (67%) had been educated through apprenticeship. During the interview, they revealed that they all understood project team diversity and project implementation process of project control systems put in place in their daily execution of work and project team diversity hence they could fill the questionnaires appropriately.

4.3.4 Distribution of Respondents by Period Worked in the Construction Company

The study also sought to establish the period worked by the respondents in the current construction company. The period worked in Construction Company was considered necessary in understanding project team diversity and project controls systems as practised in their organisations. The respondents were asked to indicate how long they had worked in the construction company. The responses are shown in Table 4.4.

Table 4.4: Distribution of Respondents by Period Worked in the Construction Company

Period worked	Frequency F	Percentage %
Less than 1 year	66	33.5
1-5 years	85	43.1
6-10 years	28	14.2
11-15 years	7	3.6
16-20 years	5	2.5
Over 20 years	6	3.1
Total	**197**	**100.0**

The findings in Table 4.4 reveals that those who had worked for 1 year and less were 66(33.5) % and those worked between 1-5 years were 85(43.1) %, while those worked between 6-10 years were 28(14.2) %. Those who had worked between 11-15 years were 7(3.6) % while those who had worked between 16-20 years were 5(2.5) % and those worked for above 20 years were 6 (3) %. This result indicates that majority of the respondents at 90.8% had worked in the construction company for less than 10 years though following the interviews conducted, the

results revealed that most of the respondents had previously worked on various road construction projects on contract basis hence reason that they had enough information to adequately and objectively respond to research questions on project team diversity at their work place.

4.3.5 Distribution of Respondents by Period Worked in the Construction Industry

The study sought to establish the distribution of respondents by the period worked in the construction industry. This was considered important since the period respondents had worked in the construction industry would make them appreciate the importance of project team diversity and implementation process of project control systems in construction projects. The respondents were asked to indicate how long they have worked in the construction industry. The responses are shown in Table 4.5.

Table 4.5: Distribution of Respondents by Period Worked in the Construction Industry

Period worked	Frequency F	Percentage %
Less than 1 year	29	14.7
1-5 years	51	25.9
6-10 years	49	24.9
11-15 years	24	12.2
16-20 years	11	5.6
Over 20 years	33	16.7
Total	**197**	**100.0**

The results from Table 4.5 reveals that those who had worked for less than 1 year were 29(14.7) % and those worked between 1-5 years were 51(25.9) %, while those worked between 6-10 years were 49(24.9) %. Those who have worked between 11-15 years were 24(12.2) % while those who have worked between 16-20 years were 11(5.6) % and those above 20 years were 33(16.7) %. The result implied that the majority of the respondents (85.3%) had worked in the construction industry for more than 1 year hence endowed with both the knowledge and understanding and that they would duly appreciate how the project team diversities among them as workers manifest in their workplace and hence objectively fill the questionnaires.

4.3.6 Distribution of the Respondents by Position held at the Construction Company

The respondents were requested to indicate the position they held within the company. The position individuals held within the company was vital in escalating the concept of project team diversity and implementation process of project control systems. The responses are indicated in Table 4.6.

Table 4.6: Distribution of the Respondents by Position held at the Construction Company

Position held in the company	Frequency %	Percentage %
Senior management	2	1.0
Middle management	19	9.6
Lower management	29	14.7
None managerial staff	147	74.0
Total	**197**	**100.0**

Table 4.6 reveals that 2(1) % of the respondents were senior management, while 19(9.6) % were middle management, 29(14.7) % were lower management while 147(74.0) % were non-managerial staff. These results illustrate that majority of the respondents were non-management staff at 74%. This implies that the majority of the respondents were workers who were directly involved in the implementation process of project control systems hence they would fill the questionnaires both devotedly and objectively.

4.4 Tests for Statistical Assumptions and Analysis of Likert Type of Data

This section explains how tests of normality, multicollinearity, homoscedasticity and heteroscedasticity were carried out. In addition, it explains how Type I and Type II errors were controlled. Usage of Likert Scale in data analysis was also explained.

4.4.1 Tests for Normality

Violations of normality assumptions are likely to lead the researcher into inaccurate inferential results. The assumptions for normality need to be checked for statistical procedures since validity of such procedures such as parametric tests depends on them (Ghasemi & Zahediasl, 2012). Normality could also be ascertained visibly by using plots or by significance tests of

comparing the sample distribution to a normal one (Field, 2009). In the current study, visual inspection of the distribution was used to assess normality by use of the data plots, skew, kurtosis frequency distribution while Kolmogorov-Smirnov test statistic (KS-test) and Shapiro-Wilk test (SW-test) were carried out to provide inferential statistics on normality using the SPSS. For p-values of greeter than 0.05 indicates a normal distribution of data, however lack of symmetry (skewness) and pointiness (Kurtosis) are two main ways in which a distribution can deviate from normal. The values of these parameters should be zero in a normal distribution (Ghasemi & Zahediasl, 2012). In the current study, tests of normality were done based on visual inspection of outliers, scatterplot, P-P plots, and histograms for the dependent variable.

The results of Kolmogorov-Smirnov test statistic and Shapiro-Wilk test are shown in Table 4.7.

Table 4.7: Test for Normality

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Performance of Rural Roads	0.055	197	0.200*	0.984	197	0.228
Implementation Process of PCS	0.047	197	0.200*	0.968	197	0.238
Project Team Demographic Diversity	0.057	197	0.200*	0.974	197	0.247
Project Team Training Diversity	0.042	197	0.200*	0.996	197	0.865
Project Team Experience Diversity	0.049	197	0.200*	0.991	197	0.238
Project Team Work-culture Diversity	0.035	197	0.200*	0.986	197	0.259

*. Correlation is significant at the 0.05 level (2-tailed)
  0.200^* this is a lower bound of the true significance

Table 4.7 reveals that KS values approaches to 0 and the SW- test statistics confirmed KS test that the population was normal by all its values approaching to 1. From the test the SW values of the variables were between 0.968 and 0.996 which were within the criteria set by Menard's (1995) hence the null hypothesis which was that the population was not normal was rejected. The alpha level was at 0.05 and in all variables $p < 0.05$. It was therefore concluded that the sample population selected for study was normally distributed, hence proceeded for further analysis.

4.4.2   Tests for Multicollinearity

Standard multiple regression accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature. In instances where non-linear

relationships occur, it is essential to examine analyses for non-linearity. It was therefore important that the nonlinear aspects of the relationship be accounted for in order to best assess the relationship between variables.

Multicollinearity occurs when there is a strong correlation between two or more predictor variables in regression model and poses a problem in multiple regressions. Test of multicollinearity was tested by use of Variance Inflation Factor (VIF) whose values were between 1 and 8 for all the variables. This test indicates whether a predictor has a strong linear relationship with other predictors. Marquardt (1970) argues that VIF values greater than 10 indicate severe multicollinearity. In the current study, therefore, there was no multicollinearity. Multicollinearity results increases standard errors of Beta coefficients hence a higher variability across samples hence less likely to represent the population. It also reduces the contribution of predictors making it difficult to assess the individual significance of a predictor.

4.4.3   Tests for Homoscedasticity and Heteroscedasticity

It is common to test for homoscedasticity prior to estimation of regression coefficients and testing of hypotheses. This was to ensure that the assumptions for the application and analysis by use of regression analysis were complied with. Usually heteroscedasticity occurs when variance of errors varies across observations, and homoscedasticity means that the variance of errors is the same across all levels of the independent variable. These variances if not corrected would result to incorrect inferences hence a requirement for testing for heteroscedasticity for prudent data analysis. Remarked presence of heteroscedasticity increases the possibility of a Type I error.

In the current study, the assumption of homoscedasticity was checked by visual examination of plot of standardized residuals (the errors) and by the regression standardized predicted value. The residuals were randomly scattered around 0 (the horizontal line) providing a relatively even distribution. Tolerance statistic was then computed (a reciprocal of variance inflation factor).

Heteroscedasticity is indicated when the residuals are not evenly scattered around the line. When the plot of residuals appears to deviate substantially from normal, more formal tests for heteroscedasticity should be performed. In the current study, this was not violated.

4.4.4   Control of Type I Error and Type II Error

Type I or Type II errors occur when certain assumptions about the variables used in the analysis are not met resulting to untrustworthy results. Analyses by Osborne and Waters (2001) show that removal of univariate and bivariate outliers can reduce the probability of Type I and Type II errors, and improve accuracy of estimates. This was done by use of the SPSS software.

Making an error in measurement is of great concern. In cases of simple correlation and regression, unreliable measurement causes relationships to be under-estimated increasing the risk of Type II errors. In the case of multiple regression or partial correlation, effect sizes of other variables can be over-estimated if the covariate is not reliably measured. In the current study, correction of low reliability was done and obtained a composite Cronbach alphas of 0.738 and this ensured obtaining a true picture of the relationship of the variables and avoided overestimating during multiple regressions. During testing of the data, the confidence levels of 95% and significance level of 0.05. In addition, type II error was minimized by taking a large sample of 361 respondents.

4.4.5   Analysis of Likert Type Data

The questionnaire had seven sections that applied the Likert scale questions. The scales used comprised of a 5 point Likert items ranging from 5 = strongly agree, 4 = somewhat agree, 3 = Neutral, 2 = somewhat disagree and 1 = strongly disagree. The items in each section ranged from 11 to 15 items. The analysis of Likert scale was based on Carifio and Rocco (2007) arguments and weighting criteria that indicated that Strongly Agree (SA) ranges between 4.2 and 5.0; Somewhat Agree (SWA) ranges between 3.4 and 4.2; Neutral (N) ranges between 2.6 and 3.4; while Somewhat Disagree (SWD) ranges between 1.8 and 2.6; and Strongly Disagree (SD) ranges between 1 and 1.8, hence giving an equidistance of 0.8. This criterion was adhered to during analysis and interpretation of results of the Likert type data.

Descriptive statistics on the study variables included for implementation process of project control systems, project team demographic diversity, project team training diversity, project team experience diversity, project team experience diversity and project team work-culture diversity and performance of rural roads construction projects. Descriptive statistics were then presented in form of mean and standard deviations.

The respondents were asked to indicate the extent to which they agreed or disagreed with statements describing the various variables. The items were measured using a 5 point Likert scale ranging from 5 = strongly agree, 4 = somewhat agree, 3 = Neutral, 2 = somewhat disagree and 1= strongly disagree. Cronbach's Alpha coefficient was used to measure reliability which ranges from 0 to 1 and for this study the composite Cronbach's Alpha coefficient was 0.738. Standard Deviation being a measure of variations from the mean was computed. As a good estimator of the population mean, standard deviation of the sample means would be near the centre (mean) while a large standard deviation would indicate that data points were spread out over a larger rate of values.

4.5 Performance of Rural Roads Construction Projects

In the current study, performance of rural roads construction projects was the dependent variable. Data was collected using the questionnaire by asking the respondents to indicate the extent to which they agreed or disagreed with statements describing whether they completed projects within time, within cost, within quality and to the satisfaction of the client and workers.

4.5.1 Completion of Projects Within Time

Respondents were asked to rate statements in relation to completion of their projects within time schedule. The questionnaire was composed of three item statements. The item statements were measured using a 5 point Likert scale ranging from 5 = to a very great extent, 4 = to a great extent, 3 = to a moderate extent, 2 = to a small extent and 1 = to a very small extent. The results are presented in Table 4.8.

Table 4.8: Completion of Rural Roads Construction Projects Within Time

	Statements	VSE F (%)	SE F (%)	ME F (%)	GE F (%)	VGE F (%)	Mean	SD	Total F (%)
P1	We are able to complete task assigned to us within time schedule	14 (7.1)	33 (16.8)	42 (21.3)	71 (36.0)	37 (18.8)	3.43	1.00	197 (100)
P2	There were few change requests by the client during construction	20 (10.1)	21 (10.6)	11 (.5)	52 (26.3)	93 (47.1)	3.98	1.09	197 (100)
P3	Project delays have been experienced during construction	94 (47.7)	20 (10.2)	31 (15.7)	27 (13.7)	25 (12.7)	2.04	1.34	197 (100)
	Composite mean						**3.15**		

Table 4.8 indicate the results obtained from three statement items of measuring completion of rural roads construction projects within time. Item P1 sought to establish whether tasks assigned to the workers were completed within time schedule. Based on this, 14 (7.1%) of the respondents indicated to a very small extent, 33 (16.8%) indicated to a small extent, 42 (21.3%) indicated to a moderate extent, 71 (36.0%) indicated to a great extent while 37 (18.8%) indicated to a very great extent. The mean score was 3.43 while the standard deviation was 1.0. This result indicates that the majority of the respondents indicated to a great extent that tasks assigned to them were completed within time schedule and this would imply a positive influence on overall performance since the item mean was more than the composite mean.

Item P2 sought to determine if there were few change requests by the client during construction of the project. 93 (47.1%) of the respondent indicated to a very great extent, 52 (26.3% indicated to a great extent while 20 (20.1%) indicated to a very small extent. The mean score was 3.98 and was greater than the composite mean and SD was 1.09. These results indicate that majority of the respondents indicated to a very great extent that there were few change requests by the client during construction of the project and this would imply an overall positive performance of rural roads projects.

Item P3 was to establish whether fewer project delays were experienced during construction of the project. In responding, 94 (47.7%) indicated that delays were experienced to a very small

extent while 25 (12.7%) indicated that it happened to a very great extent. With a mean of 2.04 and SD of 1.34, these results indicate that majority of the respondents indicated that project delays were experienced to a small extent during construction of rural roads construction project. This result implies an overall positive performance of rural roads construction projects.

With a composite mean of 3.15, the results imply that majority of the respondents indicated that performance of rural roads construction projects was constructed on time. For instance, they indicated that they adequately completed assigned tasks within time schedule, there were few change requests by the client during construction and that few project delays were experienced. This would have an overall influence on performance of rural roads construction projects.

4.5.2 Completion of Projects Within Budget

Respondents were asked to rate the extent to which they completed their projects within budget. The questionnaire was composed of two item statements. The item statements were measured using a 5 point Likert scale ranging from 5 = to a very great extent, 4 = to a great extent, 3 = to a moderate extent, 2 = to a small extent and 1 = to a very small extent. The results are presented in Table 4.9.

Table 4.9: Completion of Rural Roads Construction Projects Within Budget

	Statements	VSE F (%)	SE F (%)	ME F (%)	GE F (%)	VGE F (%)	Mean	SD	Total F (%)
P4	Tasks were completed within budget	50 (25.4)	9 (4.6)	36 (18.2)	51 25.9)	51 (25.9)	3.31	1.35	197 (100)
P5	Minimal project variation orders	0 (0)	11 (5.6)	3 (1.5)	39 (19.8)	144 (73.1)	4.60	0.58	197 (100)
	Composite mean						**4.0**		

Table 4.9 indicate the results obtained from 2 item statements of measuring completion of rural roads construction projects within the budget. Item P4 sought to establish whether tasks assigned to the workers were completed within budget. Based on this, 50 (25.4%) of the respondents indicated that this happens to a very small extent, 9 (4.6%) indicated to a small extent, 36(18.2) indicated to a moderate extent, 51 (25.9%) indicated to a great extent while 51(25.9%) indicated

to a very great extent. The mean score was 3.31 while the standard deviation was 1.35. These results indicate that the majority of the respondents were of the opinion that tasks assigned to the workers, to great extent were completed within the budget. With an item, mean score of 3.31 and composite mean of 4.0, the results imply that this negatively influenced overall performance.

In Item P5 respondents were asked to respond if there were minimal project variation orders during construction of the project. 144 (73.1%) of the respondent indicated to a very great extent, 39 (19.8%) indicated to a great extent while 11 (5.6%) indicated to a small extent. The mean score was 4.60 and SD was 0.58. From the results majority of the respondents indicated that to a very great extent, there were minimal project variation orders during construction of the projects and this would influence the overall performance.

With a composite mean of 4.0, the results imply that performance of rural roads construction projects was constructed within budget. As such tasks were completed within budget and minimal project variation orders were issued during the construction of the projects. Completion of tasks within budget has an important bearing on the overall performance of rural roads construction projects.

4.5.3 Completion of Projects Within Quality Requirements

Respondents were asked to rate the extent to which they completed their projects within quality requirements. The questionnaire was composed of three item statements. The item statements were measured using a 5 point Likert scale ranging from 5 = to a very great extent, 4 = to a great extent, 3 = to a moderate extent, 2 = to a small extent and 1 = to a very small extent. The results are presented in Table 4.10.

Table 4.10: Completion of Projects Within Quality Requirements

	Statements	VSE F (%)	SE F (%)	ME F (%)	GE F (%)	VGE F (%)	Mean	SD	Total F (%)
P6	Minimal re-work on tasks already completed	54 (27.4)	9 (4.6)	18 (9.1)	52 (26.4)	64 (32.5)	3.47	1.45	197 (100)
P7	Our customers are satisfied with our workmanship	27 (13.7)	25 (12.7)	36 (18.3)	60 (30.5)	49 (24.8)	3.40	1.16	197 (100)
P8	Quality checks of materials is always carried out	15 (7.5)	20 (10.2)	7 (3.6)	38 (19.3)	117 (59.4)	4.13	1.04	197 (100)
	Composite mean						**3.67**		

Table 4.10 indicate the results obtained from 3 statement items of measuring completion of rural roads construction projects within quality requirements. Item P6 sought to establish whether there was minimal re-work on tasks already completed at the construction site. Based on this, 54 (27.4%) of the respondents indicated to a very small extent, 9 (4.6%) indicated to a small extent, 18 (9.1%) indicated to a moderate extent, 52 (26.4%) indicated to a great extent while 64 (32.5%) indicated to a very great extent. The mean score was 3.47 while the standard deviation was 1.45. This result indicates that the majority of the respondents indicated to a great extent that there were minimal re-works of tasks already completed at the construction site.

In Item P7 respondents were asked to indicate whether their customers were satisfied with their workmanship for the construction of the project. 49 (24.8%) of the respondent indicated to a very great extent, 60 (30.5% indicated to a great extent while 27 (13.7%) indicated to a very small extent. The mean score was 3.40 and SD was 1.16. These results indicate that majority of the respondents indicated to a great extent that their customers were satisfied with their workmanship during construction of the project.

Item P8 was to establish whether quality checks of materials were always carried out during construction of the project. Majority of the respondents, 117 (59.4%) indicated that quality checks were carried out on materials to a very great extent while 15 (7.5%) indicated that it happened to a very small extent. With a mean of 4.13 and SD of 1.04, these results indicate that majority of the respondents were aware that quality checks of materials were always carried out during construction of the project.

With a composite mean of 3.67, the results imply that majority of the respondents indicated that performance of rural roads construction projects was within quality requirements. For example, they indicated that there was minimal re-work on tasks already completed, their customers were satisfied with their workmanship at the site and that quality checks of materials were always carried out during the construction of rural roads projects. Completion of projects within quality requirements has a significant contribution towards overall performance of rural roads construction projects.

4.5.4 Client satisfaction

Respondents were asked to rate the extent to which their client was satisfied with their construction work. The questionnaire was composed of two item statements. The item statements were measured using a 5 point Likert scale ranging from 5 = to a very great extent, 4 = to a great extent, 3 = to a moderate extent, 2 = to a small extent and 1 = to a very small extent. The results are presented in Table 4.11.

Table 4.11: Construction of Projects Within Client Satisfaction

	Statements	VSE F (%)	SE F (%)	ME F (%)	GE F (%)	VGE F (%)	Mean	SD	Total F (%)
P9	KeRRA is satisfied with our work performance	12 (6.1)	15 (7.6)	17 (8.6)	19 (9.6)	134 (68.1)	4.50	1.01	197 (100)
P10	We meet the client requirements/needs	35 (17.8)	6 (3.0)	10 (5.1)	20 (10.1)	126 (64.0)	4.04	1.29	197 (100)
	Composite mean						**4.27**		

Table 4.11 indicate the results obtained from 2 item statements of measuring completion of rural roads construction projects within client satisfaction. Item P9 sought to establish the extent to which KeRRA was satisfied with the workers work performance. Based on this, 134 (68.1%) respondents indicated to a very great extent, 19 (9.6%) indicated to a great extent, 17 (8.6%) to a moderate extent, 15 (7.6%) to a small extent while 12 (6.1%) indicated to a very small extent. The mean score was 4.50 and SD was 1.01.

Information obtained from item P10 sought to determine the extent to which the respondents met the clients' requirements/needs. Based on this, 126 (64%) indicated to a very great extent, 20 (10.1) indicated to a great extent, 10 (5.1%) indicated to a moderate extent, 6 (3.0%) indicated to a small extent while 35 (17.8%) indicated to a very small extent. The mean was 4.04 and the SD was 1.29.

With a composite mean of 4.27, the results imply that majority of the respondents indicated that performance of rural roads construction projects was within client satisfaction. Completion of projects within client satisfaction has a significant contribution towards overall performance of rural roads construction projects.

