SCHOOL INFRASTRUCTURE POLICY IMPLEMENTATION, COMMUNITY PARTICIPATION, PROJECT MANAGEMENT PRACTICES, AND THE PERFORMANCE OF CONSTRUCTION PROJECTS IN PRIMARY SCHOOLS IN SOMALILAND

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DECLARATION

This thesis is my original work and has not been submitted for any award in any University.

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DEDICATION

This study is dedicated to my wife Joyce, my daughter Triana and son John Israel whose encouragement helped me continue and who bore the opportunity cost of the many hours that I spent writing this thesis.

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ABBREVIATIONS AND ACRONYMS

ADB	African Development Bank
BoG	Board of Governors
BPS	Boundless Political Science
CBD	Community-Based Development
CBP	Center for Business Practices
CEC	Community Education Committee
DDO	District Development Officer
DEO	District Education Officer
ESDP	Education Sector Development Plan
ESSP	Education Sector Strategic Plan
FPE	Free Primary Education
GER	Gross Enrolment Rate
GoS	Government of Somaliland
IBM	International Business Machines
MOE	Ministry of Education
MoEHE	Ministry of Education and Higher Education
MoEHS	Ministry of Education and Higher Studies
MoEHRD	Ministry of Education and Human Resources Development
NDP	National Development Plan
NGO	Non-governmental Organization
OECD	Organization for Economic Co-operation and Development
PPP	Public-Private Partnership
PTA	Parents Teachers Association

REO	Regional Education Officer
SNEP	Somaliland National Education Policy
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

ABSTRACT

Adequate school infrastructure facilities are vital for schools to function, dispense education services to the community, and realize the performance targets expected. The study was set in the post-conflict state of Somaliland where school infrastructure is in the process of being rebuild following wanton destruction visited by the Somalia civil war. The study aimed to provide a research evaluation of how the performance of construction projects is affected by school infrastructure policy and community participation. The study sought to establish the influences of school infrastructure policy implementation aspects of policy interpretation and policy governance on the performance of construction projects; the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects; the influence of community participation on the performance of construction projects; and the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects. To overcome the main limitations of the study: costs, time and logistical challenges; the study drew a scientifically determined representative sample of 279 respondents. It was delimited to public primary schools in seven sampled regions of Somaliland since public primary schools are bound by both the school infrastructure policy and community participation policy by MoEHS while private schools are bound only by the school infrastructure policy. The study's theoretical framework drew from punctuated equilibrium policy theory, program theory, social capital theory and Arnstein's ladder of participation theory. The study was guided by the pragmatism philosophy. It was a cross-sectional survey using a correlational research design and mixed methods. The target population was 920 headteachers in 920 public primary schools in Somaliland; and 82 district education officers in the 82 districts units in Somaliland - a total of 1002. The survey adopted a multistage sampling approach using purposive, proportionate stratified random sampling, and simple random sampling techniques to draw a sample of 257 headteachers and 22 district education officers. The questionnaire was pilot tested on 28 headteachers and the interview guide on 2 MoEHS officers from Awdal district. Construct, content and criterion-related internal validity of the questionnaire was ensured by the two academic supervisors, by use of proven variable indicators and by computing the predictive validity coefficient ($r = 0.82$) respectively. Internal validity of interviews was ensured by a variety of methods among them, simple random sampling of informers, voluntary participation of informers and triangulation of interview data with quantitative data and secondary data. External validity was ensured by random sampling, respondent validation, and use of a scientifically determined representative sample. Reliability of the questionnaire was ensured using the Cronbach alpha coefficient of internal consistency ($\alpha = 0.924$). Reliability of interviews was ensured by triangulation, respondent validation and comparing of responses. Self-administered questionnaires were used to collect primary quantitative data, semi-structured interviews to collect primary qualitative data and desk analysis to collect secondary data. Participation in the study by respondents was voluntary and the researcher ensured confidentiality of respondents and their responses. The response rate was 96.1% (247 headteachers) for questionnaires and 90.9% (20 DEOs) for interviews. Data were presented in tabular form in frequency and percentage distributions. Descriptive analysis was by the mean, standard deviation, mean of means and composite standard deviation. The data fulfilled the assumptions of parametric tests. Pearson correlation was used to analyse the association between the variables. Simple and multiple regression analysis were used to analyse total effects. Path analysis technique was used to calculate the direct effect, indirect effect and the path coefficients. Thematic content analysis was used to analyse qualitative data. Relationships among the variables were tested using t-tests at a 5% level of significance. The study found that policy interpretation ($b = -0.3215$, $p < 0.001$, $R^2 = 0.4183$), policy governance ($b = -0.3074$, $p < 0.001$, $R^2 = 4308$), and school infrastructure policy implementation ($b = -0.7350$, $p < 0.001$, $R^2 = 0.6214$), each had significant direct influence on performance of construction projects. Community participation, however, did not have a significant influence on performance of construction projects ($c = -0.1870$, $P = 0.100$, $R^2 = 0.011$). Project management practices were found to mediate the relationship between school infrastructure policy implementation and performance of construction projects ($p_{52} * p_{21} = 0.8008$, CI [0.6411, 0.9779]). The study concluded that policy interpretation, policy governance and school infrastructure policy implementation, each had a moderate direct negative linear relationship with performance of construction projects. These variables also exerted a significant positive indirect influence on the performance of construction projects through project management practices (mediation). Project management practices exerted a partial positive mediation on the relationship between school infrastructure policy implementation and performance of construction projects. Community participation had no significant total effect and direct effect on the performance of construction projects but rather exerted its influence by moderating the relationship between school infrastructure policy implementation and performance of construction projects ($b = -0.0309$, $p = 0.4380$, CI [-0.0609, -0.009], $R^2 = 0.0279$). Low community participation partially moderated the relationship between school infrastructure policy implementation and performance of construction projects while moderate and high community participation levels fully moderated that relationship. The study concluded that policy interpretation, policy governance and combined school infrastructure policy implementation manifest their influence on the performance of construction projects through project management practices. The study also concluded that project management practices mediate while community participation moderates the relationship between school infrastructure policy implementation and performance of construction projects. The study recommends that the school infrastructure policy should be put together into one policy document, it should be made accessible and available to the schools and ministry officials, school management should be sensitized on the policy, headteachers be acquainted with basic project management skills and stakeholders be participated throughout the project cycle for more projects' support and better projects' performance. Future studies can focus on: how administration structures affect policy implementation, establishing whether other sub-variables of policy exist, why policy interpretations vary between urban schools and rural schools and, whether practices should be specified in policies.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The importance placed on education by the nations of the world can be seen in the budget allocations made to education, the infrastructures that governments have set up for education, and the institutions set up to oversee education both at country and international levels. According to the United Nations Educational, Scientific and Cultural Organization [UNESCO] (2013), education is a critical component of national development and poverty alleviation strategies in many countries. To provide education, countries develop education systems and build requisite infrastructure. Developing countries often find it difficult to cope with the growing demand for education and often lag in expanding their educational infrastructure resulting in a state of inadequacy (Sifuna and Sawamura, 2009). This has especially been escalated by free and compulsory primary education for all, adopted internationally (UNESCO, 2014; Sifuna and Sawamura, 2009). Faced with this challenge, governments often engage the private sector to invest in education and supplement the school placement vacancies available in public schools (Damon, Glewwe, Wisniewski and Sun, 2016). Another strategy has been involving local communities in the construction of schools in their areas and school infrastructural development activities.