4.5.5 Workers satisfaction

Respondents were asked to rate the extent to which they were satisfied with their construction work. The questionnaire was composed of three item statements. The item statements were measured using a 5 point Likert scale ranging from 5 = to a very great extent, 4 = to a great extent, 3 = to a moderate extent, 2 = to a small extent and 1 = to a very small extent. The results are presented in Table 4.12

Table 4.12: Completion of Projects with Workers Satisfaction

	Statements	VSE F (%)	SE F (%)	ME F (%)	GE F (%)	VGE F (%)	Mean	SD	Total F (%)
P11	I am satisfied to work in this company	2 (1.0)	6 (3.0)	19 (9.6)	18 (9.1)	152 (77.3)	4.58	0.64	197 (100)
P12	I am actively looking for a job in a different organization	4 (2.0)	16 (8.1)	22 (11.2)	27 (13.7)	128 (65.0)	4.31	0.89	197 (100)
P13	I am satisfied with the management of this project	37 (18.8)	16 (8.1)	1 (0.5)	35 (17.8)	108 (54.8)	3.82	1.36	197 (100)
	Composite Mean						**4.24**		

Table 4.12 indicate the results obtained from 3 item statements of measuring completion of rural roads construction projects within workers' satisfaction. Item P11 sought to establish the extent to which the worker was satisfied to work in the company. Based on this, 152 (77.3%)

respondents indicated to a very great extent, 18 (9.1%) indicated to a great extent, 19 (9.6%) to a moderate extent, 6 (3.0%) to a small extent while 2 (1.0%) indicated to a very small extent. The mean score was 4.58 and SD was 0.64.

In Item P12 respondents were required to indicate the extent to which they were actively looking for a job in a different organisation. 128 (65.0%) indicated to a very great extent, 27 (13.7%) indicated to a great extent, 22 (11.2%) indicated to a moderate extent, 16 (8.1%) indicated to a small extent while 4 (2.0%) indicated to a very small extent. The mean was 4.31 and the SD was 0.89.

Responses for item P13 which sought to determine the extent to which the respondents were satisfied with management of the project, majority 108 (54.8%) indicated to a very great extent, 35 (17.8%) indicated to a great extent, 1 (0.5%) indicated to a moderate extent, 16 (8.1%) indicated to a small extent while 37 (18.8%) indicated to a very small extent. The mean was 3.82 and the SD was 1.36.

With a composite mean of 4.24, the results imply that majority of the respondents indicated that to a very great extent that performance of rural roads construction projects was within the workers' satisfaction. Completion of projects within workers' satisfaction, significantly motivates the workers and to a larger extent contributes towards overall performance of rural roads construction projects in Kenya.

Information obtained from the in-depth interviews indicated varied views of site engineers with varied opinions on performance of projects within time. When asked whether they would complete the project within time, the responses from the majority positively indicated that they would complete within time. Few of the responses were of the contrary opinion that they would not complete in time as put by one of the respondent who emphatically said, thus 'No, we shall not be able to complete on time'. Another key respondent said that, 'No, no, no, no, according to the constraints that we have, we might have to extend and we shall apply for an extension of time so that we can complete the project.' These responses were reaffirmed by another who said that, 'We've taken a long time, this project ought to have ended long time ago and the customers as we said are supposed to be enjoying the services by now but our slow pace is hindering them.'

On completion of project within cost, site engineers had mixed feelings. They indicated that some of the reasons they cannot complete within budget were beyond them. One of the key response from the site engineers was that, 'I suspect it will not go beyond the variation which is 13%, that is what I can estimate for now.' However, another site engineer interviewed indicated ways of ensuring checks on cost are implemented. He therefore said that; 'We have monthly site meetings which we discuss the progress, challenges and such things are discussed and each month they tell us what they expect of us, what their observations according to our progress and we make the necessary adjustments according the way they inspect us.' Other projects site engineers where empathic in their responses, thus he said that 'It will be so much higher since this project started on the 2011 you can imagine the prices at that time and the prices at this time (2016), so the cost has to go higher.'

On satisfaction of clients, majority of the site engineers agreed that the client was satisfied with their work performance. One respondent said thus, 'We have been working with almost all of the parastatals which are KeNHA, KeRRA and our name is good there. We achieve goals well and our quality and time is good.' This was emphasized by another who said that 'We are happy with the people who come from KeRRA because when we are working we discuss something. There is no fighting when we are working so everything here is good.' This indicated consistency in satisfaction of the client.

On workers' satisfaction, when asked about the level of satisfaction of their workers, and if they practiced recognition and rewarding of the high performing workers. The key responses from site engineers were positive. One respondent said that 'I would say they are satisfied because they never really complain and in fact there has never been any sort of strike or demonstration. Based on that information, I think they are pretty satisfied.' However, others were of the contrary opinion, thus:

> 'There is nothing like that (rewards). In fact, I would say that once I was in another company that was owned by the British, they used to do that but once the management changed to the Indian system, there are no team building, no reward, there is nothing just doing what brought you here which is work.'

The site engineers indicated efforts were put in place to ensure satisfaction, thus,

'What usually happens is we usually do appraisal to each and every employee. The best way is to reward them by maybe increasing their wages or we change their status if it was a casual, you give him a head man. If he was a headman, you give him a foreman and other people will imitate from them and they will work hard towards getting that goal.'

4.6 Project Team Demographic Diversity and Performance of Rural Roads Construction Projects

Research objective one was to establish the extent to which project team demographic diversity influences performance of rural roads construction projects in Kenya. Project team demographic diversity was measured in terms of age, gender, ethnicity and religion.

4.6.1 Gender Diversity and Performance of Rural Roads Construction Projects

Data was collected and analysed descriptively to ascertain the extent to which gender diversity at the work place influenced performance of rural roads construction projects. To obtain the required data, the respondents were asked to indicate the extent to which they agreed on the 3 item statements in relation to gender diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.13.

Table 4.13: Gender Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
D1	I am positive about gender diversity at the workplace	0 (0.0)	8 (4.1)	43 (21.8)	60 (30.5)	86 (43.6)	4.14	0.75	197 (100)
D2	Balanced work force composed of both gender promotes performance of the team	139 (70.6)	37 (18.8)	16 (8.1)	4 (2.0)	1 (0.5)	1.43	0.61	197 (100)
D3	Both genders are included in decision making process	89 (45.2)	25 (12.7)	40 (20.3)	25 (12.7)	18 (9.1)	2.28	1.23	197 (100)
	Composite mean						**2.62**		

Results in Table 4.13 shows that item D1 sought to establish whether at the respondent' place of work, they are positive about gender diversity at the workplace. Based on this, 86 (43.6%) of the respondents strongly agreed, 60 (30.5%) somewhat agreed, 43 (21.8%) were neutral, while 8 (4.1%) somewhat disagreed. The mean score was 4.14 while the standard deviation was 0.75. This result indicates that the majority of the respondents somewhat agreed that in their place of work, they perceived their gender as being superior from the other gender.

Item D2 sought to find out from the respondents whether at their place of work, balanced work force composed of both gender promoted performance of the team. Based on this, 1 (0.5%) of the respondents strongly agreed, 4 (2.0%) somewhat agreed, 16 (8.1%) were neutral, while 37 (18.8%) somewhat disagreed and 139 (70.6%) strongly disagreed. The mean score was 1.43 while the standard deviation was 0.61. This result indicates that the majority of the respondents strongly disagreed that in their place of work, balanced work force composed of both gender promoted performance of the team.

Information from item D3 sought to establish whether both genders are included in decision making process. Based on this, 18 (9.1%) of the respondents strongly agreed, 25(12.7%) somewhat agreed, 40 (20.3%) were neutral, while 25 (12.7%) somewhat disagreed and 89 (45.2%) strongly disagreed. The mean score was 2.28 while the standard deviation was 1.23. This result indicates that the majority of the respondents somewhat disagreed that in their place of work, both genders were included in decision making process

With a composite mean of 2.62, the results imply that majority of the respondents were neutral that gender diversity was practised in their places of work. Gender diversity is an important factor at the construction projects since it significantly contributes towards overall performance of rural roads construction projects in Kenya.

4.6.2: Age Diversity and Performance of Rural Roads Construction Projects

Age diversity is one of the demographic indicators studied in the current study. Data was collected and analysed descriptively to ascertain the extent to which age diversity at the work place influenced performance of rural roads construction projects. Consequently, the respondents were asked to indicate the extent to which they agreed on the 4 item statements in

relation to age diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.14.

Table 4.14: Age Diversity in Rural Roads Construction Projects

Statements		SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
D4	My age identity is a barrier to my career advancement	125 (63.5)	12 (6.1)	31 (15.7)	12 (6.1)	17 (8.6)	1.90	1.15	197 (100)
D5	I have not experienced conflicts within the team due to status difference between young and old workers	88 (44.7)	16 (8.1)	26 (13.2)	29 (14.7)	38 (19.3)	2.56	1.48	197 (100)
D6	This organization provides equal development opportunities to all regardless of age	97 (49.2)	25 (12.7)	53 (26.9)	13 (6.6)	9 (4.6)	2.05	1.04	197 (100)
D7	Decision making teams include members of both the young and the old	62 (31.5)	41 (20.8)	58 (29.4)	15 (7.6)	21 (10.7)	2.45	1.10	197 (100)
Composite mean							**2.24**		

Results in Table 4.14 shows that item D4 sought to establish whether the respondent' age identity was a barrier to their career advancement. Out of this, 17 (8.6%) of the respondents strongly agreed, 12 (6.1%) somewhat agreed, 31 (15.7%) were neutral, while 12 (6.1%) somewhat disagreed and 125 (63.5%) strongly disagreed. The mean score was 1.90 while the standard deviation was 1.15. This result indicates that the majority of the respondents somewhat disagreed that in their place of work, age identity was a barrier to their career advancement.

In responding to item D5 respondents were asked to respond if they had experienced conflicts within the team due to status difference between young and old workers. 38 (19.3%) of the respondents strongly agreed, 29 (14.7%) somewhat agreed, 26 (13.2%) were neutral, while 16 (8.1%) somewhat disagreed and 88 (44.7%) strongly disagreed. The mean score was 2.56 while the standard deviation was 1.48. This result indicates that the majority of the respondents

somewhat disagreed that in their place of work, they experienced conflicts within the team due to status difference between young and old workers.

Item D6 particularly required respondents to indicate whether the organisations they were working in, provided equal development opportunities to all regardless of age. In their responses, 9 (4.6%) of the respondents strongly agreed, 13 (6.6%) somewhat agreed, 53 (26.9%) were neutral, while 25 (12.7%) somewhat disagreed and 97 (49.2%) strongly disagreed. The mean score was 2.05 while the standard deviation was 1.04. This result indicates that the majority of the respondents somewhat disagreed that their organisations provided equal development opportunities to all regardless of age.

Information from item D7 provided information on whether in their places of work decision making teams included members of both the young and the old. From the responses, 21 (10.7%) of the respondents strongly agreed, 15 (7.6%) somewhat agreed, 58 (29.49%) were neutral, while 41 (20.8%) somewhat disagreed and 62 (31.5%) strongly disagreed. The mean score was 2.45 while the standard deviation was 1.10. These results indicate that the majority of the respondents somewhat disagreed that in their places of work, decision making teams included members of both the young and the old.

With a composite mean of 2.24, the results imply that majority of the respondents somewhat disagreed that age diversity would be a cause of problems at the construction sites. Participatory and inclusivity among the old and the young would promote cohesiveness at construction sites which eventually would have a significant contribution towards overall performance of rural roads construction projects in Kenya.

4.6.3 Ethnicity in rural roads construction projects

Ethnic diversity was descriptively analysed to ascertain the extent to which ethnic diversity at the work place influenced performance of rural roads construction projects. Data was therefore obtained by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to Ethnic diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral

(N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.15.

Table 4.15: Ethnicity Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
D8	I am aware of the ethnic demographics of other employees in my organization	3 (1.5)	14 (7.1)	17 (8.6)	44 (22.3)	119 (60.5)	4.33	0.81	197 (100)
D9	The ethnic diversity does not affect professional relationship within the team	12 (6.1)	21 (10.7)	21 (10.7)	9 (4.5)	134 (68.0)	4.18	1.12	197 (100)
D10	Ethnic diversity promotes healthy competition in the team in achieving targets	14 (7.1)	11 (5.6)	19 (9.6)	22 (11.2)	131 (66.5)	4.24	1.01	197 (100)
	Composite mean						**4.25**		

Results in Table 4.15 shows that Item D8 sought to determine whether the respondents were aware of the ethnic demographics of other employees in their organization. 119 (60.5%) of the respondents strongly agreed, 44 (22.3%) somewhat agreed, 17 (8.6%) were neutral, while 14 (7.1%) somewhat disagreed and 3 (1.3%) strongly disagreed. The mean score was 4.33 while the standard deviation was 0.81. This result indicates that the majority of the respondents strongly agreed that in their place of work, they were aware of the ethnic demographics of other employees in their organization.

In responding to item D9, which sought to establish from the respondent if 'ethnic diversity does not affect professional relationship within the team', 134 (68.0%) of the respondents strongly agreed, 9(4.5%) somewhat agreed, 21 (10.7%) were neutral, while 21 (10.7%) somewhat disagreed and 12 (6.1%) strongly disagreed. The mean score was 4.18 while the standard deviation was 1.12. This result indicates that the majority of the respondents somewhat agreed that in their place of work, 'ethnic diversity does not affect professional relationship within the team'.

Item D10 sought to obtain information on whether 'ethnic diversity promotes healthy competition in the team in achieving targets'. Out of this, 131 (66.5%) of the respondents strongly agreed, 22 (11.2%) somewhat agreed, 19 (9.6%) were neutral, while 11 (5.6%) somewhat disagreed and 14 (7.1%) strongly disagreed. The mean score was 4.24 while the standard deviation was 1.01. This result indicates that the majority of the respondents strongly agreed that ethnic diversity promotes healthy competition in the team in achieving targets.

With a composite mean of 4.25, the results imply that majority of the respondents strongly agreed that ethnic diversity promotes healthy competition in the team in achieving targets. Health competitions coming from ethnic diversity enhances identity and such recognitions promotes competition in individual performance which eventually has a positive bearing on overall performance of rural roads construction projects in Kenya.

4.6.4 Religion in Rural Roads Construction Projects

Data was collected on religion diversity and analysed descriptively to ascertain the extent to which religion diversity at the work place influenced performance. To obtain the required data, the respondents were asked to indicate the extent to which they agreed on the 3 item statements in relation to religion diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.16.

Table 4.16: Religion Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
D11	My religion identity influences my colleagues' attitude towards me at work place	8 (4.1)	16 (8.1)	23 (11.7)	17 (8.6)	133 (67.5)	4.27	0.98	197 (100)
D12	Religious diversity is a cause conflict among employees in my organization	168 (85.3)	15 (7.6)	6 (3.0)	6 (3.1)	2 (1.0)	1.27	0.46	197 (100)
D13	Religious discrimination undermines performance	10 (5.1)	15 (7.6)	33 (16.8)	57 (28.9)	82 (41.6)	4.26	0.91	197 (100)
	Composite mean						**3.27**		

Table 4.16 shows the results from analysis of religion diversity. Item D11 sought to determine from the respondents whether, 'my religion influences my colleagues' attitude towards me at work'. Based on this, 133 (67.5%) of the respondents strongly agreed, 17 (8.6%) somewhat agreed, 23(11.7%) were neutral, while 16 (8.1%) somewhat disagreed and 8 (4.1%) strongly disagreed. The mean score was 4.27 while the standard deviation was 0.98. This result indicates that the majority of the respondents strongly agreed that in their place of work, their religion identity influences their colleagues' attitude towards them at work places.

In responding to item D12 sought to establish from the respondent whether religious diversity was a cause of conflict among employees in their organisation. Based on this, 2 (1.0%) of the respondents strongly agreed, 6 (3.0%) somewhat agreed, 6 (3.1%) were neutral, while 15 (7.6%) somewhat disagreed and 168 (85.3%) strongly disagreed. The mean score was 1.27 while the standard deviation was 0.46. This result indicates that the majority of the respondents strongly disagreed that in their place of work, religious diversity was a cause of conflict among the employees.

Information obtained from item D13 which sought to establish whether religious discrimination undermines performance indicated that 82 (41.6%) of the respondents strongly agreed, 57 (28.9%) somewhat agreed, 33 (16.8%) were neutral, while 15 (7.6%) somewhat disagreed and

10 (5.1%) strongly disagreed. The mean score was 4.26 while the standard deviation was 0.91. This result indicates that the majority of the respondents strongly agreed that religious discrimination undermines performance.

With a composite mean of 3.27, the results imply that majority of the respondents were neutral that religious diversity was essential at the construction sites. Discrimination of the workers in terms of religious diversity would hinder team spirit at the construction sites and eventually would influence overall performance of rural roads construction projects in Kenya.

4.6.5 Descriptive Analysis of Project Team Demographic Diversity

Project team demographic diversity was considered in terms of Gender, age, ethnicity and religion. The mean and standard deviation of these factors as manifested in rural roads construction projects is as shown in Table 4.17.

Table 4.17: Means and Standard Deviations for Project Team Demographic Diversity.

Project team demographic diversity	n	Mean (M)	SD
Gender diversity	197	2.62	0.86
Age diversity	197	2.24	1.19
Ethnicity diversity	197	4.25	0.98
Religion	197	3.27	0.78
Composite Mean		**3.1**	

Results in Table 4.17 indicates that ethnicity diversity of the workers contributes to performance of rural roads construction projects to a very great extent (M = 4.25, SD = 0.98), religion diversity to a neutral extent (M = 3.27, SD = 0.78), gender to a moderate extent (M = 2.62, SD = 0.86) and age diversity to a small extent. This implies that ethnicity diversity is a vital consideration when forming project teams as it would enhance performance of rural roads construction projects

Observation was also carried out on demographic diversity among the workers and their interactions, associations and perceptions among the workers at the construction sites. It was

evident that some of the workers could speak multilingual dialects depending on whom was being spoken to. It was further observed that project team members exhibited respect to one's religion, tribe, gender and jovially interacted. Workers expressed their religion by way of dress, wearing the cross, headscarf or necklace.

The in-depth interviews were conducted on the site engineers. Site engineers were concerned about the jobs they could give to the female gender. Most of them believed that the construction job is tedious and requires a lot of energy and muscles which the ladies lacked. When asked about their opinion one site engineer said;

> "On gender, we realize that this is a construction project and there are activities that you can't engage women such as heavy manual tasks. You give them easy jobs such as sweeping the road. You have to put in mind that this is a construction project and it's quite manual and energy demanding. So, we don't want to get somebody to fall down here at work."

Some site engineers informed that the community believed that construction work was not meant for female gender. When asked why there were few female gender employed in their company, one of the key response from the respondent included, "This is a construction industry where most of our local people think that this belongs to men.' Another said,

> "For now, we don't have (female) since most of the jobs that we have here, we have tried as much as possible to recruit the female gender, but they just come for a few days and then they run away. We don't know why but we believe that it is because the tasks are a bit tedious so right now we don't have enough female gender."

Also, some site engineers alluded the low levels of female gender employment as thus, "(for female gender) their men or their families don't prefer ladies to come and work because the moment you tell a lady to come and work, their men will refuse because they believe their ladies will be admired by the men at the construction site."

When they were asked about whether there were challenges about distribution of labor with respect to gender issues, some key response included "Gender issue comes up especially during site meetings but you cannot give a lady a job that she can't deliver. You only give her a right job like sweeping"

Ethnicity was also discussed with the key informants. Most of them expressed diversity of tribes thus, "Currently, I think we have about seven tribes. We have some Kalenjins, Kisii, Kikuyu, Kamba, Taita and some other tribes and also a Luo. In fact, our boss is a Luo. I can't say the exact number but it's quite diverse almost seven tribes." Others indicated the importance of a diverse workforce and how it helps them achieve targets, "Having a diverse workforce encourages unity and also enables the workers to achieve their targets because if you decide to have one tribe, they may never learn. They are learning from each other as they work on the project." Others expressed the tolerance of the tribes and interests in learning the new languages by those from other tribes, "Through experience those not from the region have been able to learn Kikuyu and are working with us better than some of the locals."

Age was also discussed and the distinct comments obtained from the site engineers illustrated different views. It implied that age was not a consideration when considering giving instructions. One site Engineer indicated thus; "Right now, I have no problem with age. Like personally I am 34 years and most of the guys are above me but the work ethics requires that they receive instructions from me, they work and we go home happy." However, some issues would arise in relation to age when workers of different ages engage at work place. One respondent said that there are some situations where the youth tells the old, "You old man, your years are over you need to go home and rest', which is normal but I know how to work with them." However, some site engineers insinuated that at times the old workers are problematic, thus;

> "An older guy is a problem since he will tell you we have been in this field
> for quite some time and know a lot. I also have that problem, if I go to that
> foreman and tell him let us do this, they will tell you no, I have worked in
> this filed since time memorial and you were not even born."

Religion was also discussed with the site engineers who were the key informant and the following were the site engineer's key responses. Some of them were of the opinion that; "To us religion doesn't come in anywhere, we don't choose based on religion." While others said that "To us here everybody is a Christian and we have no problem with religion." Another said that, "Religion is a private matter." When probed further on whether they have religion policy, some were quick to retort that, "We do not have religious diversity policy but we have the code of conduct for the employees. Sometimes it is unwritten law on religion diversity on what you can do and not do." Other site engineers expressed that religion diversity in imbalanced because,

"Actually, the reason why I would say we don't have the Muslim workers is because they have not come to ask for jobs." While others explained that, "No. We have been fair to all. In fact, the Muslims who want to go off on Friday for the mosque you just give them then they will compensate with another day." However, majority agreed that, "From the community, most of these people are Christians. So, there has never been a situation like conflicts in terms of religion"

The results imply that there is a dire requirement to quickly seek views of the workers on diversity to as to incorporate them in the diversity policy. It is also important to discuss both the negative and positive effects of diversity at work place and identify a middle ground for both the workers and the organisation.

Analysis was carried out so as to establish the direction and magnitude of the relationship between the independent and dependent variables under investigation. This was in line with the first objective of this study which was to establish the extent to which project team demographic diversity influences performance of rural roads construction projects in Kenya. Project team demographic diversity was measured in terms of age, gender, ethnicity and religion while performance of the rural roads construction projects was measured in terms of completion within time, completion within cost, completion within quality requirements, client satisfaction, and workers' satisfaction. Data was collected from the respondents on project team demographic diversity variables and then the composite index on each of the demographic variable indicators (gender, age, ethnicity and religion) was computed and used in the analysis. The results are presented in Table 4.18.

Table 4.18: Correlation between Project Team Demographic Diversity and Performance of Rural Roads Construction Projects

		Gender	Age	Ethnicity	Religion
Performance of Rural Roads Construction Projects	**Pearson Correlation**	0.813	0.896	0.768	0.675
	Sig. (2-tailed)	0.000	0.002	0.000	0.000
	n	197	197	197	197

Table 4.18 indicates strong correlations between performance of rural roads construction projects and gender (r=0.813, p<0.001); Age (r = 0.896, p<0.001), religion (r=0.768, p<0.001) and ethnicity (r=0.675, p<0.001).

Linear regression analysis was further carried out to establish the extent to which project team demographic diversity influences performance of rural roads construction projects in Kenya. In testing its hypothesis, likewise data was collected from the respondents on project team demographic diversity variables and then the composite index for each of the demographic variable indicators (gender, age, ethnicity and religion) was computed and used in the analysis. The following hypothesis that was in line with objective one was formulated and tested.

Hypothesis 1

H_{01}: Project team demographic diversity does not significantly influence performance of rural roads construction projects in Kenya.

Regression Model

The mathematical model used for testing the null hypothesis was as follows:

Performance of rural roads construction projects = f (Project team demographic diversity)

$$Y = f(X_2, \varepsilon)$$

$$Y = \beta_0 + \beta_2 X_2 + \varepsilon$$

Where Y = Performance of rural roads construction projects

               X_2 = Project team demographic diversity

               β_0 = Constant term

               β_2 = Beta coefficients

               ε = Error term

Data was analysed and the regression results for the influence of project team demographic diversity on performance of rural roads construction projects in Kenya are presented in Table 4.19.

Table 4.19: Project Team Demographic Diversity and Performance of Rural Roads Construction Projects

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t	Sig.
1	(Constant)	3.246	.093		-2.865	.000
	Gender diversity	.109	.054	.123	3.124	.002
	Age diversity	.182	.051	.234	6.545	.000
	Ethnicity diversity	.262	.029	.281	4.256	.001
	Religion diversity	.101	.017	.085	1.115	.000

Predictors: (constant), Gender, Age, Ethnicity, Religion

Dependent Variable: Performance of Rural Roads Construction Projects

$F = 285.254$, $p<0.001<0.05$, $r= 0.788$, $R^2 = 0.62$

Table 4.19 shows that r=0.523. This indicates that project team demographic diversity has a strong influence on performance of rural roads construction projects. $R^2 = 0.62$ indicating that project team demographic diversity explains 62% of the variations in the performance of rural roads construction projects. The results on test significant also indicate that; Gender diversity ($\beta=0.123$, p=0.002), Age diversity ($\beta=0.234$, p<0.001), ethnicity diversity ($\beta=0.281$, p=0.002) and religion diversity ($\beta=0.085$, p=0.002), they were all significant. This result implies that project team demographic diversity explains 62% of the variations in performance of rural roads construction projects.

The overall F statistic, F = 285.254 at p<0.001<0.05, indicated that there was a statistical relationship between project team demographic diversity and performance of rural roads construction projects in Kenya. The null hypothesis was therefore rejected and it was concluded that project team demographic diversity significantly influences performance of rural roads construction projects in Kenya.

Using the statistical findings in Table 4.20, the regression model can be substituted as follows:

Y = 3.246 + 0.123 GD + 0.234 AD +0.281ED + 0.085 RD

Where;

Y = performance of rural roads construction projects

GD = Gender Diversity

AD = Age Diversity

ED = Ethnicity Diversity

RD = Religion Diversity

The regression results were therefore supported by Gellert and Schalk (2012) who established that positive perceptions of demographic factors resulted into high performance. He further argued that experience in terms of age is an important buffer to stress hence improved performance. In furtherance to Gellert and Schalk (2012) findings, this study found out that demographic diversity in terms of gender, age, ethnicity and religion influenced positively on performance. Results obtained from the interviews and on age differences, concurred with the study finding by Peterson and Spiker, (2005) who established that there is no significant difference in performance between older and younger employees, and that in some cases older employees performed better than their younger colleagues.

Further, findings from the observations and in depth interviews differed with the finding of other scholars such as Schalk et al., (2010), Streb and Voelpel (2009) and Walker (2006) who argue that older workers in practice are often considered as less flexible, less adaptable to new technology, less willing to cooperate and learn new skills, as well as costlier. From this study, it was found out that both the old and the young were flexible, adaptive to new technology and were willing to advance their training so as to learn new skills. This study findings were also in line with a study by Baumeister and Bushman (2010) who found out that merging individual and group interests on demographic factors resulted into higher performance and productivity.

Considering gender diversity, this study findings contradicted those by Bagilhole (2002), who established that women are found to be vulnerably disadvantaged and discriminated in male dominated occupations such as construction in this case. In the current study the interviews conducted established that at the lower carder of workers' employment, it is the women who

118

don't seek for jobs in the construction field since it was presumed difficult, in some cases some were cautioned by their husbands not to, however most of them who were interacted with ruled out discrimination. Some contractors alluded to the fact that women distract men during work hence a reason why they were not preferred as best choices for employment. Wegge, et al (2008), who asserted that age diversity was found to correlate positively with performance only in groups solving complex decision-making tasks. Wegge, et al (2008) further found out that age composition also had a significant effect on group performance, such that groups with a high proportion of female employees performed worse. Owing to the above reasons, representation of the female gender in the current study was 5% which was way below the constitutional requirement of 30% of either gender in Kenya. The few who were employed were given less difficult jobs like traffic control, administrative jobs and surveying while few were vehicle drivers and operators of machines. The findings however did not conform to the study by Wolfram and Mohr (2010) who studied on gender typicality of economic sectors and gender composition of working groups as moderating variables in leadership research. In their study, they found a positive interrelation between transformational leadership and followers' work satisfaction for male leaders, but not for female leaders. This therefore implied that gender diversity at workplace would have a direct impact on the satisfaction of the stakeholders in projects. However, in the current study the domination of the male gender in the industry was biased to the male, but on information gained from the focus discussion, it was established that female gender leaders motivated their subordinates.

In contrast to McKay et al., (2008), whose study established that ethnic minority contribution to work performance was below par, this study established that there was minimal ethnic consideration in recruitment and in job tasking and performance was above par from majority employed. The results obtained from the interviews also established that demographic diversity variables were fairly handled within the construction companies and that little conflict from the workers was being witnessed from such issues. The workers felt that issues such as ethnicity, religious preferences, age and gender were not a factor considered during recruitment and fair treatment was accorded to such traits however some felt that such practices existed. The results obtained were largely synonymous with the expectations of the study.

4.7 Project Team Training Diversity and Performance of Rural Roads Construction Projects

Research objective two was to investigate the extent to which project team training diversity influences performance of rural roads construction projects in Kenya. Project team training diversity was measured in terms of training backgrounds, on job trainings and progressive training.

4.7.1 Training Background Diversity in Rural Roads Construction Projects

Training background diversity of the workers at the construction site is vital consideration for project managers during placement of the workers. To measure the level at which training background would measure performance, data was obtained by asking the respondents to indicate the extent to which they agreed on the 4 item statements in relation to training background diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.20.

Table 4.20: Training Background Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
T1	Recruitment of workers into the organisation is based on the training background of the workers	49 (24.9)	32 (16.2)	35 (17.8)	46 (23.4)	35 (17.7)	2.93	1.26	197 (100)
T2	I have had challenges working with people from different training backgrounds	73 (37.1)	36 (18.3)	39 (19.8)	29 (14.6)	20 (10.2)	2.43	1.21	197 (100)
T3	Equal opportunities for job advancement exist for workers with both most and least training background	90 (45.7)	31 (15.7)	34 (17.3)	23 (11.7)	19 (9.6)	2.24	1.21	197 (100)
T4	Differences in training backgrounds of workers, is a source of conflicts at the workplace.	88 (44.7)	14 (7.1)	38 (19.3)	26 (13.2)	31 (15.7)	2.48	1.39	197 (100)
	Composite mean						**3.36**		

Table 4.20 shows the results from analysis of training background. Item T1 sought to determine from the respondents whether recruitment of workers into their organisation was based on the training background of the workers. Based on this, 35 (17.8%) of the respondents strongly agreed, 46 (23.4%) somewhat agreed, 35(17.7%) were neutral, while 32 (16.2%) somewhat disagreed and 49 (24.9%) strongly disagreed. The mean score was 2.93 while the standard deviation was 1.26. This result indicates that the majority of the respondents were neutral that in their place of work, recruitment of workers into their organisation was based on the training background of the workers.

Item T2 sought to establish from the respondent they had had challenges working with people from different training backgrounds. Based on this, 20 (10.2%) of the respondents strongly agreed, 29 (14.6%) somewhat agreed, 39 (19.8%) were neutral, while 36 (18.3%) somewhat disagreed and 73 (37.1%) strongly disagreed. The mean score was 2.43 while the standard deviation was 1.21. This result indicates that the majority of the respondents somewhat

disagreed that in their place of work, respondents had challenges working with people from different training backgrounds.

In item T3, respondents were asked to respond as to whether equal opportunities for job advancement existed for workers with both most and least training background. 19 (9.6%) of the respondents strongly agreed, 23 (11.7%) somewhat agreed, 34 (17.3%) were neutral, while 31 (15.7%) somewhat disagreed and 90 (45.7%) strongly disagreed. The mean score was 2.24 while the standard deviation was 1.21 This result indicates that the majority of the respondents somewhat disagreed that equal opportunities for job advancement exist for workers with both most and least training background.

Information was also obtained from item T4 which sought to establish whether differences in training backgrounds of workers, was a source of conflicts at the workplace. Based on this, 31 (15.7%) of the respondents strongly agreed, 26 (13.2%) somewhat agreed, 38 (19.3%) were neutral, while 14 (7.1%) somewhat disagreed and 88 (44.7%) strongly disagreed. The mean score was 2.48 while the standard deviation was 1.39 This result indicates that the majority of the respondents somewhat disagreed that differences in training backgrounds of workers, was a source of conflicts at the workplace.

With a composite mean of 3.36, the results imply that majority of the respondents somewhat agreed training background is an important component at work places and would therefore influence overall performance of rural roads construction projects in Kenya.

4.7.2 On-Job Training in Rural Roads Construction Projects

Data to measure on job training diversity was obtained by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to on job training diversity at the work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.21.

Table 4.21: On Job Training Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
T5	I am positive about on-job training diversity in my work place	2 (1.0)	2 (1.0)	10 (5.1)	27 (13.7)	156 (79.2)	4.69	0.49	197 (100)
T6	Equal training opportunity exist for workers from different training background	144 (73.1)	20 (10.2)	15 (7.6)	13 (6.6)	5 (2.5)	1.55	0.81	197 (100)
T7	At work, I experience lack of confidence due to my level of training	119 (60.4)	53 (26.9)	11 (5.6)	5 (2.5)	9 (4.6)	1.64	0.77	197 (100)
	Composite mean						**2.63**		

Table 4.21 shows the results from analysis of on job training diversity. Item T5 sought to determine from the respondents whether they were positive about on-job training diversity at their work place. Based on this, 156 (79.2%) of the respondents strongly agreed, 27 (13.7%) somewhat agreed, 10 (5.1%) were neutral, while 2 (1.0%) somewhat disagreed and 2 (1.0%) strongly disagreed. The mean score was 4.69 while the standard deviation was 0.49. This result indicates that the majority of the respondents strongly agreed that they were positive about on-job training diversity at their work place.

In Item T6, respondents were required to indicate whether equal training opportunity existed for workers from different training background. Based on this, 5 (2.5%) of the respondents strongly agreed, 13 (6.6%) somewhat agreed, 15 (7.6%) were neutral, while 20 (10.2%) somewhat disagreed and 144 (73.1%) strongly disagreed. The mean score was 1.55 while the standard deviation was 0.81. This result indicates that the majority of the respondents strongly disagreed that in their place of work, equal training opportunity existed for workers from different training background

Information was further obtained in Item T7 which sought to establish whether at work place, respondents experienced lack of confidence due to their level of training. Based on this, 9 (4.6%) of the respondents strongly agreed, 5 (2.5%) somewhat agreed, 11 (5.6%) were neutral, while 53 (26.9%) somewhat disagreed and 119 (60.4%) strongly disagreed. The mean score was 1.64

while the standard deviation was 0.77. This result indicates that the majority of the respondents somewhat disagreed that at their work places, respondents experienced lack of confidence due to their level of training.

With a composite mean of 2.63, the results imply that majority of the respondents somewhat agreed that on job training diversity was practised at their work places and would therefore influence overall performance of rural roads construction projects in Kenya.

4.7.8 Progressive Training Diversity in Rural Roads Construction Projects

Progressive training diversity was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to progressive training diversity at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.22.

Table 4.22: Progressive Training Diversity in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
T8	Learning more skills through training, would improve my work performance	5 (2.5)	1 (0.5)	5 (2.5)	8 (4.1)	178 (90.4)	4.79	0.38	197 (100)
T9	The team leader includes all members of different training backgrounds in decision making process	28 (14.2)	19 (9.6)	24 (12.2)	28 (14.2)	98 (49.8)	3.76	1.31	197 (100)
T10	Mentoring of workers in acquiring jobs skills in latest technologies is highly practiced in this organisation	104 (52.8)	38 (19.3)	22 (11.2)	22 (11.2)	11 (5.5)	1.97	1.03	197 (100)
	Composite mean						**3.51**		

Table 4.22 shows the results from analysis progressive training diversity. Item T8 sought to establish from the respondents whether learning more skills through training, would improve their work performance. Based on this, 178 (90.4%) of the respondents strongly agreed, 8 (4.1%)

somewhat agreed, 5 (2.5%) were neutral, while 1 (0.5%) somewhat disagreed and 5 (2.5%) strongly disagreed. The mean score was 4.79 while the standard deviation was 0.38. This result indicates that the majority of the respondents strongly agreed that learning more skills through training, would improve their work performance

Based on decision making, Item T9 sought to establish from the respondent whether the team leader includes all members of different training backgrounds in decision making process. Based on this, 98 (49.8%) of the respondents strongly agreed, 28 (14.2%) somewhat agreed, 24 (12.2%) were neutral, while 19 (9.6%) somewhat disagreed and 28 (14.2%) strongly disagreed. The mean score was 3.76 while the standard deviation was 1.31. This result indicates that the majority of the respondents strongly agreed that in their place of work, the team leader includes all members of different training backgrounds in decision making process.

Respondents were further required in item T10 to indicate whether at work place, mentoring of workers in acquiring jobs skills in latest technologies was highly practiced in their organisation. Based on this, 11 (5.5%) of the respondents strongly agreed, 22 (11.2%) somewhat agreed, 22 (11.2%) were neutral, while 38 (19.3%) somewhat disagreed and 109 (52.8%) strongly disagreed. The mean score was 1.97 while the standard deviation was 1.03. This result indicates that the majority of the respondents somewhat disagreed that at their work places, mentoring of workers in acquiring jobs skills in latest technologies was highly practiced in their organisation.

With a composite mean of 3.51, the results imply that majority of the respondents somewhat agreed that progressive training diversity was practised at their work places and would therefore influence overall performance of rural roads construction projects in Kenya.

4.6.5 Descriptive Analysis of Project Team Training Diversity

Project team training diversity was considered in terms of training background diversity, on job training diversity and progressive training diversity. The mean and standard deviation of these factors are shown in Table 4.23.

Table 4.23: Means and Standard Deviations of Project Team Training Diversity

Project Team Training Diversity	n	Mean (M)	SD
Training background	197	3.36	1.69
On job training	197	2.63	0.69
Progressive training	197	3.51	0.91
Composite Mean		**3.17**	

Results in Table 4.23 indicates that the overall mean of project team training diversity was to a moderate extent (M = 3.17). The most dominant indicator was progressive training diversity at a great extent (M = 3.51, SD = 0.91), followed by training background diversity at a moderate extent (M=3.36, SD = 1.69) and on job training diversity at a moderate extent (M = 2.63, SD = 0.69). This implies that training diversity is a valued practice at the project construction sites that project managers should consider during the construction of the projects since a diversity in training will enhance performance of projects with high standards of professionalism.

Finding obtained from observation revealed that majority of the employees had no formal education or training. It was however observed that most companies preferred training their workers through apprenticeship. Apprenticeship developed spirit de corps among the workers and also ensured retention of workers in the same company for a long time since no certificates were issued. On few cases of acquiring new equipment and technology, it was noted that most companies organised special training in conjunction with the suppliers who would train trainer of trainer.

Results of in-depth interviews held with site engineers supports the quantitative data that to a greater extent project team training diversity influences performance of rural roads construction projects. Further, they indicate that apprenticeship training is common on the ground, training background is a factor during recruitment, progressive training opportunities exist and on job training is common at the sites. Some of the key interview responses obtained include;

On training background, the in-depth interviews revealed that the construction industry considered training background during recruitment or attachment of the workers. Some

indicated preference to certain colleges because of the discipline, "We prefer NYS because of the discipline and what they have gone through." Some companies said that they employ from any institution;

> "I am getting guys from NYS, I am getting guys from Jomo Kenyatta, Nairobi University, Moi University, Rift Valley everywhere and we are giving them the support they want and we are giving them the training they want because we have everything with us."

On job training, it was revealed to be a common training method especially on jobs where no much knowledge or skills are required. It was established that most companies prefer On Job training. Some of the key respondents said that,

> "That's what we normally encourage. Like the hand packing you saw them doing it down there. They got experience from another project and they are the ones who are showing the others now. Even on machine operation, they normally share with the attachment people and show them how to operate it and how to handle it. That way I believe the workers and the trainee are happy about it. Soon they will be experts and train others."

Further, other site engineers reaffirmed why they prefer On Job training, "Because you can have a guy who is trained on the ground, there are foremen who have been trained on the ground, they can perform better than those guys who have gone to school." Other site agents expressed their passion and their liking for On Job Training, "As I told you, this is a small company and since I joined in 2010, I have tried growing up my workforce through training. Most of the guys who work here, I actually brought them here with nothing but they are well trained now. So, they can't come and tell me that we won't do this."

Progressive training diversity on site helps in technology exchange and improves performance of projects and execution of tasks. It also motivates the workforce. When asked if they practice progressive training, the site engineers had the following to say; "Yes, we give equal opportunities in training. I think we took two to Kisii Institute to do 'Strategy R-2000 Projects' training." Others said that they trained their own and promote them,

> "True because this guy that I was telling you was a leveler before, he was actually trained by a surveyor and in this same project, the guys is still in this project. We trained him as a foreman and when he came to this project he was able to carry himself so that he can be promoted."

Progressive training was identified as the key way of transferring knowledge to the workers,

> "Yes, there is some progressive training which goes along especially because we have some modern machines that someone might come in with no complete knowledge but the one percent that is remaining or some rectification or computerization of the machine, we have to take them through that. Number two is that every new worker has some orientation phase and more trainings before he is confirmed."

While another site agent said that, "In the construction industry, we have the foreman then we have the drivers and operators who are already trained, but with the casuals most of them are trained progressively."

Further analysis was carried out so as to establish the direction and magnitude of the relationship between the independent and dependent variables under investigation. This was in line with objective two of this study which was to establish the extent to which project team training diversity influences performance of rural roads construction projects in Kenya. The indicators of project team training diversity were training background, on job training and progressive training, while performance of rural roads construction projects was measured in terms of completion within time, completion within cost, completion within quality requirements, client satisfaction, and workers' satisfaction. The correlation results of the influence of project team training diversity on performance of rural roads construction projects are presented in Table 4.24

Table 4.24: Association Between Project Team Training Diversity and Performance of Rural Roads Construction Projects

		Training background	On job training	Progressive training
Performance of Road Construction Projects	Pearson Correlation	.798	.813	.801
	Sig. (2-tailed)	.000	.000	.000
	n	197	197	197

Table 4.24 indicates strong correlation between performance of rural roads construction projects and training background (r=0.798, p<0.001); strong correlation with on job training (r = 0.813, p<0.001) and a strong relationship with progressive training (r=0.801, p<0.001).

Regression analysis was further carried out to establish the influence of project team training diversity on performance of rural roads construction projects in Kenya which was in line with objective two of this study. A hypothesis was therefore formulated to satisfy the requirements of objective two. In testing this hypothesis, data collected from the respondents on predictor variable project team training diversity indicators (training background, on job training and progressive training), a composite index from each indicator was regressed with data collected from performance of rural roads construction projects.

Therefore, hypothesis two was formulated and tested using a simple linear regression model.

Hypothesis 2

H_{02}: Project team training diversity does not significantly influence performance of rural roads construction projects in Kenya.