Due to Somalia's protracted civil war that has spanned over two decades, Somaliland state declared independence from the Republic of Somalia and set up its government. During the war, schools' infrastructures were extensively destroyed and ravaged (Ministry of Education and Higher Education [MoEHE], 2012). Access to education has remained limited and despite the facts that schools have been re-established, teachers and tutors trained, curricula developed and textbooks provided; the present demand for education far surpasses its availability due to insufficiency of school infrastructure (Abdurrahman, 2009; Cummings and Tonningen, 2003). A regular practice by primary schools entails teaching in 'double shifts', where one shift of pupils attends classes in the morning, and the second shift attends in the afternoon (MoEHE, 2012).

Since the year 2000, enrolment at primary level grew from 12,000 to just over 180,000 by 2011. In 2011 the government of Somaliland introduced Free Primary Education (FPE) for all (MoEHE, 2012). Currently, the education system in Somaliland is comprised of five levels: early childhood,

primary education, secondary level, tertiary education, and higher level. Primary level comprises of grades 1-8 and is specified as basic education for all.

As more Somaliland citizens turn to education, as school enrolment grows and demand for education rises; the Ministry of Education and Higher Studies [MoEHS] is faced with the major challenge of expanding education infrastructure and capacity (Abdurrahman, 2009). As a way to arrest this challenge, MoEHS has put in place a school infrastructure policy. The policy promotes community participation at primary schools to help establish and expand school infrastructure facilities. The role of the community, as provided in MoEHS policies, is to assist school headteachers in resource mobilization, school development and where necessary, in running the school among others. The role of appointing community members to take part in school projects and management activities is left to the headteacher and the local community leadership. Members appointed, together with the headteacher form the school's Community Education Committee (CEC). The CEC meets at least quarterly to address various issues and to identify and plan school construction projects among other projects. (MoEHE, 2012).

1.1.1. Performance of Construction Projects

School construction projects refer to establishment works of physical components of a built environment in a school among them buildings and structures (MoEHRD, 2011). Performance of a construction project can be measured by the level of realization of a specified or pre-planned matrix of results that the project set out to realize (Chan and Chan, 2004). Once projects are implemented, it is vital to measure their performance upon completion. The criteria for assessing success/failure of projects is commonly referred to as project performance indicators (Gyadu-Asiedu, 2009). Certain parameters are considered when determining whether a project is successful or not, among them: completion within the set timeline and budget, the realization of the scope and quality specifications and, customer satisfaction. Projects that miss all or some of these may be considered failed or partially successful. Concerning a project organization; parameters such as projects initiated, completed, finished on time, completed without exceeding the budget and, value and size of the projects undertaken are indicators of the organizations' projects' performance (Jiang and Carroll, 2009).

Different authors have proposed different performance indicators based on empirical studies: Vandevelde, Dierdonck and Debackere (2002) proposed seven indicators for project performance: respect for the project budget, specifications and time, contributing to the achievement of the organization, creating and transferring knowledge, commercial success and financial success. Chan, Scott and Lam (2002) advanced a framework of performance measures for construction projects in which they proposed that managers distinguish between objective measures and subjective measures and, measure the success of a project at the pre-construction, construction, and post-construction phases. This approach was further refined by Chan and Chan (2004) who proposed a set of subjective and objective indicators for measuring construction projects' performance. Objective indicators: project delivery time, delivery speed, completion time variance, unit cost, cost variance, net present value, accident occurrence rates and, environmental impact assessment scores. Subjective indicators: client satisfaction, contractor satisfaction, design team satisfaction, functionality, quality realized and, the satisfaction of beneficiaries. Freeman and Beale (1992) suggested the efficiency of project delivery, technical success realized, personal growth, managerial achievement, organizational success, technical innovation achieved and completeness as project performance indicators. Shenhar, Levy, and Dvir (1997) and, Shenhar, Tishler, Dvir, Lipovetsky and Lechler (2002) proposed: efficiency of the project, customer impact, resulting in business success, contribution to the organization and prospects for the future. Patanakul and Milosevic (2009) suggested: organizational learning achieved, resource productivity, personal growth and satisfaction, time-to-market, and customer satisfaction. Other sets of project performance indicators have been proposed by Lim and Mohammed (1999); Sadeh, Dvir, and Shenhar (2000); and Atkinson (1999).

This study adopted a blend of Chan and Chan (2004) indicators of project performance to measure the performance of construction projects undertaken in Somaliland public primary schools within five years as meeting set standards, the realization of planned deliverables, variance from initial plans, functionality, end-user satisfaction, and construction team satisfaction with the project outcome.

1.1.2. School Infrastructure Policy Implementation

Policy entails both explicit and implicit decisions that outline directives, which are to be used as guidelines for future decisions, to initiate actions or cause delay of actions and guide

implementation of present and earlier decisions (Haddad and Demsky, 1995). Education policy has been described as the collection of regulations, rules and laws governing the operations of an education system (Boundless Political Science [BPS], 2017). Among the various regulations that make up the education policy is the infrastructure policy that regulates physical infrastructure development and investments in infrastructure in educational institutions (BPS, 2017; UNESCO, 2014).

In their school infrastructure policy, the Ministry of Education and Human Resources Development [MoEHRD] (2011), of Solomon Islands sets the vision of the policy as to ensure that all pupils and students shall be taught in quality educational facilities that guarantee universal and equitable access to education in a fit-for-purpose, learning environment that is safe and hygienic, and that incorporates the best practice available locally and sustainable engineering designs which complies with all the agreed minimum standards for schools. The policy scope is set to apply to all school infrastructures development done by all stakeholders and includes all new constructions; repairs, maintenance and rehabilitation of existing and future school infrastructures in the country (MoEHRD, 2011). These statements capture the concept and purpose of a school infrastructure policy.

School infrastructure policy often covers finance capitation, expenditure guidelines, management and institutional guidelines; and vary by country owing to differences in macro-environmental factors among them: political, historical, sociological, economic, and current forces such as globalization (Shizha and Kariwo, 2011; Tiongson, 2005). School infrastructure policy also includes partnerships and community participation guidelines; as well as institutions that are set up by the government to oversee, supervise, monitor and evaluate schools (Organization for Economic Co-operation and Development [OECD], 2013).

Regulatory policies have no impact if they are not implemented (Tiongson, 2005). School infrastructure policy implementation refers to the aspects of interpreting and applying the policy by regulatees on one hand and administration/ governance or enforcement of the policy by the regulator on the other (Coglianese, 2012). It is operationalized into policy interpretation and policy governance (Brown, Stern, Tenenbaum and Gencer, 2006). The study aimed to determine if, school infrastructure policy implementation influences performance of construction projects directly through the various restrictions it provides on project aspects such as scope, and indirectly

through its determination of the project management practices that the school can and cannot engage in.

1.1.3. Policy Interpretation

Policy interpretation comprises of policy substance interpretation and policy resource interpretation. Policy substance is the 'what' aspect of the policy or the content of the policy regulations. Policy substance interpretation refers to the 'which' aspect of the policy and entails inferring the meaning of the content and provisions of the policy, which should be done rationally without constraining or extending the provisions and the spirit of the policy regulation or what it rationally contemplates (Coglianese, 2012). Policy resource interpretation is determining the resources, capacity and other requirements needed to implement the policy (Brown et al., 2006). For school infrastructure policy, the substance to be interpreted includes the aspects and details of the policy, types of infrastructure projects facilities, quality of delivered facilities, financing activities, partnership engagements, projects' scope, reporting system, school development planning, and school management obligations for school construction projects (Brown et al., 2006). Even when the policy substance is the same, implementers and stakeholders often tend to have varying policy interpretations due to: varying levels of education, varying exposure to the policy, individual efforts made to familiarize with the policy content, personal interest, access to the policy, and policy substance ambiguity among others (Haddad and Demsky, 1995).

Policy regulation substance can be contained in one piece of regulation or a collection of regulations (Coglianese, 2012). When the latter is the case, policy interpretation may vary even more among implementers and stakeholders, as not all will have access to the entire collection of the regulations or even be aware of its full extent (Coglianese, 2012). In this study, policy interpretation is used to refer to school infrastructure policy interpretation. The study sought to examine the influence of school infrastructure policy interpretation on the performance of construction projects.

1.1.4. Policy Governance

Policy governance refers to the 'how' aspect of the policy. It stipulates how the policy regulation functions, is administered and implemented and by who. It lays out the scope within which decisions accruing from the implementation of the policy are made, processes and procedures that are followed and the bodies who do those tasks (Brown et al., 2006). It denotes the design (legal

and institutional), of the regulation system itself and how it is built to function (Brown et al., 2006). In the case of school infrastructure policy, policy governance covers aspects such as schools' infrastructure policy administration structure, school infrastructure facility inspections practices, policy predictability, regulator accountability, regulator independence, and regulator transparency among others.

Policy governance varies by the laid out policy administration system, in that, where the policy is being implemented by various separate bodies; their implementation approaches, practices, and stringency in enforcement tend to vary, especially where each policy administrator is designated a separate region or scope to administer and the overall regulator lacks capacity and resources to verify or closely supervise the policy administrators or lacks powers to punish them (Brown et al., 2006; Coglianese, 2012; Folz, 1999). This is the case in Somaliland's MoEHS, in that, policy administration is devolved through the ministry's regional and district administration structure with all the three levels (national, regional and district) short of resources and capacity needed to effectively administer MoEHS education policies (MoEHE, 2015). As a result, the administration of school infrastructure policy by the regulator varies from region to region and district to district (MoEHS, 2017). Just as different managers would manage the same organization differently and realize different results, District Education Officers (DEOs) and Regional Education Officers (REOs) differ in their managerial styles, and leadership styles, and activities due to differences in personal attributes, experience, education level, knowledge of the policy, policy interpretation, diligence, commitment to duty, motivation and dedication among others; which results to variances in the way the infrastructure policy is administered. In this study policy governance refers to school infrastructure policy governance. The study aimed to determine the influence of policy governance on the performance of construction projects

1.1.5. Community Participation

Until the mid-20th century, the obligation for educating the children lay on the community (Williams, 2004). Communities can be regarded as consisting of persons in social interactions and having common ties that they are aware of and which may change over time (Burns and Taylor, 2000). Such persons may be living in the same geographical area or be interconnected using communication technology and may have overlapping community membership (Etzioni, 1993;

Hillery, 1955; Atkinson and Cope, 1997). Modern communities have shifting and overlapping memberships and represent varied, competing and conflicting interests.

The basic understanding of participation is to take part in 'something' and therefore this concept is applied to a range of experiences. A participatory orientation promotes the active inclusion of 'the public' or community in decision-making causes (Bishop and Davis, 2012; Foster, 2012, Rosener, 2008). Participation varies by level from low to high depending on the participant's interest and power. The levels range from: inform, consult, collaborate, partner, empower to control in that order from low to high participation (Awortwi, 2009; Clayton, Dent and Dubois, 2013). Successful participation results to empowered communities able to engage in multiple aspects of education support including willingly contributing resources (human, material, and economic) for the benefit of education, thereby increasing the likelihood of the education initiatives being both successful and sustained over time. (De Wit, 2010; Adeniyi, 2010; Gertler, Patrinos and Rubio-Codina, 2008). One approach to deliver this outcome is Community Based Development (CBD), which refers to projects that participate beneficiaries actively in the entire project cycle (Cooke and Kothari, 2010) founded on the tenets of inclusion, empowerment, sustainability, good governance, poverty reduction, effectiveness and efficiency (Chambers, 2013).

The results of community participation in school projects include improved equitable access, better quality facilities, higher retention, and improved general school performance (Adeniyi, 2010; Burki, Perry and Dillinger, 2009; Bengle and Sorensen, 2016). In this study, community participation is regarded in the context of local communities participating in school construction projects in local public primary schools within the community. The study postulated that community participation moderates the influence of school infrastructure policy implementation on schools' performance of construction projects.

1.1.6. Project Management Practices

Project management practices are the 'how' aspect of project management which comprise of the project management activities that are applied in a project from its start to completion. Although different scholars have put forward varying proposals about project management practices, they all incline to agree that the practices are centred on one concept: the project cycle. The Project

cycle is a continuous process comprising of distinct but complementary stages, each having its features and each preceding the next one (Muller and Turner, 2007; Chambers, 2013). It is supposed that one stage paves the way for the other and therefore the last stage leads back to the first stage in a continuous cycle (Muller and Turner, 2007; Borgatti and Ofem, 2010; Chambers, 2013).

Project inception is the basic stage of the project cycle and entails collecting, processing and analysing data on the needs and or problems being experienced (Borgatti and Ofem, 2010). Based on the needs/problems identified, projects are proposed and a selection, analysis and appraisal process used to identify the project that will be implemented (Wekwete, 2008).

Project designing and planning is the second stage of the project cycle also known variously as project write-up, project formulation or project preparation (Jiang and Carroll, 2009). It entails an analysis of information coming from the inception stage to formulate the project documents. The project's intended results and dimensions are specified in context, among them; project description, scope, schedule, budget, objectives, inputs, activities, outputs, outcomes, impact, and the necessary plans for organizing and managing of the project formulated (Castells, 2011). This stage's activities include design, project presentation, project negotiation, financing, registration and licensing.