Regression Model

The mathematical model used for testing this hypothesis was as follows:

Performance of rural roads construction projects = f (Project team training diversity)

$$Y = f(X_3, \varepsilon)$$
$$Y = \beta_0 + \beta_3 X_3 + \varepsilon$$

Where Y =   Performance of rural roads construction projects

             X_3 =   Project team training diversity

             β_0 =   Constant term

             β_3 =   Beta coefficients

             ε =   Error term

The regression results for the influence of project team training diversity on performance of rural roads construction projects in Kenya are presented in Table 4.25.

Table 4.25: Influence of Project Team Training Diversity on Performance of Rural Roads Construction Projects

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std Error**	**Beta**	**t**	**Sig.**
1	(Constant)	-1.048	.138		-2.215	.007
	Training Background	.249	0.29	.278	6.424	.000
	On Job Training	.361	.041	.465	8.787	.004
	Progressive Training	.285	.052	.295	1.466	.000

Predictors: (constant), Training Background, On Job Training, Progressive Training

Dependent Variable: Performance of Rural Roads Construction Projects

F = 335.874, p value = 0.000<0.05, r= 0.804, R^2 = 0.647

Table 4.25 shows that r=0.804. this indicates that project team training diversity has a strong relationship with performance of rural roads construction projects. R^2 = 0.647 indicating that project team training diversity explains 64.7% of the variations in the performance of rural roads construction projects. The results on test of significance also indicate that; training background (β=0.278, p<0.001), on job training (β=0.465, p<0.001), progressive training (β=0.295, p=0.002) were all significant at p<0.001 and 95% confidence level. This result implies that project team demographic diversity explains 64.7 % of the variations in performance of rural roads construction projects.

The overall F statistics, (F = 335.874, p<0.001<0.05), indicated that there was a very statistical significant relationship between project team training diversity and performance of rural roads construction projects in Kenya. The null hypothesis was therefore rejected and it was concluded that project team training diversity significantly influences performance of rural roads construction projects in Kenya.

Using the statistical findings in Table 4.25, the regression model can be substituted as follows:

Y = -1.048 + 0.278TB + 0.465OJT + 0.295 PT

Where;

Y = performance of rural roads construction projects

TB = Training background

OJT = On Job Training

PT = Progressive Training

These study findings obtained concurred with the study by Myaskovsky et al., (2005) who established that performance would be sustained when group trainings were conducted. The practice of group training was identified as a common practice in construction companies. The findings obtained indicated that group training was practiced because 'two hands are better than one' and by so doing workers supported each other in cases of substitute. This also supported the transactive memory theory whereby group training provides a contemporary approach to trainees which creates relationships that are personalized and hence influence employee performance. The current study findings were also in congruence with Khan (2012) who established that there was an impact of training and motivation on performance of employees, and concluded that training contributes greatly to employee's performance. Dulaimi (2005), in his study on influence of academic education and formal training on Project Managers' behaviour, results indicated that for an academic and professional development programmes to provide the right balance (in content and emphasize), technical knowledge and the people management skills should be mandatory for young professionals. This study therefore benefits the practitioners in rural roads construction projects on the influence of project team training diversity and performance of rural roads construction projects in Kenya.

4.8   Project Team Experience Diversity and Performance of Rural Roads Construction Projects

Objective three of this study was to establish the extent to which project team experience diversity influences performance of rural roads construction projects in Kenya. Project team experience diversity was measured in terms of professional experience and on job experience.

4.8.1 Professional Experience in Rural Roads Construction Projects

Professional experience diversity was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to professional experience diversity at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.26.

Table 4.26: Professional Experience in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
E1	Experience diversities among the workers does not affect professional relationship within the team	19 (9.6)	17 (8.6)	30 (15.2)	29 (14.7)	102 (51.9)	3.90	1.16	197 (100)
E2	Both the most experienced and less-experienced are involved in decision making	1 (0.5)	15 (7.6)	12 (6.1)	21 (10.7)	148 (75.1)	4.52	0.72	197 (100)
E3	This company employs both the most experienced and less experienced	0 (0.0)	2 (1.0)	21 (10.7)	12 (6.1)	162 (82.2)	4.70	0.50	197 (100)
E4	Discrimination against the less experienced undermines performance	111 (56.3)	33 (16.8)	39 (19.8)	8 (4.1)	6 (3.0)	1.81	0.91	197 (100)
E5	I fully utilize my experience in my work place	0 (0.0)	0 (0.0)	2 (1.0)	10 (5.1)	185 (93.9)	4.93	0.13	197 (100)
E6	Less experienced workers are keen to learn from most experienced workers	36 (18.3)	16 (8.1)	51 (25.9)	48 (24.4)	46 (23.3)	3.26	1.17	197 (100)
	Composite mean						**3.85**		

Table 4.26 shows the results from analysis of professional experience. Item E1 sought to establish from the respondents whether experience diversities among the workers does not affect professional relationship within the team. Based on this, 102 (51.9%)of the respondents strongly agreed, 29(14.7%)somewhat agreed, 30 (15.2%)were neutral, while 17 (8.6%)somewhat disagreed and 19 (9.6%) strongly disagreed. The mean score was 3.90 while the standard

deviation was 1.16. This result indicates that the majority of the respondents somewhat agreed that in their place of work, experience diversities among the workers does not affect professional relationship within the team.

Respondents were then asked in item E2 to indicate whether both the most experienced and less-experienced were involved in decision making. Based on this, 148 (75.1%) of the respondents strongly agreed, 21 (10.7%) somewhat agreed, 12 (6.1%) were neutral, while 15 (7.6%) somewhat disagreed and 1 (0.5%) strongly disagreed. The mean score was 4.52 while the standard deviation was 0.72. This result indicates that the majority of the respondents strongly agreed that in their place of work, both the most experienced and less-experienced were involved in decision making.

They were further required in item E3 to indicate whether their company employs both the most experienced and less experienced. Based on this, 162 (82.2%) of the respondents strongly agreed, 12 (6.1%) somewhat agreed, 21 (10.7%) were neutral, while 2 (1.0%) somewhat disagreed and 0 (0.0%) strongly disagreed. The mean score was 4.70 while the standard deviation was 0.50. This result indicates that the majority of the respondents strongly agreed that their company employs both the most experienced and less experienced.

Information from item E4 sought to establish from the respondents whether discrimination against the less experienced undermines performance at their workplace. Based on this, 6 (3.0%) of the respondents strongly agreed, 8 (4.1%) somewhat agreed, 39 (19.8%) were neutral, while 33 (16.8%) somewhat disagreed and 111 (56.3%) strongly disagreed. The mean score was 1.81 while the standard deviation was 0.91. This result indicates that the majority of the respondents somewhat disagreed that discrimination against the less experienced undermines performance.

Respondents were therefore requested to provide information in item E5 on whether they fully utilized their experience at their work places. On this item, 185 (93.9%) of the respondents strongly agreed, 10 (5.1%) somewhat agreed, 2 (1.0%) were neutral, while 0 (0.0%) somewhat disagreed and 0 (0.0%) strongly disagreed. The mean score was 4.93 while the standard deviation was 0.13. This result indicates that the majority of the respondents strongly agreed that they fully utilized their experience at their work places.

Consequently, from item E6, information whether less experienced workers were keen to learn from most experienced workers was obtained. In their responses, 46 (23.3%) of the respondents strongly agreed, 48 (24.4%) somewhat agreed, 51 (25.9%) were neutral, while 16 (8.1%) somewhat disagreed and 36 (18.3strongly disagreed. The mean score was 3.26 while the standard deviation was 1.17. This result indicates that the majority of the respondents strongly agreed that less experienced workers were keen to learn from most experienced workers.

With a composite mean of 3.85, the results imply that majority of the respondents somewhat agreed that professional experience diversity promotes professionalism in executing projects and that it would therefore influence overall performance of rural roads construction projects in Kenya.

4.8.2 On Job Experience in Rural Roads Construction Projects

On job experience diversity was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to on job experience diversity at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.27.

Table 4.27: On Job Experience in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
E7	The company has a workforce of diverse work experiences	1 (0.5)	3 (1.5)	11 (5.6)	18 (9.1)	164 (83.3)	4.7	0.4	197 (100)
E8	I have had challenges working with people from different work experiences	1 (0.5)	1 (0.5)	19 (9.6)	24 (12.2)	152 (77.2)	4.6	0.5	197 (100)
E9	This company offers equal opportunity for multitasking within the department	133 (67.5)	23 (11.7)	12 (6.1)	11 (5.6)	18 (9.1)	1.8	1.0	197 (100)
E10	My experience is appreciated in my workplace	14 (7.1)	15 (7.6)	17 (8.6)	43 (21.8)	108 (54.9)	4.1	1.0	197 (100)
	Composite mean						**3.8**		

Table 4.27 shows the results from analysis of on job experience. Item E7 sought to determine from the respondents whether the company has a workforce of diverse work experiences. Based on this, 164 (83.3%) of the respondents strongly agreed, 18 (9.1%) somewhat agreed, 11 (5.6%) were neutral, while 3 (1.5%) somewhat disagreed and 1 (0.5%) strongly disagreed. The mean score was 4.7 while the standard deviation was 0.4. This result indicates that the majority of the respondents strongly agree that the company has a workforce of diverse work experiences.

Information from item E8 sought to establish whether the respondents had challenges working with people from different work experiences. Based on this, 152 (77.2%) of the respondents strongly agreed, 24 (12.2%) somewhat agreed, 19 (9.6%) were neutral, while 1 (0.5%) somewhat disagreed and 1 (0.5%) strongly disagreed. The mean score was 4.6 while the standard deviation was 0.5. This result indicates that the majority of the respondents strongly agreed that in their place of work, respondents have had challenges working with people from different work experiences.

Respondents were therefore asked in item E9 to indicate whether their company offered equal opportunity for multitasking within the department. Based on this, 18 (9.1%) of the respondents

strongly agreed, 11 (5.6%) somewhat agreed, 12 (6.1%) were neutral, while 23 (11.7%) somewhat disagreed and 133 (67.5%) strongly disagreed. The mean score was 1.8 while the standard deviation was 1.0. This result indicates that the majority of the respondents somewhat disagreed that their company offered equal opportunity for multitasking within the department.

It was necessary also in item E10 to establish whether the respondent's experience was appreciated in their workplace. In their responses 108 (54.9%) of the respondents strongly agreed, 43 (21.8%) somewhat agreed, 17 (8.6%) were neutral, while 15 (7.6%) somewhat disagreed and 14 (7.1%) strongly disagreed. The mean score was 4.1 while the standard deviation was 1.0. This result indicates that the majority of the respondents somewhat agreed that their experiences were appreciated in their workplace.

With a composite mean of 3.8, the results imply that majority of the respondents somewhat agreed that work experience is a vital aspect amongst the workers in executing projects. by so doing it would have a positive influence on overall performance of rural roads construction projects in Kenya.

4.6.5 Descriptive Analysis of Project Team Experience Diversity

Project team experience diversity was considered in terms of professional experience diversity and on job experience diversity. The composite mean and standard deviation of these factors are shown in Table 4.28.

Table 4.28: Means and Standard Deviations of Project Team Experience Diversity

Project Team Experience Diversity	n	Mean (M)	SD
Professional experience	197	3.85	0.76
On job experience	197	3.80	0.72
Composite Mean and SD		**3.83**	

Results in Table 4.28 indicates that the overall mean of project experience diversity was to a great extent (M = 3.83). The most dominant indicator was professional experience at a great extent (M = 3.85, SD = 0.76) followed by on job experience also at a great extent (M = 3.80,

SD = 0.72). This implies that experience diversity is generally to a great extent a contributor to the overall performance of rural roads construction projects.

Information obtained through observation indicated that experience was the single most factor that was most valued at the project construction sites. It was also observed that the most experienced workers were most listened to at the site. Final decisions were seen being made by them and they were most sought at the site for decision making at various project site activities. Most of the workers had worked in the road construction industry and have been rewarded by promotion and pay increment due to their experience. Some of the experienced workers could argue that; 'even without having a formal education no engineer professional can challenge me in my work'. Though not true, but this posture could be alluded to the fact that they meet several challenges in their daily jobs and they learn through those experiences.

Further information was obtained from in-depth interviews conducted on the site engineers. The in-depth interviews indicated that they preferred experience to training, most of their employees had experiences specialized in one area, on job experience was more critical to the contractors and they tended to retain such workers. When asked on the interchangeability of personnel from one department to the other, the site engineers respondents that, "Yes, we do that but we do have some departments which are quite independent like you cannot take a person from earth works to go and do bitumen works." On preference of professional or on job experience workers, the site engineers indicated that it dependent on the type of work, "In terms of maybe operators, foremen, surveyors, we prefer the most on job experienced ones, the more experienced can handle the machine properly but for areas like design and interpretation of the drawings we require the professional experience." When asked about the range of experience of their workers, majority indicated that, "Most of our workers have more than seven-year experience except the casuals but every other person has more than seven-year experience. We more or less look at the experience when we are recruiting." Another site agent said that, "I have a general foreman who has worked from 1970. He has experience of 45 years" Further, the respondents accepted that diversity of the workers was important in their performance,

> "You will find that the diversity is also helping us to achieve our targets.
> There are some who are coming in with very good experience that they
> have learnt through the field and we are able to incorporate that in our day

to day activities and that is really assisting because we have people from diverse experienced areas."

The majority site engineers also indicated that the experienced support each other, "Those guys who have been here, I have seen a lot of assistance from them since they are trying to help the upcoming people with all the knowledge that they have gathered."

The results imply that project team experience diversity significantly influences performance of rural roads construction projects. Project team experience diversity largely plays a big role in determining the extent to which work is performed in construction projects. In most performing construction companies, experience diversity was seen as the single most factor perceived in leveraging performance.

Further analysis was carried out so as to establish the direction and magnitude of the relationship between the independent and dependent variables under investigation. This was in line with objective three of this study which was to establish the extent to which project team experience diversity influences performance of rural roads construction projects in Kenya. The indicators of project team experience diversity included professional experience and on job experience. The results are presented in Table 4.29.

Table 4.29: Association Between Project Team Experience Diversity and Performance of Rural Roads Construction Projects

		Professional Experience	On job Experience
Performance of Road Construction Projects	**Pearson Correlation**	.892	.958
	Sig. (2-tailed)	.000	.000
	n	197	197

Table 4.29 indicates strong correlation results between professional experience diversity and performance of rural roads construction project with r = 0.892 at p<0.001<0.05. The correlation was also strong with on job experience diversity and performance of rural roads construction project (r=0.958, p<0.001).

Regression analysis was further carried out to establish the extent to which project team experience diversity influences performance of rural roads construction projects in Kenya. A hypothesis was therefore formulated to satisfy the requirements of objective three. In testing this hypothesis, a composite index was computed from data collected from the respondents on indicators of independent variable (professional experience and on job experience) was regressed with data collected from dependent variable performance of rural roads construction projects variables.

Hypothesis three was therefore formulated and null hypothesis tested using a simple linear regression.

Hypothesis three

H_{03}: Project team experience diversity does not significantly influence performance of rural roads construction projects in Kenya.

Regression Model

The statistical model used for testing this hypothesis was as follows:

Performance of rural roads construction projects = f (Project team experience diversity).

$$Y = f(X_4, \varepsilon)$$

$$Y = \beta_0 + \beta_4 X_4 + \varepsilon$$

Where Y =   Performance of rural roads construction projects

X_4 =   Project team experience diversity

β_0 =   Constant term

β_4 =   Beta coefficients

ε =   Error term

The regression results for the influence of project team experience diversity on performance of rural roads construction projects in Kenya are presented in Table 4.30.

Table 4.30: **Influence of Project Team Experience Diversity on Performance of Rural Roads Construction Projects**

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t	Sig.
1	(Constant)	-.338	.072		-4.702	.000
	Professional experience	.361	.054	.399	12.109	.000
	On job experience	.435	.254	.467	8.658	.000

Predictors: (constant), Professional Experience, On Job Experience

Dependent Variable: Performance of Rural Roads Construction Projects

F = 965.321, p<0.001<0.05, r= 0.925, R^2 = 0.855

Results in Table 4.30 indicate that the Pearson's Product Moment Correlation coefficients (r) was 0.925, p<0.001. This indicates that project team experience diversity had a strong correlation with performance of rural roads construction projects. R^2 = 0.855 implies that project team experience diversity explains 85.5% of performance of rural roads construction projects. A test significant at p=0.05 showed that on job experience (p<0.001) and professional experience (p < 0.000) were all significant.

Overall F statistics, F = 965.321 at p<0.001 indicting that there was a significant relationship between project team experience diversity and performance of rural roads construction projects in Kenya. The null hypothesis was therefore rejected and it was concluded that project team experience diversity significantly influences performance of rural roads construction projects in Kenya

Using the statistical findings, the regression model can be substituted as follows:

Y = - 0.338 + 0.339PE + 0.467OJE

Where;

Y = Performance of Rural Roads Construction Projects

PE = Professional Experience diversity

OJE = On Job Experience diversity

These study findings concurred with expectancy theory of motivation as postulated by Porter et al (1975) which states that individuals are motivated by future expectations based on previous experience of performing a particular task in certain way and the outcome of such performance. These study findings also support the study by McKay et al., (2008), who found out that a variable such as job tenure paired with experience influence on performance. In the current study experience was among those factors with the highest influence on performance of rural roads construction projects. These study findings are also in line with the studies by Dulaimi (2005), and Toor and Ofori (2008) that experience promotes performance of organisations. However, this study was unique in the sense that it investigated the perceptions of the lower cadre of workers on how their experience diversities affected the performance of the rural roads construction projects unlike the earlier studies who based their study on senior management levels.

4.9 Project Team Work-culture Diversity and Performance of Rural Roads Construction Projects

Objective four of the study was to examine the extent to which project team work-culture diversity influences performance of rural roads construction projects in Kenya. Project team work-culture diversity was measured in terms of workers' engagement culture, teamwork culture and decision making culture.

4.9.1 Workers Engagement Culture in Rural Roads Construction Projects

Workers engagement culture was measured by asking the respondents to indicate the extent to which they agreed on the 5 item statements in relation to working environment. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.31.

Table 4.31: Workers Engagement Culture in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
C1	My supervisor gives me regular feedback	4 (2.0)	5 (2.5)	27 (13.7)	40 (20.3)	121 (61.5)	4.37	0.78	197 (100)
C2	This organization regularly recognizes good work	127 (64.4)	24 (12.2)	22 (11.2)	16 (8.1)	8 (4.1)	1.75	0.97	197 (100)
C3	My job responsibility is clearly defined	0 (0.0)	8 (4.1)	25 (12.7)	31 (15.7)	133 (67.5)	4.47	0.72	197 (100)
C4	The work environment allows me to express myself	21 (10.7)	10 (5.1)	21 (10.7)	39 (19.8)	106 (53.7)	4.01	1.07	197 (100)
C5	My organisation communicates clearly and timely to the workers.	1 (0.5)	2 (1.0)	1 (0.5)	37 (18.8)	156 (79.2)	4.75	0.39	197 (100)
	Composite mean						**3.87**		

Table 4.31 shows the results from analysis of work engagement culture. On Item C1 the respondents were asked to indicate the extent of agreement; 'My supervisor gives me regular feedback'. Based on this, 121 (61.5%) of the respondents strongly agreed, 40 (20.3%) somewhat agreed, 27 (13.7%) were neutral, while 5 (2.5%) somewhat disagreed and 4 (2.0%) strongly disagreed. The mean score was 4.37 while the standard deviation was 0.78. This result indicates that the majority of the respondents somewhat agreed that in their place of work, their supervisor gave them regular feedback.

Information was sought from the respondents in item C2 to establish from the respondents whether their organization regularly recognized good work. 8 (4.1%) of the respondents strongly agreed, 16 (8.1%) somewhat agreed, 22 (11.2%) were neutral, while 24 (12.2%) somewhat disagreed and 127 (64.4%) strongly disagreed. The mean score was 1.75while the standard deviation was 0.97. This result indicates that the majority of the respondents strongly disagreed that in their place of work, whether their organization regularly recognized good work.

Further, the respondents were asked in Item C3 to indicate whether the respondent's job responsibility was clearly defined. Based on this, 133 (67.5%) of the respondents strongly

agreed, 31 (15.7%) somewhat agreed, 25 (12.7%) were neutral, while 8 (4.1%) somewhat disagreed and 0 (0.0%) strongly disagreed. The mean score was 4.47while the standard deviation was 0.72. This result indicates that the majority of the respondents strongly agreed that their job responsibility was clearly defined.

In addition, it was clarified from respondents in item C4 whether the work environment allows them to express themselves. Out of the responses, 106 (53.7%) of the respondents strongly agreed, 39 (19.8%) somewhat agreed, 21 (10.7%) were neutral, while 10 (5.1%) somewhat disagreed and 21 (10.7%) strongly disagreed. The mean score was 4.01while the standard deviation was 1.07. This result indicates that the majority of the respondents somewhat agreed that their work environment allows them to express themselves.

It was also necessary in item C5 to obtain information from the respondents on whether their organisation communicates clearly and timely to the workers. Based on this, 156 (79.2%) of the respondents strongly agreed, 37 (18.8%) somewhat agreed, 1 (0.5%) were neutral, while 2 (1.0%) somewhat disagreed and 1 (0.5%) strongly disagreed. The mean score was 4.75 while the standard deviation was 0.39. This result indicates that the majority of the respondents strongly agreed that their organisation communicates clearly and timely to the workers.