Project implementation commences after resources are dedicated to undertaking the project. Implementation entails the transformation of a project proposal to an actual project by putting into practice the project plans developed earlier (Jiang and Carroll, 2009). It results in the attainment of the project's outputs and objectives (Borgatti and Ofem, 2010). Project control in the form of project monitoring and evaluation takes place during project implementation (Castells, 2011). Once implementation is complete, the project is deployed. Testing is done, where necessary, and the results analysed to inform any alterations or modifications to the project, project operating staff are trained and documentation such as user manuals are prepared (Jiang and Carroll, 2009).

Once the project is confirmed to realize the specifications of output, quality and other results and deliverables specified during planning; then contractual termination, post-implementation transition, lessons learned and handing over processes are undertaken and the project is regarded as completed (Castells, 2011). Project management practices is a crucial determinant of project

success. The study sought to examine if project management practices mediate the influence of school infrastructure policy implementation on the performance of construction projects.

1.2. Statement of the Problem

Globally the effects of civil war on education are felt in terms of destruction of school infrastructure, diversion of state funds from education to war, the collapse of educational institutions, stoppage of learning and conscription of school pupils and students to the military or rebel forces (Lai and Thyne, 2007). These effects are felt many years after the end of the war. To restore education, reconstruction of schools is gradually undertaken. Construction projects are mounted across the schools to restore school infrastructure and establish new school facilities. Performance of school construction projects is influenced by other variables among them school infrastructure policy (UNESCO, 2014).

Somaliland's school infrastructure was vastly ravaged and destroyed during the Somalia civil war in the 1980s and early 1990s. Somaliland restored its independence in 1991 and began restoring peace. With financing from international donors, Somaliland declared free primary education in 2011. At the time, it was estimated that the free primary education policy would result to an additional 25,000 new enrolments at grade one and with them, a commensurate expansion of the accompanying infrastructure requirements of classrooms, desks, seats and textbooks among others (MoEHE, 2012). The actual result was a 26.5% increase in demand for placement at grade one and an estimated 10,000 children denied enrolment at grade one. With no expansion of existing school infrastructure, MoEHE resulted to shift-schooling in secure regions where a school would admit up to twice its capacity with half the pupils attending school during the morning hours and the other half attending in the afternoon. Yet, even with such a measure, an estimated 16,000 grade one pupils did not get placement and were put on the waiting list which highlights the extent of shortage of school infrastructure capacity.

Between 1991 and 2007, when Somaliland National Education Act was enacted, no meaningful school construction projects had been achieved across the state (MoEHE, 2012). This was attributed to lack of policy leadership and guidelines. The Education Sector Strategic Development Plan [ESSDP] policy of 2007-2011 set out to close that gap but was largely unimplemented due to financial constraints, lack of capacity, and lack of ownership of the donor-developed plan (MoEHE, 2012). Up to 2012, no significant expansion of school infrastructure capacity had been

realized and the schools' infrastructure - ravaged during the war - remained unrehabilitated (Yussuf, 2012). To correct the problem, the ESSP II of 2012-2016 and the National Development Plan [NDP] of 2012-2016 policies were launched in 2012. ESSP II placed a major emphasis on community-driven development of schools and outlined a community participation mechanism for community participation in public schools' development and management. The NDP set seven strategies for developing education in the state; three of which entailed establishing new school infrastructure capacity and expanding existing schools' infrastructure capacity (Government of Somaliland [GoS], 2012). These two policy frameworks have gradually begun to yield results with Non-governmental Organizations (NGOs) leading in the construction of new schools and community-driven approaches restoring school infrastructure damaged during the war (MoEHE, 2015). Among the things that these policies sought to do was to influence the performance of construction projects through guiding school project management practices by creating a regulatory scope within which schools would undertake their construction projects. How construction projects' performance in schools has been affected by the implementation of these policy provisions has not been evaluated, a gap this study sought to fill.

Variations in interpretation and application of the education policy plans and regulations at the local level by stakeholders, especially school management and community leadership are attested by a proliferation of policy misapplication and adjudications (Penny and Matseshe, 2013), which pose significant policy governance challenges to MoEHS. In response, MoEHS use their devolved education administration structure of REOs and DEOs to guide and harmonize the education policies interpretations and applications and to provide policy interpretation guidelines. However, even among the REO's and the DEOs, the disparity in knowledge and interpretation of various education policies exist (Penny and Matseshe, 2013). These policy interpretations variations have not been significantly researched, nor has there been studies to examine how they affect the performance of construction projects, a gap this study sought to fill.

REOs and DEOs also vary in the way they administer or enforce the education policies in their regions and districts respectively (MoEHS, 2017). Those in rural areas and with vast regions to cover often enforce the school infrastructure policy and other education policies in a lax manner due to capacity and resource constraints as compared to urban primary schools who with more resources and capacity and less geographical scope to cover enforce the policies more stringently

(MoEHS, 2017). The study sought to assess how policy governance of school infrastructure policy implementation affects the performance of construction projects.

Somaliland's school infrastructure policy specifically pays emphasis to community participation in school development projects and set out guidelines for engaging communities in school projects. With 63% of all households in Somaliland dependent on livestock for food and income, and 66% of the households classified as rural and nomadic (GoS, 2012), community participation in Somaliland entails participating poor nomadic communities in primary schools' construction projects, an area not studied by many. The study sought to unravel how participation of those communities manifest, how community participation influences the performance of construction projects, and how it influences how school infrastructure policy implementation affects the performance of construction projects.

It can be observed that much is known about how policy influences performance on one hand (Kuzich, Taylor and Taylor, 2015; Rutherford and Rabovsky, 2014; Ibrahim and Muritala, 2015; Tiongson, 2005), and how management practices determine performance on the other (Attarzadeh and Ow, 2008; Ahmed, 2016; Adeyemi, 2013; Theyel, 2000; Leggat, Bartram and Stanton, 2011), but few studies have sought to explain how management practices mediate the relationship between school infrastructure policy implementation and project performance in the context of school construction projects and least of all in a post-war setting. This study hopes to fill that gap in knowledge. Finally, the education policy plans, especially ESSP I and II set objectives and targets for establishment and expansion of school infrastructure across the regions of Somaliland. This study sought to evaluate how these school construction projects have performed in the last five years and what influence community participation has had on the performance of construction projects.

1.3. Purpose of the Study

The study examined the influences of School infrastructure policy implementation, community participation and project management practices on the performance of construction projects. It also examined the mediating role of project management practices and the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects in public primary schools in Somaliland.

1.4. Objectives of the Study

The study pursued and achieved the following objectives:

1) To establish the influence of policy interpretation on the performance of construction projects.
2) To determine the influence of policy governance on the performance of construction projects.
3) To examine the influence of school infrastructure policy implementation on the performance of construction projects.
4) To establish the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects.
5) To determine the influence of community participation on the performance of construction projects.
6) To establish the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects.

1.5. Research Questions

The study sought and answered the following research questions:

1) How does policy interpretation influence the performance of construction projects?
2) How does policy governance influence the performance of construction projects?
3) How does school infrastructure policy implementation influence the performance of construction projects?
4) What is the mediating influence of project management practices on the relationship between school infrastructure policy implementation and the performance of construction projects?
5) How does community participation influence the performance of construction projects?
6) What is the moderating influence of community participation on the relationship between school infrastructure policy implementation and the performance of construction projects?

1.6. Research Hypothesis

The study sought and tested the following alternative research hypotheses:

1. H_1**:** There is a significant relationship between policy interpretation and the performance of construction projects.
2. H_1**:** There is a significant relationship between policy governance and the performance of construction projects.
3. H_1**:** There is a significant relationship between school infrastructure policy implementation and the performance of construction projects.
4. H_1**:** Project management practices significantly mediates the relationship between school infrastructure policy implementation and the performance of construction projects.
5. H_1**:** There is a significant relationship between community participation and the performance of construction projects.
6. H_1**:** Community participation significantly moderates the relationship between school infrastructure policy implementation and the performance of construction projects.

1.7. Significance of the Study

The study contributes to the body of knowledge by adding empirical findings on how school infrastructure policy implementation, project management practices and community participation in post-war countries and poor communities, relate with the performance of construction projects. The methodology of this study and its findings are of use to researchers when formulating future studies examining similar variables. This study's findings are of applicable use to MoEHS in identifying policy gaps and in the formulation of corrective measures at the policy level in Somaliland. MoEHS and the government of Somaliland, in general, have made significant efforts to rebuild education in Somaliland. They have made huge investments (in their budget proportion) to rebuild education (MoEHE, 2012). The findings of this study constitute useful feedback to MoEHS on the infrastructural investments it has made in education at the primary school level in Somaliland. The research findings are of use to MoEHS as partial evaluation feedback on its community participation policy at primary schools concerning the performance of construction projects and achievements, if any, made. The study is of information importance to development agencies and NGOs playing a role in education restoration in Somaliland in their planning and strategy formulation.

The study depicts how school infrastructure policy implementation, project management practices and community participation influence performance of construction projects by examining the

direct, mediating and moderating relationships that exist among these variables. Although the study was undertaken for academic purpose, it was worth undertaking given the scanty empirical literature that exists in the area of school infrastructure policy implementation and a significant lack of studies that are focused on post-conflict countries, as this study is.

1.8. Limitations of the Study

The study was limited by costs, time; infrastructural challenges, logistical challenges and low levels of education of some respondents during data collection. Concerning time and costs, the researcher would have preferred to include all targeted headteachers and DEO's in the study but that would have required significant time to complete the study, and the costs would have been way beyond the researcher's ability to bear. To mitigate this, a large enough sample that would allow for results generalization was scientifically determined and drawn from the target population. Although the researcher would have liked to undertake the study in all the thirteen regions *(at the time of the study)* of Somaliland, infrastructural and logistical challenges during data collection in some regions that have little road and telecommunications infrastructure made this untenable. Further, some regions are considered to be prone to armed conflicts making data collection untenable. To overcome this, purposive sampling was used as the first level of multistage sampling where regions were sampled inter alia by their physical accessibility and level of security so that regions and districts with serious physical inaccessibility, and or engaged in armed conflicts were left out of the purposively determined sample, as data collection in those areas was untenable. On the matter of anticipated low education level on the part of some respondents, the researcher endeavoured to simplify the questionnaire and to use simple vocabulary in the questions. The researcher also pilot-tested the questionnaire before the main study was done to address issues the respondents had with the questionnaire.

The study had few preceding studies for comparing findings because few empirical studies have been done on school infrastructure policy implementation and even fewer studies exist that are undertaken at the primary school level. No study was found to have encompassed all the variables in this study. To address these limitations, the study ensured the research instruments used were valid and reliable. Comparative findings were used from studies that included one or more of the exogenous variables of this study and performance of construction projects or its close variations. Research findings have shown that respondents at times may exaggerate, withhold or moderate

their responses in a survey (Bernard, 2006). To mitigate this, a three-way data collection approach of the questionnaire, interview and secondary data was used to triangulate the responses and edits made where necessary.

1.9. Delimitations of the Study

This study was undertaken in Somaliland, firstly because the state of Somaliland has established a school infrastructure policy that specifically entrenches community participation as a way of complementing government efforts to establish school infrastructure which forms substance for this study. Secondly, due to lack of studies conducted in post-conflict areas like Somaliland, it is often assumed that the way the study variables interact in stable countries and regions is the same way they interact in post-conflict regions. This study sought to demystify this. Thirdly, MoEHS has significantly invested in re-establishing education in Somaliland after the war and no significant studies have been undertaken to measure the results of that effort. This study hopes to provide feedback on the gains made by MoEHS in the area of school infrastructure establishment.

The study was delimited to public primary schools. The MoEHS established a School infrastructure policy in Somaliland to regulate school infrastructure establishment and provision. It also established community participation at the primary school level, the objective being to test the policy's effectiveness with a view of informing the feasibility of its replication at the secondary school level in future. Although there are numerous types of school infrastructures, the study delimited itself to eight types of construction projects that are considered to cut across primary schools in Somaliland, namely: classrooms, storages, sanitation facilities, toilets, fence, offices, sports facilities and furniture. The choice of construction projects was informed by the fact that since education is in the process of being restored in Somaliland, virtually all schools had been involved in some construction projects whether new structures, maintenance or restoration. The choice of public primary schools was because they implement and are bound by both the school infrastructure and community participation policies. In public primary schools, collecting data on all variables of the study was feasible.

The study respondents were delimited to headteachers of sampled public primary schools, and DEOs in the sampled districts. Headteachers are knowledgeable on matters of projects in their schools, the project management practices they use and the forms of community participation they employ. They are also aware of MoEHS school infrastructure policy. The DEOs work at the policy

implementation level. Their participation in the study helped understand the MoEHS school infrastructure policy governance structure and process. Their responses also served to triangulate the data collected at the school level from the headteachers since education officers receive reports from schools which they use to prepare district education reports for MoEHS.

The study was delimited to a mixed-methods approach where both quantitative and qualitative data were collected. A questionnaire was deployed to gather quantitative data while interviews collected both qualitative and quantitative data as well as triangulate data collected using questionnaires. Although there could be other variables that influence the performance of construction projects, the study was delimited to the variables: school infrastructure policy implementation (policy interpretation and policy governance), project management practices and community participation. The study aimed to examine the influence of these variables separately and in combination on the performance of construction projects.

Unlike Somaliland, Kenya has enjoyed political stability and peace for many years and has had more scholarly work done in her regions. Also, findings of studies done in other stable regions in developing countries can be generalized for Kenya but not for war-torn Somaliland. It was, therefore, the view of the researcher that the study was more useful to the existing body of knowledge if done in Somaliland rather than in Kenya.