With a composite mean of 3.87, the results imply that majority of the respondents somewhat agreed that workers'' engagement was satisfactory and would have an overall performance of rural roads construction projects in Kenya.

4.9.2 Teamwork-culture in Rural Roads Construction Projects

Teamwork-culture was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to teamwork-culture at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.32.

Table 4.32: Teamwork-culture in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
C6	My colleagues appreciate the way I work in the team	4 (2.0)	5 (2.5)	18 (9.1)	20 (10.3)	150 (76.1)	4.56	0.67	197 (100)
C7	There is good teamwork and cooperation in my organisation	4 (2.0)	13 (6.6)	14 (7.1)	40 (20.3)	126 (64.0)	4.38	0.80	197 (100)
C8	I am encouraged to develop new and more efficient ways to do my work	0 (0.0)	3 (1.5)	31 (15.7)	62 (31.5)	101 (51.3)	4.32	0.69	197 (100)
C9	Enough encouragement is provided by the teammates at workplace	0 (0.0)	4 (2.0)	8 (4.1)	16 (8.1)	169 (85.8)	4.78	0.38	197 (100)
C10	We engage in team building activities in this organisation	191 (97.0)	5 (2.5)	1 (0.5)	0 (0.0)	0 (0.0)	1.01	0.07	197 (100)
	Composite mean						**3.81**		

Table 4.32 shows the results from analysis of teamwork-culture. Item C6 asked the respondent to rate the statement; 'my colleagues appreciate the way I work in the team'. Based on this, 150 (76.1%) of the respondents strongly agreed, 20 (10.3%) somewhat agreed, 18 (9.1%) were neutral, while 5 (2.5%) somewhat disagreed and 4 (2.0%) strongly disagreed. The mean score was 4.56while the standard deviation was 0.67. This result indicates that the majority of the respondents strongly agreed that were neutral that 'my colleagues appreciate the way I work in the team'.

Respondents were asked in item C7 to rate the statement on whether there was good teamwork and cooperation in their organisation. Responses obtained indicated, 126 (64.0%) of the respondents strongly agreed, 40 (20.3%) somewhat agreed, 4(7.1%) were neutral, while 13 (6.6%) somewhat disagreed and 4 (2.0%) strongly disagreed. The mean score was 4.38while the standard deviation was 0.80. This result indicates that the majority of the respondents somewhat agreed that in their place of work, 'there is good teamwork and cooperation in my organisation'.

Information in Item C8 sought to establish if the respondents were encouraged to develop new and more efficient ways to do their work. Based on this, 101 (51.3%) of the respondents strongly agreed, 62 (31.5%) somewhat agreed, 31 (15.7%) were neutral, while 3 (1.5%) somewhat disagreed and 0 (0.0%) strongly disagreed. The mean score was 4.32while the standard deviation was 0.69This result indicates that the majority of the respondents somewhat agreed that 'I am encouraged to develop new and more efficient ways to do my work'.

Respondents were further asked in item C9 to indicate whether enough encouragement was provided by the teammates at workplace. Based on this, 169 (85.8%) of the respondents strongly agreed, 16 (8.1%) somewhat agreed, 8 (4.1%) were neutral, while 4 (2.0%) somewhat disagreed and 0 (0.0%) strongly disagreed. The mean score was 4.78 while the standard deviation was 0.38. This result indicates that the majority of the respondents strongly agreed that; 'enough encouragement is provided by the teammates at workplace'.

Subsequently, information in item C10 sought information on whether respondents engaged in team building activities in their organisation. Responses obtained indicated, 0 (0.0%) of the respondents strongly agreed, 0 (0.0%) somewhat agreed, 1 (0.5%) were neutral, while 5 (2.5%) somewhat disagreed and 191 (97.0%) strongly disagreed. The mean score was 1.01while the standard deviation was 0.07. This result indicates that the majority of the respondents strongly disagreed that; 'we engage in team building activities in this organisation'.

With a composite mean of 3.81, these results imply that majority of the respondents somewhat agreed that teamwork-culture within a construction setting is paramount in achieving project objectives and hence a would therefore influence overall performance of rural roads construction projects in Kenya.

4.9.3 Decision Making Culture in Rural Roads Construction Projects

Decision making culture was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to decision making culture at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.33.

Table 4.33: Decision Making Culture in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
C11	I am involved in making work related decisions	2 (1.0)	9 (4.6)	1 (0.5)	30 (15.2)	155 (78.7)	4.66	0.54	197 (100)
C12	Team members listen to my opinions	52 (26.4)	19 (9.6)	4 (2.0)	12 (6.1)	110 (55.8)	3.55	1.67	197 (100)
C13	In this organisation, there is opportunity for career growth	119 (60.4)	13 (6.6)	6 (3.0)	25 (12.7)	34 (17.3)	2.20	1.47	197 (100)
C14	All individual differences are respected in decision making (such as age, gender, education, etc)	15 (7.6)	43 (21.8)	41 (20.8)	48 (24.4)	50 (25.4)	3.38	1.12	197 (100)
C15	I have clear understanding of the goals and objectives of my organization when making decisions	20 (10.2)	14 (7.1)	55 (27.9)	34 (17.3)	74 (37.5)	3.65	1.14	197 (100)
	Composite mean						**3.49**		

Table 4.33 shows the results from analysis of team decision making culture. C11 asked the respondent to rate the statement; 'I am involved in making work related decisions'. 155 (78.7%) of the respondents strongly agreed, 30 (15.2%) somewhat agreed, 1 (0.5%) were neutral, while 9 (4.6%) somewhat disagreed and 2 (1.0%) strongly disagreed. The mean score was 4.66 while the standard deviation was 0.54. This result indicates that the majority of the respondents strongly agreed that they were involved in making work related decisions.

Item C12 asked the respondent to rate the statement; 'team members listen to my opinions'. 110 (55.8%) of the respondents strongly agreed, 12 (6.1%) somewhat agreed, 4 (2.0%) were neutral, while 19 (9.6%) somewhat disagreed and 52 (26.4%) strongly disagreed. The mean score was 3.55 while the standard deviation was 1.67. This result indicates that the majority of the respondents somewhat agreed that in their place of work, team members listened to their opinions.

Further, item C13 asked the respondent to rate the statement, '' in this organisation, there is opportunity for career growth'. 34 (17.3%) of the respondents strongly agreed, 25 (12.7%) somewhat agreed, 6 (3.0%) were neutral, while 13 (6.6%) somewhat disagreed and 119 (60.4%) strongly disagreed. The mean score was 2.20 while the standard deviation was 0.1.47. This result indicates that the majority of the respondents somewhat disagreed that in their organisation, there was opportunity for career growth.

In addition, item C14 asked the respondent to rate the statement, 'all individual differences are respected in decision making (such as age, gender, education, etc)'. 50 (25.4%) of the respondents strongly agreed, 48 (24.4%) somewhat agreed, 41 (20.8%) were neutral, while 43 (21.8%) somewhat disagreed and 15 (7.6%) strongly disagreed. The mean score was 3.38 while the standard deviation was 1.12. This result indicates that the majority of the respondents somewhat agreed that; all individual differences are respected when making decisions at workplace.

Subsequently, item C15 asked the respondent to rate the statement, 'I have clear understanding of the goals and objectives of my organization when making decisions'. 74 (37.5%) of the respondents strongly agreed, 34 (17.3%) somewhat agreed, 55 (27.9%) were neutral, while 14 (7.1%) somewhat disagreed and 20 (10.2%) strongly disagreed. The mean score was 3.65 while the standard deviation was 1.14. This result indicates that the majority of the respondents somewhat agreed that they have a clear understanding of the goals and objectives of their organization when making work decisions.

With a composite mean of 3.49, these results imply that majority of the respondents somewhat agreed that participatory decision making culture would improve how individual work which would have an influence on overall performance of rural roads construction projects in Kenya.

4.6.5 Descriptive Analysis of Project Team Work-culture Diversity

Project team work-culture diversity was considered in terms of work engagement culture, teamwork culture and decision making culture. The composite mean and standard deviation of these factors are shown in Table 4.34.

147

Table 4.34: Means and Standard Deviations of Project Team Experience Diversity

Project Team Experience Diversity	n	Mean (M)	SD
Work engagement culture	197	3.87	0.79
Teamwork culture	197	3.81	0.52
Decision making culture	197	3.49	1.19
Composite Mean and SD		**3.72**	**0.83**

Results in Table 4.34 indicates that the overall mean of project work-culture diversity was to a great extent (M = 3.72, SD = 0.83). The most dominant indicator was work engagement culture at a great extent (M = 3.87, SD = 0.79) followed by teamwork culture diversity at a great extent (M = 3.81, SD = 0.52). This implies that work-culture diversity is generally to a great extent an important consideration in project execution and would have an overall influence on performance of rural roads construction projects.

Data obtained through observation was also analysed. The finding from the observations conducted indicated that some company culture in the workplace improved on the integration among workers and performance of the rural roads construction projects. At the construction sites, it was observed that companies had a unique way they preferred working. Some companies asked their workers to have a nap after lunch and delay their closing time to 6 o'clock in the evening. Most decisions were decentralized to the headmen and foremen, a practice that enhanced performance of tasks. In most projects visited, the site workers were seen to operate in small teams and organisations. Further observation indicated that each company had her own unique way of doing things (culture). This work-culture for each company was found to be befitting the wishes of employees. For example, the Chinese companies were working for seven days a week. Their lunch commenced at noon. This culture had been adopted by the Kenyan workers and was resulting into the company goals and objectives. However, at the lower levels of employees were not happy with working over the weekends. On organisation culture, it was established they were not aware of the companies' vision and mission and this affected their levels of commitment and full support in realising performance. These results imply that project

team work-culture diversity significantly influences performance of rural roads construction projects.

Results obtained from in-depth interviews showed that project team work-culture diversity to a greater extent would influences performance of rural roads construction projects.

On work engagement, it was revealed that most companies constantly engaged their workers. Information could flow both top down and from bottom up. This essentially creates a good culture and enhanced performance of projects. When asked if they engage their workers in decision making, majority agreed that they did,

> "Yes, you have to involve them. For example, the foremen from the earth works department, we have to meet every evening and agree what is to be done on daily basis. What do we do tomorrow? You cannot build that road alone. (the phone rings) ….as you have seen, they are liaising with me every minute."

Clear work engagement culture systems of solving complains were also confirmed by majority of the site engineers to be in existence, "If they have complaints, they normally report to the immediate supervisor, then it comes to us." It was also found out that majority of the companies had a unique way of dealing with information flow,

> "Free information flow is there which is work related but in this company, we work on a need-to-know basis. We don't want to trouble the material technologist about a truck that has broken down because he doesn't know or need to know. Down-up is very good, up-down is a need-to-know basis because the top management needs to know everything but the bottom management doesn't need to know everything."

Further on work engagement culture, some respondents said that, "But if I want to issue some instructions to the guys who are down, I have a system. I will just inform my foreman who in turn informs the head man then the information will pass." Other respondents emphasized that they engaged themselves with their workers to determine on how to reward them,

> "We have appraisals of all the workers. In casual workers, most of them are confirmed to be permanent. For the supervisors, if they meet their targets very well we could say like almost annually or semi-annually, we give them allowances that are there to stay so that at every single point an achiever is able to earn more through time, same to our drivers."

On teamwork and teambuilding activities, the interview results indicated that majority of them do not conduct team building activities, however majority of the workers exercised teamwork which to greater extent has a bearing on performance of construction projects. When asked if they practiced teamwork and team building activities, some site engineers responded that, "Yes, we do because we emphasize on team work. For example, the mechanic has to work very well with the foreman. The driver has to work very well with the surveyor. We emphasize in team work and in many aspects during implementation of projects." Some of the common teambuilding activities practiced included,

> "What we do is we have some monthly meetings on Saturdays after work whereby we share some tea and talk." "… at the end of the day yes, we have teambuilding activities, in my case, monthly we usually come together and maybe slaughter a goat to initiate issues, agree, solve issues and proceed with life." "….That's why we have a regular meeting every one week or two weeks to see where we might be having some challenges." "…What we do is we have some monthly meetings on Saturdays after work whereby we share some tea and talk." "….Yes, like now before the end of last year we had a party, coming together and sharing ideas."

Decision making culture in most organizations may either break or make organisation performance. Participatory decision making gives the workers a sense of belonging and a motivation to carry out the task he/she was involved in making the decision. Majority of the companies agreed to involving the workers to a greater extent. When asked whether they involved their workers on work related decisions, the responses were varied, thus; "No, we don't. We are more or less rigid on that. We as management, we only consult the specific foreman in terms of target but in terms of the much that is to be done, it's the management that has that strong hand to push on what and how it should be done." While others believed that; "This is team work and to succeed you need to involve everybody, the foremen and headmen who have to know what you want to achieve." Others said that; "As much as I support them, I also tell them to try to solve their own their problems without involving me." Majority agreed that

> "Yes, we involve them since most of them are experienced and they are the ones who are going to do whatever you want to instruct. If you ask the operators that I want to do this and this, is it possible then they will tell you that cannot happen because of this and this."

Further analysis was carried out so as to establish the direction and magnitude of the relationship between the independent and dependent variables under investigation. This was in line with objective four of this study which was to establish the extent to which project team work-culture diversity influences performance of rural roads construction projects in Kenya. The indicators of project team work-culture diversity included work engagement culture, teamwork culture and decision making culture. The results are presented in Table 4.35.

Table 4.35: Association Between Project Team Work-culture Diversity and Performance of Rural Roads Construction Projects

		Work Engagement Culture	Teamwork culture	Decision Making Culture
Performance of Road Construction Projects	Pearson Correlation	.648	.681	.645
	Sig. (2-tailed)	.000	.000	.000
	n	197	197	197

Table 4.35 indicates strong correlation between performance of rural roads construction projects and work engagement culture (r=0.648, p<0.001); strong correlation with teamwork culture (r = 0.981, p<0.001) and a strong correlation with decision making culture (r=0.645, p<0.001).

Regression analysis was further carried out to establish the extent which project team work-culture diversity significantly influences performance of rural roads construction projects in line with objective four. A hypothesis was therefore formulated to satisfy the requirements of objective four. In testing this hypothesis, data collected from the respondents on project team work-culture diversity indicators (work engagement, teamwork and decision making), the composite index for each indicator was computed and was regressed with data collected from performance of rural roads construction projects.

Hypothesis four was therefore formulated and null hypothesis tested using a simple linear regression.

Hypothesis Four

H$_{04}$: Project team work-culture diversity does not significantly influence performance of rural roads construction projects in Kenya.

Regression Model

The statistical model used for testing this hypothesis was as follows:

Performance of rural roads construction projects = f (Project team work-culture diversity)

$$Y = f(X_5, \varepsilon)$$

$$Y = \beta_0 + \beta_5 X_5 + \varepsilon$$

Where   Y   =   Performance of rural roads construction projects

                X$_5$ =   Project team work-culture diversity

                β_0 =   Constant term

                β_5 =   Beta coefficients

                ε =   Error term

The regression results for the influence of project team work-culture diversity on performance of rural roads construction projects in Kenya are presented in Table 4.36.

Table 4.36: Project Team Work-culture Diversity and Performance of Rural Roads Construction Projects

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t	Sig.
1	(Constant)	-1.233			-4.254	.015
	Work engagement culture	-.258	.074	.291	-1.365	.023
	Teamwork Culture	.442	.036	.476	2.645	.000
	Decision Making Culture	.298	.371	.354	5.963	.016

Predictors: (constant), Work Engagement Culture, Teamwork Culture, Decision Making Culture

Dependent Variable: Performance of Rural Roads Construction Projects

$F = 136.735$, $p<0.001<0.05$, $r= 0.658$, $R^2 = 0.432$

Table 4.36 shows that $r=0.658$ and this indicates that project work culture diversity has a moderate influence on performance of rural roads construction projects. $R^2 = 0.432$ indicating that project team work-culture diversity explains 43.2% of the variations in the performance of rural roads construction projects. The results on test significant also indicate that; work engagement ($\beta=0.291$, $p=0.023$), teamwork culture ($\beta=0.476$, $p<0.001$), decision making culture ($\beta=0.354$, $p=0.016$) they were all significant. This result implies that project teamwork-culture diversity explains 43.2 % of the variations in performance of rural roads construction projects.

The overall F statistic, $F = 136.735$ at $p<0.001<0.05$, indicated that there was a statistical relationship between project team work-culture diversity and performance of rural roads construction projects in Kenya. The null hypothesis was therefore rejected and it was concluded that project team work-culture diversity significantly influences performance of rural roads construction projects in Kenya.

Using the statistical findings in Table 4.36, the regression model can be substituted as follows:

$Y = -1.233 + 0.291 WEC + 0.476TC + 0.354DMC$

Where;

Y = Performance of Rural Roads Construction Projects

WEC = Work Engagement Culture

TC = Teamwork Culture

DMC = Decision Making Culture

Finding from this study concurred with the study by Hammer and Champy (1993) who found out that culture is a determining factor in successful implementation of re-engineering processes. Their argument that once people develop culture, they would work cooperatively with high levels of coordination, integration and teamwork which are key ingredients of trust, honesty and performance in an organisation was also evident in the current study. In the current study project team work-culture of most construction companies was found to be unique to every company and served them well in achieving performance. The study findings were also in support to a study by Peters and Allison (2011) who found out that increased female gender in a workplace improved workplace culture. It is however prudent to note that the results are from different sectors.

However, the study findings supported Dunphy, (2004) who found out that heterogeneous groups are more likely to possess a diverse range of task relevant knowledge, expertise and talents, therefore generating better solutions. Also in agreement with these results was Richard, (2000), who found out that having employees from different ethnic backgrounds could enhance productivity and improve return on investment and market performance. This study was based on the construction sector and hence adds to knowledge the information that lacked in literature on how work-culture related with performance in roads.

Jessica et al (2017) showed that work engagement had a positive intervention on self-rating of job performance, Ann et al (2016) established that both individual and team work engagement were associated with high levels of perceived team performance, Bakker, Gierveld and Van Rijkswijk (2006) showed that engaged principals scored higher on in-role and extra-role performance, Boermans et al (2014) demonstrated that team members reported less fatigue

symptoms after deployment if they were highly engaged teams during deployment. The current study was in concurrence with all the above studies that established that in the field of construction there is positive relationship between work engagement and performance of rural roads construction projects.

Further, the current study was in agreement with the study by Manzoor et al (2011) who found out a significant positive impact of predictors on the response variable and recommended adoption of teamwork activities so as to shove performance. Further the current study supports the study by Yngve et al (2016) who established that a positive effect of teamwork quality on team performance. The current study therefore determined that project team work-culture diversity influences performance of rural roads construction projects in Kenya.

4.10 Combined Influence of Project Team Diversity and Performance of Rural Roads Construction Projects

The fifth objective of this study was to investigate the extent to which combined project team diversities influences performance of rural roads construction projects in Kenya. The combination of project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity was referred to as combined project team diversities. The combined influence of these factors on performance of rural roads construction projects was tested using inferential statistics.

Correlational analysis of combined project team diversities as the independent variable and performance of rural roads construction projects as the dependent variable was carried out to determine the strength and direction of the relationship. The results are presented in Table 4.37.

Table 4.37: Correlation Matrix for Project Team Diversity and Performance of Rural Roads Construction Project

		Project Team Demographic Diversity	Project Team Training Diversity	Project Team Experience Diversity	Project Team Work-culture Diversity
Performance of Rural Roads Construction Projects	Pearson Correlation	.788	.804	.925	.658
	Sig. (2-tailed)	.000	.000	.000	.000
	N	197	197	197	197

Results in Table 4.37 indicate positive and significant coefficients between the variables. Project team experience diversity had a strong correlation on performance of rural roads construction projects (r = 0.925, p<0.001<0.01), while project team training diversity also had a strong correlation (r = 0.804, p<0.001<0.01), project team demographic diversity had also a strong correlation (r = 0.788, p<0.001<0.01) and project team work-culture diversity had a strong correlation (0.658, p<0.001<0.01). This implies that combined project team diversities had a positive influence on performance of rural roads construction project.

Further inferential analysis was carried out in line with objective five that was to establish the extent to which the combined project team diversities influences performance of rural roads construction projects in Kenya. Combined project team diversities variables included project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity. A composite index for each of the variables was computed and used in the hypothesis testing. The null hypothesis in line with objective five was tested using the linear regression.

Hypothesis Five

H_{05}: Combined project team diversities does not significantly influence performance of rural roads construction projects in Kenya.

Regression Model

The statistical model used for testing this hypothesis was as follows:

Performance of rural roads construction projects = f (Project team demographic diversity, Project team training diversity, Project team experience diversity, Project team work-culture diversity)

$$Y = f(X_2, X_3, X_4, X_5, \varepsilon)$$

$$Y = \beta_0 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where
	Y	=	Performance of rural roads construction projects
	X_2	=	Project team demographic diversity
	X_3	=	Project team training diversity
	X_4	=	Project team experience diversity
	X_5	=	Project team work-culture diversity
	β_0	=	Constant term
	$\beta_2, \beta_3, \beta_4, \beta_5$	=	Beta coefficients
	ε	=	Error term

The regression results for the influence of combined project team diversities on performance of rural roads construction projects Kenya are presented in Table 4.38.