1.10. Basic Assumptions of the Study

The study assumed that public primary schools had had construction projects in the last five years and that headteachers in those schools were well aware and informed about their schools' construction projects and the performance of those projects against school infrastructure policy standards and project objectives. The study further assumed that headteachers were acquitted with the school infrastructure and community participation policies by MoEHS. Although there are other staff who work in primary schools in Somaliland, the study assumed that headteachers were the most appropriate respondents in their schools on matters of performance of construction projects, school infrastructure policy implementation, project management practices and community participation; and therefore, targeted them as respondents. Where the headteacher was unavailable to respond, the deputy headteacher fitted-in as the alternative respondent for the school.

The scientifically drawn sample for the study was assumed to be representative of the target population to allow for generalization of the findings of the study. The study collected data through self-administered questionnaires, semi-structured interviews and desk analysis. Though these three approaches provided appropriate triangulation, the study still rode on the assumption that data provided by respondents was reliable.

1.11. Definitions of Significant Terms used in the Study

In this study, the researcher adopted the following terms in the following meanings:

School Infrastructure Policy: A section of the education policy that regulates infrastructural establishment and development in schools. It is indicated by policy substance and policy governance.

School Infrastructure Policy Implementation: The translation of the goals and objectives of the school infrastructure policy into reality. This entails interpretation of the policy by regulatees and enforcers; and governance of the policy through the mandated enforcement authorities or agency. It is operationalized by two variables: policy interpretation and policy governance.

Policy Substance: In the context of school infrastructure policy, it is the content, provisions or clauses of school infrastructure policy that stipulates, among others: the nature and types of infrastructure projects covered, quality standards, financing activities, policy scope, partnership engagements scope, reporting system, school development planning, and school management obligations.

Policy Interpretation: Is to construe the meaning, in terms of practices, commitments and resource requirements that are stipulated in the substance or content of a policy without constraining or extending the provisions thereof, beyond what is rationally contemplated by them; and to infer the set of resource requirements that are needed for the policy to be applied and implemented effectively to the realization of its goals. It is indicated by policy interpretation guidelines, stakeholder attitude on the policy, regulatee's policy sensitization, policy interpretation disputes and regulatees' perceived policy ambiguity. In this study, policy interpretation is used in the context of school infrastructure policy.

Policy Governance: The aspect of administering or enforcing a policy by the regulator or such other policy authority, to ensure compliance with the policy provisions and requirements by regulatees' and which also include, monitoring, evaluation and audit of the policy administration process. It is indicated by policy administration structure, school infrastructure inspections practices, policy implementation, effectiveness, policy predictability and level of regulator independence. In this study policy governance is used in the context of school infrastructure policy.

Community: Community, in the context of this study, are perceived as people, households and organization parties that use primary school services or are geographically considered close to a public primary school.

Community Participation: The engagement and involvement of members of the community in an organized and continuous manner in which community members directly or through representation can contribute to inception, planning, implementation and close-out activities of school construction projects in public primary schools in their community. Community participation is indicated by the diversity of projects participated in, community's perceived level of project ownership, CEC representativeness of the community, community satisfaction with the participation process and diversity of community groups participated.

Project Management Practices: The project aspects of decision making, resource allocation, coordination, communication, staffing, supervision, planning and evaluation exercised along the project management cycle stages of inception, planning, implementation, and closeout; and which are performed within a specified performance criterion. In this study, measures of project management practices are confined to the following indicators of the elements of the project cycle: stakeholder involvement in project identification, stakeholder participation design and planning, project financing sources and close-out practices after completion

School Construction Projects: Projects that schools undertake to establish, restore or expand school infrastructure. The study limited itself to buildings and structures construction projects,

namely; classrooms, storages, sanitation facilities, toilets, fence, offices, sports facilities and furniture.

Performance of Construction Projects: Refers to the outcome of completion of school construction projects which is viewed as successful based on a full or significant realization of specified project metrics of realization of set standards, the realization of planned deliverables, completed projects' variance from the initial plans, functionality of completed projects, end-user satisfaction, construction team satisfaction with the completed projects.

1.12. Organization of the Study

This document consists of five chapters of which chapter one gives the background of the study and sets the topic of study in perspective. A background review of study variables: school infrastructure policy implementation, community participation, project management practices, and performance of construction projects is presented. Also presented is the statement of the problem, the purpose of study, research objectives, research questions, alternative research hypotheses, the significance of the study, limitations and delimitations of the study, assumptions of the study, definitions of significant terms used in the study, and organization of the study.

In chapter two, literature is reviewed on the performance of construction project; policy interpretation and performance of construction projects; policy governance and performance of construction projects; school infrastructure policy implementation and performance of construction projects, school infrastructure policy implementation, project management practices and performance of construction projects; community participation and performance of construction projects and; school infrastructure policy implementation, community participation and performance of construction projects. A theoretical framework covering: punctuated equilibrium theory, program theory, social capital theory and Arnstein's ladder of participation is presented. The chapter also presents the conceptual framework that was used to guide the study, a summary of the literature reviewed and knowledge gaps.

Chapter three presents the methodology used in the study. It covers the research philosophy, target population, research instruments, data collection procedures, data analysis techniques, ethical issues and operationalization of the variables.

Chapter four covers data analysis, presentation, interpretation and discussions.

Chapter five presents a summary of the findings, conclusions, recommendations, the study's contributions to the existing body of knowledge, and areas for further research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

In this chapter, the literature reviewed on study variables and their relationships is presented. Literature was reviewed under the following themes: performance of construction projects, policy interpretation and performance of construction projects, policy governance and performance of construction projects, school infrastructure policy implementation and performance of construction projects, community participation and performance of construction projects; and school infrastructure policy implementation, community participation and performance of construction projects. Punctuated equilibrium theory, program theory, social capital theory and Arnstein's ladder of participation are also reviewed as the theoretical framework that guided the study. A conceptual framework, a summary of the literature reviewed and matrix table for empirical literature and knowledge gaps are also presented.

2.2 Performance of Construction Projects

After a project is completed, it is imperative to evaluate the performance that has been realized. Project performance is measured based on the parameters of success prior set for the project (Collins and Baccarini, 2004) and the level of performance realized is influenced by other factors. This study postulates that the performance of construction projects in schools is influenced by community participation and by school infrastructure policy implementation directly and indirectly through project management practices.

A case study of four schools on management of school infrastructure in the context of a no-fee schools' policy in rural South African schools by Marishane (2013), found that performance of construction projects was negatively affected by FPE policy. This was because FPE policy abolished school fees causing a change in project financing practices from raising project funds from parents to depending on state funding; and since state funding was insufficient, the results were fewer construction projects being completed in schools. An exploratory study by Ofori (2013), on project management practices and critical success factors–a developing country perspective, done in Accra, Ghana; found that project success is dependent on project management practices which in turn are dependent on the guiding policy. These two studies show that the

performance of construction projects is influenced by the guiding and regulating policy and Ofori (2013), further highlights the mediating role played by project management practices.

A study of 209 general schools in Estonia by Ploom and Haldma (2013), on balanced performance management in the public education system-an empirical study of Estonian general education schools found that putting policy requirements in place without giving adequate practice advice and support deters the realization of the desired performance objectives. This finding highlight how project performance is influenced by policy through management practices. A study by Kambuga (2013), on the role of community participation in the construction of ward-based secondary schools done in Tanzania, found that construction of ward-based schools was highly dependent on community participation and performance of the construction projects relied on the community's willingness to contribute cash, labour, and materials. This adds to the evidence that community participation influences the performance of projects.

Further evidence that performance of construction projects is influenced by community participation and policy plays a role in establishing and enabling community participation by establishing formal community participation mechanisms is adduced by a study by Kimani and Kombo (2011) on community participation in the development of schools and income-generating projects in rural areas in Kenya. The study found that education legislation in Kenya availed numerous ways for community participation in school projects through schools' Board of Governors, (BoG), Parents Teachers Association (PTA), DEOs, District Development Officers (DDOs) and the district focus strategy for rural development - utilization of which had resulted to successful construction projects across schools in rural areas. In their study on, the social impact of social funds in Jamaica, Rao and Ibáñez (2003), found that performance of social funded school projects was influenced by the politics of community-driven development which resulted to mismatch of projects where 3 out of 5 communities and schools did not get financing for projects that were of top priority to them but rather those of lower priority. This shows how the performance of construction projects is influenced by both community participation and the process of participation.

2.3 Policy Interpretation and Performance of Construction Projects

Policy substance refers to what the policy says and spells out in its content (Brown et al., 2006), while policy interpretation is how different parties surmise the meaning of the policy substance in

terms of its content, requirements and provisions; and what it takes to implement or apply the policy in terms of resources (Coglianese, 2012). A study was done in Poland on, ambiguously divided responsibilities across government spheres-how they impact the policy process and result in coordination problems, by Dubois (2014) found that an internal education policy substance ambiguity on responsibility for investments in schools between the central government and local authorities resulted in a complete halt of new school infrastructural projects for six years. In other areas where the policy substance was also ambiguous as to who is responsible, such as; transport, repairs, and maintenance projects for school facilities; the result was back-passing and jostling between the central government education authorities and local education authorities which resulted to delays of new projects, failure of existing projects, slack service delivery, and sections of education officials feeling they were being wrongly held accountable due to external education policy ambiguity (Dubois, 2014). These results show how policy ambiguity and policy uncertainty creates varied policy interpretations resulting in policy application conflicts and policy interpretation disputes.

A census study of all public primary schools implementing FPE in Malawi on education policy choice and policy practice, Kadzamira and Rose (2001) found that when Free Primary Education (FPE) was introduced in Malawi, it was not accompanied by a requisite school resource and infrastructure policy to interpret the infrastructure requirements of the FPE policy; the result of which was increased enrolment, overstretched facilities and poor-quality education services. Such disjunctures, they note, can be resolved not by pumping more FPE money into the schools but rather by improving the formulation, design and implementation of the FPE infrastructure policy (Kadzamira and Rose, 2001). Ngware, Oketch, and Ezeh (2011) concur with these findings in their study on the quality of primary education inputs in urban schools done in Nairobi, Kenya. They found that inequalities in school infrastructure provisions continued to exist because the issue had not been addressed in the education policy substance agenda. This finding shows how policy uncertainty/gaps create silence in policy interpretations, the result of which is policy non-application and non-performance in construction projects. These findings show that policy existence form is a significant indicator of how the policy is received, interpreted and applied by the stakeholders and that failure to interpret policy before implementation can avert and divert the realization of the policy's goals and objectives. Similar findings are provided in a study by Nishimura and Yamano (2008) on School choice between public and private primary schools

under the FPE policy in rural Kenya which found that FPE expanded education demand at public primary schools without expanding school facilities and increasing teachers, which resulted to reduced quality of education services at public primary schools causing able parents to migrate their pupils from public to private primary schools thereby increasing enrolment in private schools due to the FPE policy. These findings further highlight the consequences of lack of resource policy interpretation before policy implementation, which often lead to conflicts and crisis in the short term, and failure of the policy to realize its results in the long term; if the policy implementation resource requirements are not determined and provided before policy implementation. Nishimura and Yamano (2008), recommend the introduction of a school infrastructure policy that seeks to enable and ensure public schools meet the infrastructural and resources standards set at national and international levels.

In their study on the cost of a 'free' primary education in Tanzania, Moshi and Vavrus (2009), provide further evidence that policy interpretation influence performance of construction projects in that, when Tanzania introduced the FPE policy, it abolished fees that schools were charging for development projects, resulting into construction projects failure in some schools, abandonment of ongoing projects and a reduced number of new projects across the schools at a time when school enrolment had risen significantly due to FPE. The result was overstretched facilities and reduced quality of education services to pupils. Further, because the FPE policy substance was vague as to which fees had been abolished, there were differences in policy interpretation by different schools' management resulting to implementation disparities and confusion among parents (Moshi and Vavrus, 2009). These findings by Moshi and Vavrus (2009) show how lack of policy interpretations guidelines, inadequate access to the policy meaningfulness and failure to adequately sensitize the regulatees can compromise policy application and eventually lead to failure of school construction projects in the case of school infrastructure policy.

These studies show that policy interpretation is indicated by determination of policy resource implementation requirements, access to the policy, policy interpretation guidelines, regulatee sensitization, policy disputes, ambiguity, uncertainty and existence form through which it influences project performance and performance in general. These studies, however, did not examine the mediating role of management practices which this study examined.

2.4 Policy Governance and Performance of Construction Projects

Policy governance refers to policy administration implementation, enforcement, monitoring, evaluation and audit of the policy implementation process (Brown et al., 2006). It was hypothesized in this study as having a significant influence on the performance of schools' construction projects. In a study done in Abuja, Nigeria on the impact of policy and procedural framework on project performance, Usman, Kamau and Mireri (2014), found that policy governance influenced project performance but only to the extent to which the policy framework was implemented. Construction policies tended to increase the cost of projects which explained the resistance to comply with the construction policy. Enforcement agencies, therefore, become necessary to enforce the policy and monitor its implementation. Stricter enforcement of the policy led to greater compliance which led to a greater realization of the policy objectives, among them project performance (Usman et al., 2014; Tiongson, 2005). These findings emphasize the importance of policy governance/enforcement and highlight the fact that regulatees often don't voluntarily apply regulatory policies especially the ones that have a cost implication to the regulatee, making policy enforcement vital to avert policy failure. Such enforcement included inspections and creation of clearance points.

Another study done in Texas, the USA on administrators' perceptions of school improvement policies in a high-impact policy setting by Torres, Zellner, and Erlandson (2008), found that primary school headteachers perceived regulatory policies that upset the status quo as arduous and threatening, and that bellicose school enhancement policies such as infrastructure policies often had good results but at the cost of low morale and loss of confidence by school staff. Limon (2016), concurs adding that school infrastructure policy done collaboratively help link educational goals with facilities design which results to better performance of construction projects and that the infrastructure policy should allow for stakeholders to be involved in resource mobilization to ensure projects are properly funded to deliver high-quality facilities. Limon (2016), made these findings in a study on the effect of the adequacy of school facilities on students' performance and achievement in technology and livelihood education done in Ilocos Norte, Philippines. These two studies show the importance of policy predictability and regulator transparency (indicators of policy governance) for regulatees to realize policy implementation effectiveness. When these two are absent the regulation policy may face resistance from regulatees as Torres et al. (2008) demonstrates.