Table 4.38: Influence of Combined project team diversities on Performance of Rural Roads Construction Projects

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t	Sig.
1	(Constant)	-.647	.082		-7.865	.000
	Project team Demographic Diversity	.108	.031	.142	3.527	.001
	Project Team Training Diversity	.114	.037	.133	3.134	.002
	Project Team Experience Diversity	.621	.051	.629	12.098	.000
	Project team Work-culture Diversity	.111	.029	.124	3.890	.000

Predictors: (constant), Project team Demographic diversity, Project Team Training Diversity, Project Team Experience Diversity, Project team Work-culture Diversity

Dependent Variable: Performance of Rural Roads Construction Projects

$F_{(4,192)} = 358.941$ p<0.001<0.05, r = 0.939, $R^2 = 0.882$

The study findings in Table 4.38 shows $R^2 = 0.882$ which indicate that project team diversity explained 88.2% of the variation in the performance of rural roads construction projects. The F value was statistically significant (F = 358.941, p<0.001<0.05) indicating that project team diversity has a statistical significant influence on performance of rural roads construction projects. Beta coefficients indicate that project team experience diversity had the strongest influence at $\beta = 0.142$ followed by project team training diversity at $\beta = 0.133$, then project team demographic diversity at $\beta = 0.142$ and then lastly project work-culture diversity at $\beta = 0.124$.

Based on the results, the null hypothesis was therefore rejected and it was concluded that combined project team diversities significantly influence performance of rural roads construction projects in Kenya. After substituting the beta and constant values in the model, the equation was as follows:

Y = - 0.647 + 0.142PDD + 0.133PTD +0.629PTED + 0.124PWD

Where;

Y = performance of rural roads construction projects

PDD = Project Team Demographic Diversity

PTD = Project Team Training Diversity

PTED = Project Team Experience Diversity

PWD = Project Team Work-culture Diversity

These results were in line with study findings from previous studies by Jehn et al., (1999), Watson, Kumar, and Michaelson, (1993), who showed that team diversity within projects teams have positive influence on organisation performance. These findings also agreed with the study by Baumeister and Bushman, (2010) who argued that when individual interests (goals) coincide with group interest (group goal) then it is expected that the liking of each other increases and that the group productivity increases performance. These earlier findings however were based on different sectors and that the variables were singly studied unlike the current study where combined influence was established.

4.11   Project Team Diversity, Implementation Process of Project Control Systems and Performance of Rural Roads Construction Projects

Research objective six was to establish the moderating influence of implementation process of project control systems on the relationship between project team diversity and performance of rural roads construction projects in Kenya. Implementation process of project control systems was considered in terms of planning, installation and operation of the project control systems.

4.11.1   Planning of Project Control Systems in Rural Roads Construction Projects

Planning of project control systems was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to planning of project control systems at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly

Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.39.

Table 4.39: Planning of Project Control Systems in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
I1	As a department, we were involved in initiating the project control systems	27 (13.7)	23 (11.7)	22 (11.2)	57 (28.9)	68 (34.5)	3.59	1.21	197 (100)
I2	I participated in the planning of the project control systems in this organisation	9 (4.6)	15 (7.6)	48 (24.4)	63 (32.0)	62 (31.4)	3.78	0.91	197 (100)
I3	Effective planning process of project control systems enhances performance of projects	10 (5.1)	15 (7.6)	2 (1.0)	57 (28.9)	113 (57.4)	4.26	0.85	197 (100)
	Composite mean						**3.88**		

Table 4.39 shows the results from analysis of planning of project control systems. Item I1 sought to establish from the respondents whether their department was involved in initiating the project control systems. 68 (34.5%) of the respondents strongly agreed, 57 (28.9%) somewhat agreed, 22 (11.2%) were neutral, while 23 (11.7%) somewhat disagreed and 27 (13.7%) strongly disagreed. The mean score was 3.59 while the standard deviation was 1.21. This result indicates that the majority of the respondents somewhat agreed that in their place of work, their department was involved in initiating the project control systems.

Information was further obtained from Item I2 whereby respondents were asked to indicate the extent to which they participated in the planning of the project control systems in their organisation. Out of this, 62 (31.4%) of the respondents strongly agreed, 63 (32.0%) somewhat agreed, 48 (24.4%) were neutral, while 15 (7.6%) somewhat disagreed and 9 (4.6%) strongly disagreed. The mean score was 3.78 while the standard deviation was 0.91. This result indicates that the majority of the respondents somewhat agreed that in their place of work, they participated in the planning of the project control systems.

Respondents were further asked in item I3 to indicate whether planning process of project control systems enhances performance of projects. Majority 113 (57.4%) of the respondents strongly agreed, 57 (28.9%) somewhat agreed, 2 (1.0%) were neutral, while 15 (7.6%) somewhat disagreed and 10 (5.1%) strongly disagreed. The mean score was 4.26 while the standard deviation was 0.85. This result indicates that the majority of the respondents somewhat agreed that effective planning process of project control systems enhances performance of projects.

With a composite mean of 3.88, the results imply that majority of the respondents somewhat agreed that rural roads construction companies, to a greater extent involved their workers in the planning of the project control systems in their places of work and this would therefore influence overall performance of rural roads construction projects in Kenya.

4.11.2 Installation of Project Control Systems in Rural Roads Construction Projects

Installation of project control systems was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to installation of project control systems at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.40.

Table 4.40: Installation of Project Control Systems in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
I4	Our department participated in the installation of the project control systems	18 (9.1)	27 (13.7)	23 (11.7)	53 (26.9)	76 (38.6)	3.72	1.14	197 (100)
I5	Project control systems are well implemented in our department	18 (9.1)	23 (11.7)	35 (17.8)	46 (23.4)	75 (38.1)	3.70	1.14	197 (100)
I6	There is total support for installation of project control systems from top management	33 (16.8)	12 (6.1)	56 (28.4)	36 (18.3)	60 (30.4)	3.40	1.20	197 (100)
I7	Installation of project control systems were closely monitored by top management	42 (21.3)	63 (32.0)	48 (24.4)	27 (13.7)	17 (8.6)	2.56	1.03	197 (100)
	Composite mean						**3.34**		

Table 4.40 shows the results from analysis of installation of project control systems. Item I4 sought to determine from the respondents their department participated in the installation of the project control systems. Based on this, 76 (38.6%) of the respondents strongly agreed, 53 (26.9%) somewhat agreed, 23 (11.7%) were neutral, while 27 (13.7%) somewhat disagreed and 18 (9.1%) strongly disagreed. The mean score was 3.72 while the standard deviation was 1.14. This result indicates that the majority of the respondents somewhat agreed that in their place of work, their department participated in the installation of the project control systems.

Further Item I5 sought to establish from the respondent whether project control systems are well implemented in their department. 75 (38.1%) of the respondents strongly agreed, 46 (23.4%) somewhat agreed, 35 (17.8%) were neutral, while 23 (11.7%) somewhat disagreed and 18 (9.1%) strongly disagreed. The mean score was 3.70 while the standard deviation was 1.14. This result indicates that the majority of the respondents somewhat agreed that in their place of work, project control systems were well implemented in their department.

In addition, respondents were asked in Item I6 to indicate whether there was total support for installation of project control systems from top management. Responses obtained indicated that 60 (30.4%) of the respondents strongly agreed, 36 (18.3%) somewhat agreed, 56 (28.4%) were neutral, while 12 (6.1%) somewhat disagreed and 33 (16.8%) strongly disagreed. The mean score was 3.40while the standard deviation was 1.20. This result indicates that the majority of the respondents were neutral that top management totally supported the installation of project control systems.

It was also necessary to obtain information in item I7 which sought to establish whether installation of project control systems was closely monitored by top management. Based on this, 17 (8.6%) of the respondents strongly agreed, 27 (13.7%) somewhat agreed, 48 (24.4%) were neutral, while 63 (32.0%) somewhat disagreed and 42 (21.3%) strongly disagreed. The mean score was 2.56while the standard deviation was 1.03 This result indicates that the majority of the respondents were neutral whether installation of project control systems was closely monitored by top management.

With a composite mean of 3.34, the results imply that majority of the respondents somewhat agreed installation of project control systems was participatory, well-coordinated and monitored at their work places and would therefore influence overall performance of rural roads construction projects in Kenya.

4.11.3 Operation of Project Control Systems in Rural Roads Construction Projects

Operation of project control systems was measured by asking the respondents to indicate the extent to which they agreed on the 3 item statements in relation to operation of project control systems at work place. The items were based on a 5 point Likert scale ranging from 5 = Strongly Agree (SA), 4 = Somewhat Agree (SWA), 3 = Neutral (N), 2 = Somewhat Disagree (SWD) and 1 = Strongly Disagree (SD). The results are as tabulated in Table 4.41.

Table 4.41: Operation of Project Control Systems in Rural Roads Construction Projects

	Statements	SD F (%)	SWD F (%)	N F (%)	SWA F (%)	SA F (%)	Mean	SD	Total F (%)
I8	The project control systems are simple to operate	10 (5.1)	18 (9.1)	50 (25.4)	65 (33.0)	54 (27.4)	3.69	0.93	197 (100)
I9	I am aware of the project control systems used in this organisation	11 (5.6)	37 (18.8)	54 (27.4)	46 (23.4)	49 (24.8)	3.43	1.05	197 (100)
I10	There is total support of project control systems by all workers	15 (7.6)	27 (13.7)	27 (13.7)	43 (21.9)	85 (43.1)	3.79	1.13	197 (100)
I11	Project control systems are effective in controlling project overruns	6 (3.0)	8 (4.1)	30 (15.2)	34 (17.3)	119 (60.4)	4.28	0.87	197 (100)
	Composite mean						**3.80**		

Table 4.41 shows the results from analysis of operation of project control systems. Item I8 sought to determine from the respondents whether the project control systems were simple to operate. 54 (27.4%) of the respondents strongly agreed, 65 (33.0%) somewhat agreed, 50 (25.4%) were neutral, while 18 (9.1%) somewhat disagreed and 10 (5.1%) strongly disagreed. The mean score was 3.69 while the standard deviation was 0.93. This result indicates that the majority of the respondents somewhat agreed that in their place of work, project control systems were simple to operate.

Respondents were also asked in item I9 to indicate if they were aware of the project control systems used in their organisation. The responses obtained indicated that 49 (24.8%) of the respondents strongly agreed, 46 (23.4%) somewhat agreed, 54 (27.4%) were neutral, while 37 (18.8%) somewhat disagreed and 11 (5.6%) strongly disagreed. The mean score was 3.43 while the standard deviation was 1.05. This result indicates that the majority of the respondents were neutral that in their place of work, they were aware of the project control systems used in their organisation.

Information was further sought in item I10 whereby they were asked to indicate whether there was total support of project control systems by all workers. Based on this, 85 (43.1%) of the respondents strongly agreed, 43 (21.9%) somewhat agreed, 27 (13.7%) were neutral, while 27 (13.7%) somewhat disagreed and 15 (7.6%) strongly disagreed. The mean score was 3.79 while the standard deviation was 1.13. This result indicates that the majority of the respondents somewhat agreed that there was total support of project control systems by all workers.

Consequently, item I11 sought to establish whether project control systems were effective in controlling project overruns. Based on this, 119 (60.4%) of the respondents strongly agreed, 34 (17.3%) somewhat agreed, 30 (15.2%) were neutral, while 8 (4.1%) somewhat disagreed and 6 (3.0%) strongly disagreed. The mean score was 4.28 while the standard deviation was 0.87. This result indicates that the majority of the respondents strongly agreed that project control systems were effective in controlling project overruns.

With a composite mean of 3.80, the results imply that majority of the respondents somewhat agreed that the operations of project control systems would have an influence on overall performance of rural roads construction projects in Kenya.

4.6.5 Descriptive Analysis of Overall Implementation Process of Project Control System

Implementation process of project control systems was considered in terms of planning, installation and operation of the project control systems. The mean and standard deviation of these factors are shown in Table 4.42.

Table 4.42: Means and Standard Deviations for Implementation Process of Project Control System.

Implementation of project control systems	n	Mean (M)	SD
Planning of project control systems	197	3.88	0.99
Installation of project control systems	197	3.34	1.50
Operation of project control systems	197	3.80	0.99
Composite Mean and SD		**3.67**	**1.16**

Results in Table 4.42 indicates that implementation process of project control system was to a very great extent (M = 3.67, SD = 1.16). The dominant variable was planning of the project control systems to a great extent (M = 3.88, SD = 0.99), and also operation of the project control systems to a great extent (M = 3.80, SD = 0.99). Installation of project control systems was to a moderate extent (M = 3.34, SD = 1.50). This implies that implementation process of project control system is a vital consideration and would enhance performance of rural roads construction projects

It was observed that workers especially at foremen and headmen levels were heavily involved in implementation process of the project control systems. They were very keen how programs were being adhered to, quality controls were in place to ensure materials delivered to site were inspected and approval given. Workers at lower hierarchies at work place also felt comfortable with the implementation process of project control systems hence all supported the process.

Information obtained from the key informer's in-depth interviews supported the quantitative data. When asked whether they involved the workers in the implementation of project control systems, the responses included, "This is team work and to succeed you need to involve everybody, the foremen and headmen who have to know what you want to achieve and then put measures in place acceptable by all in controlling the work program." Some site engineers said that they included their foremen ideas in decisions they made. One said thus,

> "Before I put any measures in place, I listen to my people for ideas. Once we agree then we all implement the controls. We also keep on improving them to make our work easier and achieve targets. Project control systems really helps me to organise the project."

Some site engineers said that they exploited the experience of the workers in planning the project well. One site engineer said thus;

> "Yes. Most of them as I have told you are coached from different companies and they have different experiences. Combined together, they are really helping me to organize the project. They are giving me ideas which I didn't have, because I had told I worked with other companies and so the skills I got from there and the skills they have from other companies when combined, we are doing well."

In the contrally, some site agents said that, "We don't involve them directly. But by the output which they give us per day, per week, per fortnight, per month, those are the ones we use to prepare the program of works and two, the schedules that are required for that." While some site engineers said that they selectively involved their workers, "Maybe we may not involve the junior most workers but the low-level managers, the foremen and headmen are usually informed for planning and any feedback is always considered."

Implementation of the project program, usually is a daunting task for the project engineer. It requires that the project engineer would succeed if they involved their workers in implementation of the project control systems. When asked the extent to which they involved their workers in implementation of the project control systems, majority of the project site engineers intimated that;

> "The first one and most important is how long can we finish this project and maybe it will take 18 months or less. We also have the second program. For example, within six months what kind of results we could achieve and then even now we have a daily program. For example, for today from kilometer zero to kilometer one, we have a targeted program every day, every month and even the whole month project."

Another said that;

> "We involve a single foreman on what he is exactly supposed to give as the output. We don't give the whole program and tell him that we need 10 kilometers in five months, no, we don't do that. We break it out to daily tasks and each task is given to the relevant foreman/surveyor/supervisor."

One respondent said that;

> "Basically, what we do in every section I deal with the heads of the sections. I coordinate just with the head of the section and then the head of the section in case of anything they will come with the message back. That is how we coordinate because you cannot get every point at all times."

Another site engineer was of the contrary opinion that they don't involve them directly in decision making. He said that they only involve their workers using the foremen, thus;

> "I would not involve the workers, we involve the foreman, their head. Since we are also getting a program from above you should do this, this is your target for this month. Now what we do is team down with the

foreman. We discuss when we are told from the head we should do this then we deliberate on those activities but we don't involve any workers. We leave the workers to the foremen."

Another site engineer said;

"In most cases, before you come up with the weekly program or daily program, the best person who can help you is the foreman because the foreman knows the rate and what he can do in a day. So, he is able to tell you I can be able to exclude this work within a certain time. So, it is very obvious that you need to involve them before you come up with the program."

However, majority agreed that that they involve them in decision making, thus, "It is obvious we need to involve them and they need to participate fully."

Inferential analysis from correlational analysis using Pearson's Product Moment was carried out to establish the magnitude and direction of the relationship between implementation process of project control systems and performance of rural roads construction projects in Kenya. The results are presented in Table 4.43.

Table 4.43: Correlation Matrix for Implementation Process of Project Control Systems and Performance of Rural Roads Construction Project

		Planning of Project control systems	Installation of Project control systems	Operation of Project control systems
Performance of Rural Roads Construction Projects	Pearson Correlation	.458	.457	.684
	Sig. (2-tailed)	.000	.000	.000
	n	197	197	197

Results from Table 4.43 indicate that implementation process of project control systems and performance of rural roads construction projects have a significant positive correlation. Planning of project control systems had a positive strong correlation ($r = 0.458$, $p = 0.000$), installation of project control systems showed a positive strong correlation ($r = 457$, $p = 0.000$) while operation of project control systems had a strong significant correlation ($r = 684$, $p<0.001$).

The sixth objective of this study was to establish the extent to which implementation process of project control systems influence the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. Implementation process of project control systems was the moderating variable and was indicated by planning, installation and operation of project control systems. The data was collected using eleven item statements on a five point Likert scale. A composite index for the indicators was computed and used in testing the hypothesis. To analyse inferential data for research objective seven, the following hypothesis and the regression model were used.

Hypothesis six

H_{06}: The significant relationship between combined project team diversities and performance of rural roads construction projects does not depend on implementation process of project control systems.

Regression Model

The mathematical model used for testing the null hypothesis was as follows:

Performance of rural roads construction projects = f (Implementation process of PCSs (Project team demographic diversity + Project team training diversity + Project team experience diversity + Project team work-culture diversity)).

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_1\ X_2\ X_3 X_4 X_5 + \varepsilon$$

Where Y =   Performance of rural roads construction projects

                X_1 =   Implementation process of PCSs

                X_2 =   Project team demographic diversity

                X_3 =   Project team training diversity

                X_4 =   Project team work-culture diversity

                X_5 =   Performance of rural roads construction projects

                β_0 =   Constant term

                $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ =   Beta coefficients

                ε =   Error term

In testing this hypothesis, the moderating influence was computed using the method advocated by Baron and Kenny (1986). This involved testing the influence of the independent variable (project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity) on the dependent variable in step one, and introduce the moderator (implementation process of project control systems) in step two. Moderation is assumed to take place if the influence of interaction between the independent variable and moderator on dependent variable test is significant.

Step one: Influence of Project Team Diversity on Performance of Rural Roads Construction Projects.

In step one, the independent variable project team diversity factors were regressed on performance of rural roads construction projects. The results are presented in Table 4.44.

Table 4.44: Influence of Project Team Diversity on Performance of Rural Roads Construction Projects

Model	R	R Square	Adjusted R Square	Std. Error	F	p-value
1	.939	.882	.880	.13987	358.941	.000

	Unstandardized coefficients		Standardized coefficients		
	B	Std Error	Beta	t	Sig.
(Constant)	-.647	.082		-7.865	.000
Project team Demographic Diversity	.108	.031	.142	3.527	.001
Project Team Training Diversity	.114	.037	.133	3.134	.002
Project Team Experience Diversity	.621	.051	.629	12.098	.000
Project team Work-culture Diversity	.111	.029	.124	3.890	.000

Predictors: (constant), Project team Demographic diversity, Project Team Training Diversity, Project Team Experience Diversity, Project team Work-culture Diversity

Dependent Variable: Performance of Rural Roads Construction Projects

Step Two: **Influence of Project Team Diversity and Implementation Process of Project Control Systems on Performance of Rural Roads Construction Projects.**

In step two the influence of the moderator (implementation process of project control systems) was introduced into the model between project team diversity and performance of rural roads construction projects. The results are presented in Table 4.45.

Table 4.45: Combined project team diversities, Implementation Process of Project Control Systems and Performance of Rural Roads Construction Projects

Model	R	R Square	Adjusted R Square	Std. Error	F	P-value
1	.939	.882	.880	.1398	358.941	.000
2	.942	.887	.884	.1372	299.871	.000

		Unstandardized coefficients		Standardized coefficients		
		B	Std Error	Beta	t	Sig.
2	(Constant)	-.663	.081		-8.189	.000
	Project team Demographic Diversity	.108	.030	.143	3.616	.000
	Project Team Training Diversity	.101	.036	.118	2.806	.006
	Project Team Experience Diversity	.625	.050	.632	12.391	.000
	Project team Work-culture Diversity	.061	.033	.068	1.856	.005
	Implementation process of PCS	.064	.022	.094	2.895	.004

Predictors: (constant), Project Team Demographic Diversity, Project Team Training Diversity, Project Team Experience Diversity, Project Team Work-culture Diversity, Implementation Process of PCS
Dependent Variable: Performance of Rural Roads Construction Projects

The results in Table 4.45 indicates that after introduction of implementation process of project control systems into the relationship, and the interaction term in model 2 increased the R square by 0.005. This implies that the interaction between implementation process of project control systems and project team demographic diversity explains 0.5% variations in performance of rural roads construction projects. F was at F (5,191) =299.871, p<0.001<0.05) and therefore the overall moderating influence was significant.

The null hypothesis was therefore rejected and it was concluded that the significant relationship between combined project team diversities and performance of rural roads construction projects in Kenya depends on implementation process of project control systems.

The findings were supported by the study of Hazir (2015) who established that an effective project control system is one which is flexible, cost effective, useful, ethical, timely, accurate and precise, simple to operate, easy to maintain and fully documented in its planning, installation and operation to ensure success. Similarly, for this study, the indicators of implementation process of project control systems were based on the planning process, installation and operation of the systems. However, this study based its investigations on lowest carder of workers who were the actual implementers of project control systems unlike the earlier studies by Hazir (2015) that based their studies on the middle and higher management levels.

Bianca et al (2017) study established that when employees participated in the development of the performance measures, they then are likely to perceive them of high quality and develop a perceived control over performing well in their jobs. Ismail et al (2012) study disclosed that good working collaboration, effective communication channel and team member involvement during the design stage are the top three (3) most influential management-related factors towards the successful implementation of Industrialized Building System projects. DuBois et al. (2002) found programs that monitored implementation, obtained effect sizes three times larger than programs that reported no monitoring. Ling and Ang (2013) found out that schedule performance may be predicted by adequacy of float and stringency of criteria to select suppliers and quality would be predicted by a quality manager. Similarly, the study findings were supported by Kinyanjui (2014) who found out that performance contracting tools positively influenced organizational performance and that it was necessary that performance contracting tools be simple to use, reliable, simplified and valid and that the process of setting targets required to be more participatory. This would improve the performance of rural roads construction projects.

This study findings were in support with those of Olawale and Sun 2015 who in his study in UK found out that project implementation processes in planning, monitoring and reporting are influenced by many uncertainties which include project team diversity. It also agreed with a study by Tuuli et al (2010) who found out that informal situations and some aspects of diversity within project team, positively affected performance. The study findings therefore indicated that the relationship between combined project team diversities and performance of rural roads construction projects depends on implementation process of project control systems.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1   Introduction

This chapter focuses on summary of findings, conclusions and recommendations. The summary of findings presents the results for each of the hypothesis in the study in terms of either rejected or failed to reject. The conclusions presented in this section were guided by the research objectives and informed by the findings, analysis, interpretation and discussions in the current study. Out of the conclusions made from the study, contributions to the body of knowledge were elaborated. Finally, recommendations for policy, practice, methodology and suggestions for further research were made.

5.2   Summary of Findings

The purpose of the study was to establish the moderating influence of implementation process of project control systems on the relationship between project team diversity and performance of rural roads construction projects in Kenya. This was achieved by developing six objectives and six hypotheses. The targeted population for sampling comprised of workers and site engineers of construction companies that were engaged in KeRRA funded projects. A questionnaire composed of items adopted and modified to fit this study, in depth interviews and observations were used to collect data from respondents. Regressions were used to test the hypotheses.

Hypotheses were tested using simple and multiple regressions. Simple linear regression was used to determine the influence of the independent variables (project team demographic diversity, project team training diversity, project team experience diversity, project team work-culture diversity) on the dependent variable which was performance of rural roads construction projects in Kenya. Multiple regression was used to determine whether combined project team diversities influences performance of rural roads construction projects and also whether implementation process of project control systems had a moderating influence on the

relationship between project team diversity and performance of rural roads construction projects in Kenya.

The first objective of the study was to establish how project team demographic diversity influences performance of rural roads construction projects in Kenya. The null hypothesis tested stated that project team demographic diversity does not significantly influences performance of rural roads construction projects in Kenya. The results were r = 0.788, R^2=0.62, F (4,192) = 285.254, p<0.001<0.05. The null hypothesis was rejected and was concluded that project team demographic diversity had a statistically significant influence on performance of rural roads construction projects in Kenya.

The second objective of the study was to determine how project team training diversity influences performance of rural roads construction projects in Kenya. The null hypothesis tested stated that project team training diversity does not significantly influences performance of rural roads construction projects in Kenya. The results were r = 0.804, R^2=0.647, F (3,193) = 335.874, p<0.001<0.05. The null hypothesis was rejected and was concluded that project team training diversity had a statistically significant influence on performance of rural roads construction projects in Kenya.

The third objective of the study was to establish how project team experience diversity influences performance of rural roads construction projects in Kenya. The null hypothesis tested stated that project team experience diversity does not significantly influences performance of rural roads construction projects in Kenya. The results were r= 0.925, R^2=0.855, F (2,194) = 965.321, p<0.001<0.05. The null hypothesis was rejected and was concluded that project team experience diversity had a statistically significant influence on performance of rural roads construction projects in Kenya.

The fourth objective of the study was to determine how project team work-culture diversity influences performance of rural roads construction projects in Kenya. The null hypothesis tested stated that project team work-culture diversity does not significantly influences performance of rural roads construction projects in Kenya. The results were r= 0.658, R^2=0.432, F (3,193) = 136.735, p<0.001<0.05. The null hypothesis was rejected and was concluded that project team

work-culture diversity had a statistically significant influence on performance of rural roads construction projects in Kenya.

The fifth objective of the study was to establish how combined project team diversities influences performance of rural roads construction projects in Kenya. The null hypothesis tested stated that combined project team diversities does not significantly influences performance of rural roads construction projects in Kenya. The results were r= 0.939, R^2=0.882, F (4,192) = 358.941, p<0.001<0.05. The null hypothesis was rejected and was concluded that combined project team diversities has a statistically significantly influence on performance of rural roads construction projects in Kenya.

The sixth objective of the study was to establish the extent to which implementation process of project control systems influence the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. The null hypothesis tested stated that the strength of the relationship between project team diversity and performance of rural roads construction projects was not dependent on implementation process of project control systems. The results were $R^2 = 0.887$, $R^2\Delta = 0.005$, F (5,191) = 299.871, p<0.001>0.05 which were statistically significant. The null hypothesis was therefore rejected and was concluded that the strength of the relationship between combined project team diversities and performance of rural roads construction projects in Kenya depends on implementation process of project control systems.

5.3   Conclusions

This section presents conclusions made as a result of the study findings based on the objectives and hypotheses. Research objective one was to establish how project team demographic diversity influences performance of rural roads construction projects in Kenya. Indicators for project team demographic diversity were adopted from previous studies and included in the research instrument. Indicators for project team demographic diversity included age, gender, ethnicity, and religion. Descriptive statistics showed that the dominant indicator was ethnicity diversity, followed by religion diversity, gender diversity and lastly by age diversity. This implies that most rural roads construction companies are sensitive to ethnicity and they employ as diverse work force as possible in terms of ethnicity. However, the uptake of project team

demographic indicators by rural roads construction companies including ethnicity, religion, gender and age could be explained by some the following challenges that respondents noted: lack of clear policy on diversity, discrimination against gender, age, and ethnicity, preference of the old workers, no discussions about religion at work places, dominant of Christianity, lack of respect to religion practices like prayer hours, religious festivals, fasting and dress, sarcastic talks against tribes, slow career progression and discrimination against political tribal affiliations. Despite these challenges that ought to be addressed by the site engineers, majority of the rural roads construction projects workers tolerated those from different ethnic tribes, religion and different age groups got along well with each other, a practice that enhanced performance of rural roads construction projects. The results from inferential statistics indicated that ethnicity had the highest influence on performance of rural roads construction projects, followed by age, religion and the gender. This implied that those construction companies that implemented ethnicity diversity among the workforce would reap more benefits than those that do not. It was therefore concluded that project team demographic diversity had a statistically significant influence on performance of rural roads construction projects in Kenya. This implies that road contractors should diversify workforce in terms of ethnicity diversity, age diversity, religion diversity, gender diversity. There is therefore need to develop a clear understanding of demographic diversities at work places.

Research objective two was to determine how project team training diversity influences performance of rural roads construction projects in Kenya. Indicators for project team training diversity were training background, on job training and progressive training and were based on literature review and included in the research instrument. Descriptive statistics showed that the dominant indicator was progressive training, followed by training background and then on job training. This could be explained by the following reasons noted by the respondents: training of new technology is paramount in this era, lack of formal training where a certificate is given, discriminated against others' training background, poor on job training, harassment when being trained by seniors, given a lot of work when on job training, don't consider training background for progressive training, lack of clear structure on training and need for more progressive training. This implied that majority of the respondents felt that they needed to improve on their training and the mentioned challenges to be addressed to realise full potential of performance. It can therefore be concluded that majority of the workers in the construction companies felt

that training either formal or informal, influenced their performance. The results from inferential statistics indicated that on job training had the highest influence on performance followed by training background and then progressive training. It was therefore concluded that the most important aspect of training to employ at the construction site is on job training. This was so because it would address the specific needs of the company. Further inferential statistics indicated that there was a positive influence of project team training diversity on performance of rural roads construction projects in Kenya. It can therefore be concluded that rural roads contractors should practice employing diverse workforce in terms of training background, on job training and progressive training of their workforce since it would positively influence on performance of their projects.

Research objective three was to establish the extent to which project team experience diversity influences performance of rural roads construction projects in Kenya. Indicators for project team experience diversity were professional experience and on job experience and were based on literature review and included in the research instrument. Descriptive statistics showed that the dominant indicator was professional experience and then on job experience although with a small margin. This could be explained by the following reasons noted by the respondents: professionals lack experience, professionals don't challenge the experienced-on site, on job experience not treated as professionals, on job experiences rigid to new ideas and that professionals were not practical. It can therefore be concluded that project team experience diversity is faced with challenges that need to be addressed so as to achieve full potential of performance of rural roads construction projects. The results from inferential statistics indicated that on job experience had the highest influence on performance of rural roads construction projects followed by professional experience. It was therefore concluded that there was a positive influence of project team experience diversity on performance of rural roads construction projects in Kenya and there is need to actively engage project practitioners to employ a diverse workforce during the execution of projects.

Research objective four was to determine how project team work-culture diversity influences performance of rural roads construction projects in Kenya. Informed by literature, work-culture diversity was categorized into work engagement, teamwork, decision making indicators and they were included in the research instrument. Results from descriptive statistics indicated that

work engagement culture was the most important culture at work place that was valued by the workers. It was followed by the aspects of teamwork at the workplace and lastly by decision making culture. Some of the key information noted was that, positive work-culture: made workers feel happy, helped them express easily, improved their enthusiasm about the job, helped them transfer their engagement to others, promoted team work through work engagements. It could therefore be revealed that as much as teamwork and participatory decision making was important at the rural roads construction sites, individual work engagement by the superiors and colleagues alike mattered most. The results from inferential statistics indicated that teamwork diversity had the highest positive influence on performance of rural roads construction projects, followed by decision making culture while work engagement culture had the moderate influence on performance of rural roads construction projects. Overall conclusion is that project team work-culture diversity had a positive influence on performance of rural roads construction projects in Kenya.

Research objective five was to establish the extent to which combined project team diversities influences performance of rural roads construction projects in Kenya. The combined project team diversities included project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity. The results from both descriptive and inferential statistics indicated that combined project team diversities had a positive statistically significant influence on performance of rural roads construction projects. Project team experience diversity had the highest influence followed by project team training diversity, project team demographic diversity and then project team work-culture diversity. It was therefore concluded that there was a positive influence of combined project team diversities on performance of rural roads construction projects in Kenya.

Research objective six was to investigate the extent to which the implementation process of project control systems influence the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. The combined project team diversities included project team demographic diversity, project team training diversity, project team experience diversity, project team work-culture diversity. The indicators used for implementation process of project control systems included planning, installation and operation were adapted from other studies and included in the research instrument. Descriptive statistics

indicated that majority of the respondents were involved in the planning and operation of the project control systems however installation of the control system was not as participative since fewer respondents were involved to implement installation. Main challenges noted from the respondents included; complexity of the project control systems, lack of awareness among the workers about the project control systems, long time taken in implementing the systems, lack of clear communications, not including everybody in the implementation process and lack of skills and knowledge in implementing the processes. It can therefore be concluded that rural roads construction companies need to intensely involve workers, create awareness and impart knowledge and skills, during the implementation process of project control systems so as to realise increased performance of their projects. Results from inferential statistics indicated that implementation process of project control systems had a statistically significant moderating influence on the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. It was therefore concluded that implementation process of project control systems plays a critical role in the performance of rural roads construction projects and should be emphasized in all rural roads construction companies. And that project managers and project engineers should embrace the practice of involving the workers in the planning, installation and operation of project control systems. Overall it would improve on performance of rural roads construction projects.

5.4 Contributions of the Study to Knowledge

Contributions of this study to knowledge is as tabulated in Table 5.1;

Table 5.1: Contributions of the Study to Knowledge

Objective	Findings	Conclusion	Contribution to Knowledge
1. To establish how project team demographic diversity influences performance of rural roads construction projects in Kenya.	Project team demographic diversity has an influence on performance of rural roads construction projects in Kenya.	Age diversity, gender diversity, ethnicity diversity and religion diversity have a statistically significant influence on performance of rural roads construction projects in Kenya	The study findings demonstrated an empirical evidence that project team demographic diversity, to a greater extent influences performance of rural roads construction projects in Kenya. This objective study findings were presented during the AIBUMA Conference at the University of Nairobi on 28th-29th July 2016.
2. To determine how project team training diversity influences performance of rural roads construction projects in Kenya.	Project team training diversity has an influence on performance of rural roads construction projects in Kenya.	Training background diversity, on job training diversity and progressive training diversity have a statistically significant influence on performance of rural roads construction projects in Kenya	Empirical results indicated an influence of project team training diversity on performance of rural roads construction projects in Kenya. This objective study findings were published in the International Journal of Innovative Research and Development, October 2016, Vol 5, Issue 12.
3. To establish how which project team experience diversity influences performance of rural roads construction projects in Kenya.	Project team experience diversity has an influence on performance of rural roads construction projects in Kenya.	Professional training diversity and on job experience diversity have a statistically significant influence on performance of rural roads construction projects in Kenya	The results provided an empirical evidence that project team experience diversity to a greater extent influences on performance of rural roads construction projects in Kenya. This objective result was also published in the European Scientific Journal, October 2016, Vol 12, Issue 29.

Objective	Findings	Conclusion	Contribution to Knowledge
4. To determine how project team work-culture diversity influences performance of rural roads construction projects in Kenya.	Project team work-culture diversity has an influence on performance of rural roads construction projects in Kenya.	Work engagement culture, teamwork culture and decision making culture have a statistically significant influence on performance of rural roads construction projects in Kenya.	The study findings have empirically indicated that project team work-culture diversity influences performance of rural roads construction projects in Kenya.
5. To establish how combined project team diversities influences performance of rural roads construction projects in Kenya.	Combined project team diversities have an influence on performance of rural roads construction projects in Kenya.	Combined project team diversities have a statistically significant influence on performance of rural roads construction projects in Kenya.	The study empirically established that combined project team diversities was a main contributor to performance of rural roads construction projects in Kenya.
6. To investigate the extent to which implementation process of project control systems influence the relationship between combined project team diversities and performance of rural roads construction projects in Kenya.	Implementation process of project control systems has a moderating influence on the relationship between combined project team diversities and performance of rural roads construction projects in Kenya.	Implementation process of project control systems is very important as it moderates the relationship between combined project team diversities and performance of rural roads construction projects in Kenya.	The empirical study findings provided evidence that implementation process of project control systems has a moderating influence on the relationship between combined project team diversities and performance of rural roads construction projects in Kenya. This objective study findings were presented during the ORSEA conference at Makerere University in Uganda on 20st-21nd October 2016.

5.5 Recommendations of the Study

This section presents the recommendations made in the study based on the research findings, analysis, interpretation and discussion. This includes recommendations for policy, practice, methodology and suggestions for further studies.

5.5.1 Recommendations for Policy

With the new dispensation of the new constitution in Kenya, the devolution of roads and infrastructure to the county government which are largely in rural environment, this study findings therefore have implications to those county governments and project practitioners. The study revealed a significant influence between all variables of project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya. This implies that if construction companies employ a diverse workforce, then an increased performance of rural roads construction projects would be witnessed. Further it implies that construction companies should consider project team diversity integration in the processes of planning, installation and operation of the project control systems. This way, it would make the project control systems effective and hence improve on the performance of the rural roads construction projects.

The study findings also indicated that there is need for policy makers to ensure diversity requirements of the project team members is adhered to at recruitment stage and during the project cycle. Government policies such as a third and two thirds rule of either gender when hiring of workers should be enforced. The results also showed that work-culture diversity has a statistically significant influence on performance of rural roads construction projects. Consequently, policy makers also need to address the issues of equality in training at work place, recognition, recruitment and equity in remuneration across the demographic diversities in age, gender, religion and ethnicity.

The finding also showed that combined project team diversities had a statistically significant influence on performance of rural roads construction projects. Therefore, the policy makers need to consider construction companies being subjected to professional accreditation score in terms of its workforce diversities as a basis of being awarded tenders. The scores need to be based on guidelines drafted from the government that would govern the project team diversity requirements for construction companies.

5.5.2 Recommendations for Practice

The study established that project team diversity influences performance of rural roads construction projects in Kenya. This therefore implies that construction companies should enhance integration and equity among the employees founded on demographic diversity, experience diversity, training diversity and work-culture diversity so as to improve performance of the rural roads construction projects in Kenya and by extension would enhance satisfaction of all stakeholders.

The insights from the study also touch on human resource issues. The way rewards are given, gender equity in recruitment, recognition of performance among others requires a fair consideration to enhance perceptions of those who consider themselves diverse from others. It is therefore practical to invest in diversity of the employees so as to reap on the positive benefits and minimize negative effects. This would also include appointing an expert diversity team to oversee diversity best practices in the organisation. Such teams should be tasked to create awareness on diversity, recognize stereotyping/discrimination early when it happens and provide counteractive measures and strategies.

To effectively enhance diversity among workers in construction companies then building on the senior management commitment and accountability with a thorough framework and needs assessment of the workforce is important. This should encompass carrying out employee surveys, and entry and exit interviews so as to uncover underlying diversity issues faced by the workforce or the organisation in general and endeavour to solve the concerns.

5.5.3 Recommendations for Methodology

This study employed cross sectional survey by using the questionnaires, in-depth interviews, and observations to collect data. Descriptive statistics analysis and hypothesis testing were carried out by using simple linear regression and multiple regression. Data was analysed based on categories as opposed to the main variable. This approach gave an opportunity for an in-depth analysis and understanding of each project team diversity variable.

This study used the mixed method research approach which allowed the researcher to compare and interpret results obtained both qualitatively and quantitatively. This approach is recommended since it offers a chance to benefit from strengths of both qualitative and quantitative approaches and minimize their weaknesses. It also allowed triangulation of data from multiple sources.

5.6   Suggestions for Further Research

Based on the study finding, this study proposes several areas that need to be addressed by future research. This study considered project team diversity in terms of project team demographic diversity, project team training diversity, project team experience diversity and project team work-culture diversity and how they influence performance of rural roads construction projects. It would be prudent for a research to be carried out on how contextual factors such as government policy, group size, organisation structure, communication, management and leadership styles moderate the relationship.

Data collected from the workers who were at the lowest employment levels (non-management) in most companies' hierarchies of employment hence an element of biasness. Future studies should focus in triangulating with multiple sources of data by including line managers or engineers from higher company hierarchies and also from other stakeholders like the government ministries, communities, consultants and sponsors.

A cross-sectional study and the findings were taken at one point in time. A longitudinal study would be recommended so as to provide some deeper understanding on how project team diversity would influence performance of workers and that of the organisation over a period of time. This would confirm if the correlation relationships are stable or they change over time and even unearth causal conclusions.

It is also recommended that a similar study be replicated covering other construction fields and in other developing countries to determine if the same results could be obtained. In addition, future studies need to specify and merit the project control systems used in the Kenyan construction industry and ascertain their preferences and effectiveness in their applications in the construction industry.

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APPENDICES

Appendix I: Letter of Request of Transmittal of Data

JOSIAH OBIRIA OBARE

University of Nairobi

School of Open and Distance Learning

Department of Open and Distance Learning

<u>DEAR RESPONDENT</u>

I am a candidate at the University of Nairobi pursuing a degree in Doctor of Philosophy in Project Planning and Management. As part of the requirement for successful completion of my studies is to write a thesis. The topic for my thesis is; *"Project team diversity, Implementation process of project control systems and performance of rural roads construction projects in Kenya."*

I have accordingly designed and do hereby attach a questionnaire to collect data from road construction company workers. Your company has been sampled for the study and you have been identified to participate in the study as a respondent because of the role you play in the implementing process of project control systems.

The data and findings will be used strictly for academic purposes.

Thank you very much for your time and cooperation. I greatly appreciate your support in furthering this noble research effort.

Yours Faithfully

Josiah Obiria Obare
Reg L83/94229/2014

Appendix II: Interview Guide for Site Engineers

INTRODUCTION

This interview is designed to obtain information for academic purposes only. The accuracy of the responses you provide will be very important to the success of this research thesis. The findings of the study are hoped to make a significant contribution towards project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya. The interview will take approximately 25 minutes. You are therefore requested to assist with the interview. Thank you.

SECTION A: Demographic information

1. Gender (observe on gender and record) Male/female
2. What is your professional qualification? Probe on year obtained.
3. How long have you worked as an Engineer? (Probe on areas/departments worked before).

SECTION B: Information on specific variables of study

4. Briefly describe the project team demographic diversity distribution of the work force within your company. Probe on age, gender, religion and ethnicity.
5. Briefly describe the project team training diversity distribution of the workforce within your company. Probe on background training, on job training and progressive training.
6. Briefly describe the project team experience diversity distribution of the workforce within your company. Probe on professional experiences and on job experiences.
7. Briefly describe the project team work-culture diversity of the workforce. Probe on work engagement, teamwork culture and decision making culture.
8. How are the project team members involved in the planning of project control systems? (Probe on installation and operation, also probe on simplicity of tools and techniques).
9. Kindly explain the performance of the rural roads projects in terms of completion within schedule? Probe on completion within cost and quality, probe on reworks, variations, compliments and complains, client satisfaction and project team satisfaction)
10. Is there any other comment that you would like to share with me?

Thank you.

Appendix III: Questionnaire for Workers

SECTION I: BACKGROUND INFORMATION			NOTES
BG0	Questionnaire serial number	[___|___|___]	
BG1	Date	____/____/2016	
BG3	Project name	[_____]	
BG4	County	[_____]	
BG5	Indicate your first name	[_____]	
BG6	What is your age group? *(circle the age group)*	18-25 years .... 1 26-30 years .... 2 31-35 years .... 3 36-40 years .... 4 41-45 years .... 5 46-50 years .... 6 51-55 years .... 7 Over 55 years.. 8	
BG7	Indicate your gender	Male.. 0 Female 1	
BG8	What is your job/trade/profession?	[_____]	
BG9	What is your job in this company?	[_____]	
BG10	What is your position within the organisation? *(circle the main position)*	Senior management .... 1 Middle management .... 2 Lower management .... 3 None managerial staff............................ 4 Other *(specify)* .... 5 [_____]	
BG11	What is the **highest level** of education you have attained and the year you obtained it? ***Record the year obtained below.*** **Year obtained [_____]**	Post-secondary artisan Certificate .... 1 Diploma.. 2 Undergraduate.. 3 Masters .... 4 PhD.. 5 Other *(specify)* .... 5 [_____]	
BG12	What is your employment status in this organisation?	Permanent... 1 Temporary .... 2 Contract ……………………………..3 Other *(specify)* .... 4 [_____]	

BG13	What is your religion?	Christian 1	
		Islam 2	
		Other (*specify*) 3	
		[_____]	
BG14	For how long have you worked in this organisation?	Less than 1 year..................................1	
		1-5 years 2	
		6-10 years 3	
		11-15 years 4	
		16-20 years 5	
		Over 20 years.. 6	
BG15	For how long have you worked in the construction industry?	Less than 1 year..................................1	
		1-5 years 2	
		6-10 years 3	
		11-15 years 4	
		16-20 years 5	
		Over 20 years.. 6	
BG16	Which department do you belong to within the organization?	Earthworks... 1	
		Surveying.. 2	
		Mechanical works.................................... 3	
		Workshop 4	
		Materials 5	
		Bitumen works…………………………………..6	
		Civil works ..………………………………7	
		Other (*specify*) 8	
		[_____]	
BG17	**We are also interested in understanding how ethnic diversity of the workers influence work performance.** Kindly indicate the ethnic tribe you belong to?	[_____]	

SECTION 2: Performance of Rural Roads Construction Projects

Performance of rural roads construction projects refers to the rate of completion of tasks in terms of time, quality, cost, client, and workers' satisfaction of the work.
This section contains statements on performance of rural roads construction projects. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Very Small Extent (1), Small Extent (2), Moderate Extent (3), Great Extent (4) and Very Great Extent (5).

	Statement	Very Great Extent	Great Extent	Moderate Extent	Small Extent	Very Small Extent
	Project Completion Within Time					
P1	We are able to complete task assigned to us within time schedule	5	4	3	2	1
P2	There were few change requests by the client during construction	5	4	3	2	1
P3	Project delays have been experienced during construction	5	4	3	2	1
	Project Completion Within Budget					
P4	Tasks were completed within budget	5	4	3	2	1
P5	Minimal project variation orders	5	4	3	2	1
	Project Completion Within Quality					
P6	Minimal re-work on tasks already completed	5	4	3	2	1
P7	Our customers are satisfied with our workmanship	5	4	3	2	1
P8	Quality checks of materials is always carried out	5	4	3	2	1
	Client satisfaction					
P9	KeRRA is satisfied with our work performance	5	4	3	2	1
P10	We meet the client requirements/needs	5	4	3	2	1
	Workers satisfaction					
P11	I am satisfied to work in this company	5	4	3	2	1
P12	I am actively looking for a job in a different organisation	5	4	3	2	1
P13	I am satisfied with the management of this project	5	4	3	2	1

2a. Kindly explain the challenges you encounter in completing your projects in time, quality and within budget?

2b. What are the main causes of un-satisfaction to you as a worker of this company?

	SECTION 3: Implementation Process of Project Control Systems						
	Implementation process of project control systems: It is the process of planning, installation and operation of all those systems that ensure project work is done within the time or quality or cost or to the satisfaction of the client, customers and workers This section contains statements on implementation process of project control systems. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Strongly Agree (5), Somewhat Agree (4), Neutral (3), Somewhat Disagree (2) and Strongly Disagree (1).						
		Strongly Agree	**Somewhat Agree**	**Neutral**	**Somewhat Disagree**	**Strongly Disagree**	
	Planning of Project Control Systems						
I1	As a department, we were fully involved in initiating the project control systems	5	4	3	2	1	
I2	I participated in the planning of the project control systems used in this organisation	5	4	3	2	1	
I3	Effective implementation process of project control systems enhances performance	5	4	3	2	1	
I4	**Installation of Project Control Systems**						
I5	Our department participated in the installation of the project control systems	5	4	3	2	1	
I6	Project control systems are well implemented in our department	5	4	3	2	1	
I7	There is total support for installation of project control systems from top management	5	4	3	2	1	
I8	Project control systems are easy to install	5	4	3	2	1	
	Operation of Project Control Systems						
I9	The project control systems are simple to use	5	4	3	2	1	
I10	I am aware of the project control systems used in this organisation	5	4	3	2	1	
I11	I support usage of Project Control systems in this organisation	5	4	3	2	1	
I12	Project control systems are effective in controlling project overruns	5	4	3	2	1	

3a. What are the challenges that you face while planning, installation and operation of project control systems?

3b. Kindly explain how the planning, installation and operation of the project control systems influences performance of rural roads construction projects in this project.

	Statement	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
	SECTION 4: Project Team Demographic Diversity						
	Project team demographic diversity are those differences among the workforce as a result of Age, Gender, Ethnicity and religion This section contains statements on project team demographic diversity. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Strongly agree (5), Somewhat Agree (4), Neutral (3), Somewhat Disagree (2) and Strongly Disagree (1).						
	Gender Diversity						
D1	I am positive about gender diversity at the workplace	5	4	3	2	1	
D2	Balanced work force composed of both gender promotes performance of the team	5	4	3	2	1	
D3	Both genders are included in decision making process	5	4	3	2	1	
	Age Diversity						
D4	My age identity is a barrier to my career advancement	5	4	3	2	1	
D5	I have not experienced conflicts within the team due to status difference between young and old workers	5	4	3	2	1	
D6	This organisation provides equal development opportunities to all regardless of age	5	4	3	2	1	
D7	Decision making teams include members of both the young and the old	5	4	3	2	1	
	Ethnicity Diversity						
D8	I am aware of the ethnic demographics of other employees in my organization	5	4	3	2	1	
D9	The ethnic diversity does not affect professional relationship within the team	5	4	3	2	1	
D10	Ethnic diversity promotes healthy competition in the team in achieving targets	5	4	3	2	1	
	Religion Diversity						
D11	My religion influences my colleagues' attitude towards me at work	5	4	3	2	1	
D12	Religious diversity is a cause conflict among employees in my organisation	5	4	3	2	1	

D13	Religious discrimination undermines performance	5	4	3	2	1	

4a.   What are the gender, age, ethnic and religion related challenges you experience at your work place? Please list them below.

4b.   Kindly state the importance of a demographically diverse workforce on performance of rural roads construction projects.

SECTION 5: Project Team Training Diversity

This section contains statements on project team training diversity. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Strongly Agree (5), Somewhat Agree (4), Neutral (3), Somewhat Disagree (2) and Strongly disagree (1).

	Statement	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
	Training Background Diversity						
T1	Recruitment of workers into the organisation is based on the training background of the workers	5	4	3	2	1	
T2	I have had challenges working with people from different educational backgrounds	5	4	3	2	1	
T3	Equal opportunities for job advancement exist for workers with both most and least training background	5	4	3	2	1	
T4	Differences in training backgrounds of workers, is a source of conflicts at the workplace.	5	4	3	2	1	
	On-Job Training Diversity						
T5	I am positive about on-job training diversity in my work place	5	4	3	2	1	
T6	Equal training opportunity exist for workers from different training background	5	4	3	2	1	
T7	At work, I experience lack of confidence due to my level of training	5	4	3	2	1	
	Progressive Training Diversity						
T8	Learning more skills through training, would improve my work performance	5	4	3	2	1	
T9	The team leader includes members of different training backgrounds in decision making process	5	4	3	2	1	
T10	Mentoring of workers in acquiring jobs skills in latest technologies is highly practised in this organisation	5	4	3	2	1	

5.a   What are the challenges you face at work in relation to your training background? (kindly list below)

5b   What are the challenges you face at work in relation to On-Job training? (kindly list below)

5c   What are the challenges you face at work in relation to your progressive training? (kindly list below)

	SECTION 6: Project Team Experience Diversity						
	This section contains statements on project team experience diversity. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Strongly Agree (5), Somewhat Agree (4), Neutral (3), Somewhat Disagree (2) and Strongly Disagree (1).						
	Statement	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	
	Professional Experience Diversity						
E1	Experience diversities among the workers does not affect professional relationship amongst the team	5	4	3	2	1	
E2	Both the most experienced and less-experienced are involved in decision making	5	4	3	2	1	
E3	This company employs both the most experienced and less experienced	5	4	3	2	1	
E4	Discrimination against the less experienced undermines performance	5	4	3	2	1	
E5	I fully utilize my experience in my work place	5	4	3	2	1	
E6	Less experienced workers are keen to learn from most experienced workers	5	4	3	2	1	
	On job Experience Diversity						
E7	The company has a workforce of diverse work experiences	5	4	3	2	1	
E8	I have had challenges working with people from different work experiences	5	4	3	2	1	
E9	This company offers equal opportunity for multitasking within the department	5	4	3	2	1	
E10	My experience is appreciated in my workplace	5	4	3	2	1	

6a. Kindly list the potential challenges you face at the workplace in relation to professional experience and on job experience.

6a. Please explain how professional experience and on job experience would influences performance of rural roads construction projects in your company.

	SECTION 7: Project Team Work-culture Diversity						
	This section contains statements on project team work-culture diversity. Kindly rate the statements by circling the appropriate scale of 1-5 among the following; Strongly Agree (5), Somewhat Agree (4), Neutral (3), Somewhat Disagree (2) and Strongly Disagree (1).						
	Statement	**Strongly Agree**	**Somewhat Agree**	**Neutral**	**Somewhat**	**Strongly Disagree**	
	Work Engagement Culture Diversity						
C1	My supervisor gives me regular feedback	5	4	3	2	1	
C2	This organization regularly recognizes good work	5	4	3	2	1	
C3	My job responsibility is clearly defined	5	4	3	2	1	
C4	The work environment allows me to express myself	5	4	3	2	1	
C5	My organisation communicates clearly and timely to the workers.	5	4	3	2	1	
	Teamwork Culture Diversity						
C6	My colleagues appreciate the way I work in the team	5	4	3	2	1	
C7	There is good teamwork and cooperation in my organisation	5	4	3	2	1	
C8	I am encouraged to develop new and more efficient ways to do my work	5	4	3	2	1	
C9	Enough encouragement is provided by the teammates at workplace	5	4	3	2	1	
C10	We engage in team building activities in this organisation	5	4	3	2	1	
	Decision Making Culture Diversity						
C11	I am involved in making work related decisions	5	4	3	2	1	
C12	Team members listen to my opinions	5	4	3	2	1	
C13	In this organisation, there is opportunity for career growth	5	4	3	2	1	
C14	All individual differences are respected in decision making (such as age, gender, education, etc)	5	4	3	2	1	
C15	I have clear understanding of the goals and objectives of my organization when making decisions	5	4	3	2	1	

7a. What are the challenges you face at the workplace in relation to work engagement, teamwork and decision making culture?

7b. Kindly explain how project team work culture diversity at the workplace would influences performance of rural roads construction projects. **Thank you very much.**

Appendix IV: Observation Guide

Preliminary activities: (Choosing a site, gaining permission, scanning the site and familiarizing oneself with the setting)

Name of project: …………………………………………………………….

Site location: …………………………………………………………………

Project Activity: …………………………………………………………………..

Trade of persons involved: …………………………………………………….

Date and Time period: …………………………………………………………

1.   Observe and describe the construction activities taking place at the site.

2.   Observe and describe the workmanship of the workers.

3.   Observe on mixing ratios and quality of materials during construction at the site.

4.   Observe how they measure compaction of materials during road construction.

5.   Interact and describe the satisfaction of the workers.

6.   Observe and document the gender ratio at the site.

7.   Observe and describe ethnic affiliations at the site. Also observe on gender and age.

8.   Observe on the interactions of the workers including who talks to who and whose opinions/decisions are respected.

9.   Observe and describe the teamwork spirit among the workers.

10.   Any other. …………………………………

Appendix V: Informed Consent

<div>

INFORMED CONSENT

Good Morning/Good Afternoon

My name is **Josiah Obiria Obare** and I am undertaking a thesis study among KeRRA road construction companies in the country. The study has been approved by the University of Nairobi department of Open and Distance Learning and we have been granted authority to conduct interviews by NACOSTI and the Kenya Rural Roads Authority (KeRRA).

The purpose of this study is to gain an understanding on project team diversity, implementation process of project control systems and performance of rural roads construction projects in Kenya.

You are among the more than 360 road construction workers who will be asked to fill the questionnaires because of the role you play in rural roads construction projects in Kenya. If you agree to take part in the current study you are kindly requested to assist with accurate information as indicated in the questionnaire. The process will take you about 25 minutes to fill.

It is important to remember that I am not evaluating you or this company and your responses will be kept anonymous and confidential. The information gathered will be used in writing an academic report but your name, the company, or other personal identifier will never be used.

Your participation is voluntary and you have the right to stop the process at any time without any problem. However, we hope you will collaborate with the study as your participation is very important to the success of the research thesis and may significantly contribute towards project team diversity and performance of rural roads construction projects in Kenya.

In case you have any questions about this study you can contact me **(Mr. Josiah Obiria Obare)** on jobarejosiah@gmail.com.

If you consent, please sign below, then you can continue with filling the questionnaire.

     Yes (consents) (-----------)   1 (Sign consent below then proceed to section 1 next page).

No (does not consent) (-----------)   2 (Please indicate reason for refusal)

Respondent Signature   ....   Date ____/____/2016

Reason for refusal:
[_____]

</div>

Appendix VI: List of KeRRA On-going Projects as at June 2015

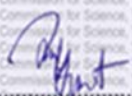| SNO	COUNTY	CONTRACT NO.	PROJECT NAME	CONTRACTOR NAME	NO OF WORKERS EMPLOYED
1	Baringo	RMC-026	Kasoiyo-Saos-Society	Bridgestone Construction Co Ltd	156
2	Baringo	RMC-027	Lake Bogoria-Mugurin mogotio	Trillion Projects(K) Ltd	186
3	Bomet	RWC-064	Kipsonoi River Bridge and Approach Roads	Falcon Road Contractors Ltd	178
4	Bomet/Kericho	RWC 031	Sotik Roret-Sigowet D226 Roads	Spencon Kenya Ltd	104
5	Bungoma	RWC-032	Kimilili-Misikhu	Bridgestone Construction Co. Ltd	89
6	Bungoma	RWC-023	Kaptama Kapsokwony - siria	KSC International Ltd	123
7	Busia	RWC 036	Mundere-Rwamba	Gogni Rajobe Contruction Co.Ltd	134
8	Elgeyo - Marakwet	RWC 033	Tirap-Embobut Bridgejn B4 Road	Intex Contructional Ltd	125
9	Elgeyo - Marakwet	RWC-065	Iten-Kapsowar Phase I ikapsowar – Chebiemit	China Jiangxi International (K) Ltd	134
10	Elgeyo - Marakwet	RWC-035	Iten-Kapsowar Phase 1-Iten – Bukar	Kiu Construction Ltd	118
11	Embu	RWC-059A	Muthatari-Siakago/RWC- 059A	China Overseas Engineering Group Co. Ltd	144
12	Kakamega	RWC 034	Sigalagala-Musolis abatia Butere	Associateed Co. (K) Ltd	156
13	Kiambu	RMC-025	Gatundu-Karinga - flyover	G. Issaias and Co Ltd	97
14	Machakos	RWC-057	Mathatani-Kaseve -kaloleni	Sinoe Construction Campany Ltd	84
15	Meru	RWC-059	St Marys –Kinooro	Intex Construction Ltd	129
16	Meru	RWC-24	Meru-Mikinduri-Maua	Mulji DevrajandBroters Ltd	94
17	Migori	RWC - 062	Toku Bridge and Approach Roads	Kiu Constructions Ltd	86
18	Muranga	RWC-45	Muranga-Gitugi-Njumbi Mioro	Nyoro Construction Ltd	104
19	Nairobi	RWC-058	Riruta-Ndunyu	Samar Construction Co Ltd	63
20	Nakuru	RWC-063	Moi North Lake Road(D323) Phase I. jn Marula- Great Rift Valley Lodge/Rwc-063	S.S Methta	136
21	Nandi	RWC047	Mosoriot –Kaiboi	Kabuito Contractors Ltd	98
22	Nyamira	RMC 032	Metamaya - Gesima - Mosobeti Section	Hayer Bishan Singh and Sons Ltd	108
23	Nyamira	RMC-029	Manga-Kemera-Amabuko	Subway Contractors Ltd	95
24	Nyeri	RWC-040	Naromoru-Munyu - karisheni	East Africa Development Ltd	134

25	Nyeri	RWC-061A	Mweiga-Brookside - kimathi University	Aegis Construction Ltd	161
26	Nyeri`	RMC-011	A2 Mathaithi-C70 Munani(D430),B5 Gatitujnd430 Jagarii(D331)	Roben Abardare (K) Ltd	91
27	Nyeri	RWC-009	Giakanja-Tetu Mission-kagogi- Ihwa-Ihuru- Wandumbi-Kigogoini	Intex Construction Ltd	147
28	Uasin Gishu	RWC064A	Juakali-A104 Roads/Rwc064a	China Henan International Cooperation	129
29	Uasin Gishu	RMC 007	Eldoret-Ziwa-Moi Bridge Roads	Kimilili Hauliers Ltd	132
30	Uasin Gishu/ Trans Nzoia	RMC-034	Kabenes-Kachibora	China Henan International Cooperation Group Co Ltd	145

Appendix VII: Sampling Design

SNO	Project Name	No of Workers Employed per company (X)	Number of Respondents Sampled Per Company (Y) Y = (X/3680) x 361	SNO	Project Name	No of Workers Employed per company (X)	Number of Respondents Sampled Per Company (Y) Y = (X/3680) x 361
1	Kasoiyo-Saos-Society	156	15	17	Toku Bridge and Approach Roads	86	8
2	Lake Bogoria-Mugurin mogotio	186	18	18	Muranga-Gitugi-Njumbi Mioro	104	10
3	Kipsonoi River Bridge and Approach Roads	178	17	19	Riruta-Ndunyu	63	6
4	Sotik Roret-Sigowet D226 Roads	104	10	20	Moi North Lake Road(D323) Phase I. jn Marula- Great Rift Valley Lodge/Rwc-063	136	13
5	Kimilili-Misikhu	89	9	21	Mosoriot –Kaiboi	98	10
6	Kaptama Kapsokwony - siria	123	12	22	Metamaya - Gesima - Mosobeti Section	108	11
7	Mundere-Rwamba	134	13	23	Manga-Kemera-Amabuko	95	9
8	Tirap-Embobut Bridgejn B4 Road	125	12	24	Naromoru-Munyu - karisheni	134	13
9	Iten-Kapsowar Phase I ikapsowar – Chebiemit	134	13	25	Mweiga-Brookside - kimathi University	161	16
10	Iten-Kapsowar Phase 1-Iten – Bukar	118	12	26	A2 Mathaithi-C70 Munani(D430), B5 Gatitujnd430 Jagarii(D331)	91	9
11	Muthatari-Siakago/RWC- 059A	144	14	27	Giakanja-Tetu MissionWandumbi-Kigogoini	147	14
12	Sigalagala-Musolis abatia Butere	156	15	28	Juakali-A104 Roads/Rwc064a	129	13
13	Gatundu-Karinga - flyover	97	10	29	Eldoret-Ziwa-Moi Bridge Roads	132	13
14	Mathatani-Kaseve -kaloleni	84	8	30	Kabenes-Kachibora	145	14
15	St Marys –Kinooro	129	13		**TOTAL**	**3680**	**361**
16	Meru-Mikinduri-Maua	94	9				

Appendix VIII: NACOSTI Research Permit

THIS IS TO CERTIFY THAT:
MR. JOSIAH OBIRIA OBARE
of UNIVERSITY OF NAIROBI, O-1002
madaraka,has been permitted to
conduct research in *All Counties*

on the topic: *IMPLEMENTATION
PROCESS OF PROJECT CONTROL
SYSTEMS, PROJECT TEAM DIVERSITY
AND PERFORMANCE OF RURAL ROADS
PROJECTS IN SELECTED COUNTIES IN
KENYA."*

for the period ending:
25th February,2017

Permit No : NACOSTI/P/16/73958/9387
Date Of Issue : 26th February,2016
Fee Recieved :USD 19

....
Applicant's
Signature

....
Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A 7993

CONDITIONS: see back page

219

Appendix IX: Kenya Roads Network