An ethnographic study of 170 education stakeholders by Serem, and Ronoh, (2012), on Challenges faced in implementing free primary education for pastoralists in Kenya, found that lack of school infrastructure and inadequate physical facilities in schools were key handles to the implementation of FPE policy. Further, inadequate funding, delay in disbursement of funds; teachers who lack project management skills, accounting skills and financial management skills, were among the key impediments to FPE policy implementation among pastoralists communities and affected the ability of schools to mount and realize good performance in FPE related infrastructural projects. Serem and Ronoh, (2012) recommend that addressing these issues in the FPE policy would enhance FPE infrastructure project performance and general schools' performance in the pastoralists regions. Ileoye (2015) did a study on the effects of school facilities on pupil's satisfaction with schooling in Ondo State, Nigeria in which he found that school infrastructure inspections practices aspect of policy governance significantly affects the state of school infrastructure and their performance. These findings show that for policy governance to be successful, the requisite resource requirements necessary to implement the policy both from the regulatee and regulator's perspective need to be available. This is necessary for the policy administration structure to effectively implement the policy.

These empirical research findings show that policy governance can be measured by inspection practices, policy predictability, regulator transparency, implementation effectiveness, and policy administration structure effectiveness; and that it is critical in realizing policy objectives and the intended project performance. The studies reviewed, however, did not cover the role of community participation in policy implementation, a gap that this study sought to fill.

2.5 School Infrastructure Policy Implementation and Performance of Construction Projects

Policy framework is established to guide, control and standardize practices in an area or sector by making provisions, guidelines, and regulations and in some cases laws that firms and players in the sector have to comply with or conform to. In an ethnographic interpretive study titled; when policy and infrastructure provisions are exemplary but still insufficient: paradoxes affecting education for sustainability in a custom-designed sustainability school done in Australia; Kuzich, Taylor and Taylor (2015) found that an infrastructure policy that is well communicated, properly understood and sustainable can significantly increase school infrastructure facilities. The study further found that purpose-designed physical infrastructure sufficiency is a significant determinant

of school objectives realization and, the maintenance cost of physical infrastructure can thwart a school's ability to realize its potential. McDonald, Salvesen, Kuhlman, and Combs (2014), in their study on the impact of changes in state minimum acreage policies on school siting practices done in 166 schools in the USA found that school siting policy changes at the state level aimed at creating flexibility of school infrastructure siting at school level by relaxing the regulations had no impact on school infrastructure siting and expansion because changes in state policies were not matched by equivalent changes in district and schools' infrastructure policies. School infrastructure decisions being complex and long term were not affected by changes in infrastructure policy in the short-term. The former study's findings underscore the critical role of proper policy interpretation - both policy substance and resource requirements - in determining policy success. The latter study's findings underscore the role of 'policy existence' form as a key factor in policy implementation and highlight the importance of policy administration as an indicator of policy implementation.

Rutherford and Rabovsky (2014) in their study on evaluating impacts of performance funding policies on student outcomes in higher education done across the 50 states of USA found that performance funding policies had no enhancement effect on student outcomes at the university level, rather, students' outcomes were found to be related to state environments, student's profiles and institutional characteristics. Berryhill, Linney, and Fromewick, (2009), in their study on the effects of education accountability policies on teachers done in Springfield, USA found that policies influence performance and accountability; and that policies significantly affected teachers' performance and their level of engagement in schools. Policies increased or reduced pressure on performance requirements thereby affecting staff engagement and commitment to the schools. High policy pressure led to emotional exhaustion by staff which in turn affected management practices and the resulting performance (Berryhill, Linney, and Fromewick, 2009). The former study's results demonstrate how the effects of policy on performance can be tamed by changes in management practices in reaction to an anticipated effect of a policy. The latter study's findings demonstrate how policy influences performance in general.

Overtime policies become outdated and need review. If a policy that is becoming outdated is not reviewed it degenerates from having a positive influence on project performance to having a negative influence. Nagaraj (2003) in a 23-year longitudinal study on industrial policy and

performance found that industrial policy reviews enhanced industrial performance. Where policy reviews were stalled or abandoned, the industrial performance was found to decelerate. Policy reforms that were perceived as positive stirred investor confidence and improved industrial performance while policy reforms that were regarded as negative decelerated industrial performance. In a causal-comparative study titled macro-economic factors influencing the financing of build-operate-transfer projects: evidence from a railway project in Kenya, Rambo and Lucas (2016), found that need existed for the government to set in place a supportive policy environment for the concession target project outcome to be realized. The latter study's conclusion indicates that indeed, policy can be used to influence project performance. The findings of the former study support economic theory that policies can be used to stimulate or depress growth and performance of the economy, industries and sectors such as education (Nagaraj, 2003; Eniola and Entebang, 2015). The foregoing research findings establish that a relationship exists between policy implementation and performance and that policy implementation can be measured by policy interpretation and policy governance. The studies reviewed were conducted in different countries and industries indicating that policy influence on performance cuts across. These studies, however, have not explored the mediating effect of project management practices and the influence of community participation, a gap that this study sought to fill.

2.6 School Infrastructure Policy Implementation, Project Management Practices and Performance of Construction Projects

Policy influences on performance assume that managers can influence performance by changing strategies and management practices in line with the goals of the policy (Rutherford and Rabovsky, 2014) thereby making management practices a mediator between policy and performance. Policy initiatives are often used to entice or cause managers to change their management practices especially where the management practices used by firms are considered by the regulator as unbecoming, unsustainable or socially unacceptable; and the firms refuse to voluntarily make amends.

Mills and Whittaker (2001), in their study on work-based learning in Scottish higher education-policy and practice, done in Glasgow, UK; found that when the policy is not coherent, individual institutions determine how best to implement the policy resulting in different applications of the policy across organizations and thus differences in management practices and differences in

project performance and performance in general. These findings show how policy works through management practices to influence performance and how differences in policy interpretation can lead to different management practices by different organizations using the same policy and eventually result in different performance levels.

In their study titled using public-private partnerships (PPP) for the building and management of school assets and services, done in Australia and New Zealand, Liu and Wilkinson (2014), found that a PPP project policy that specified proper project inception practices, appropriate tendering process, a local private sector partner, wide stakeholder engagement and effective leadership and governance enhanced the partnership and increased the likelihood of project success. The findings show that policy can, and is often used to influence, specify and even direct project management practices; and that when policy specifies the project management practices to be used, the result is improved project performance.

A case study of two primary schools and two secondary schools by Marishane (2013), on FPE policy in South Africa found that FPE policy changed school project management practices, especially project financing practices - from sourcing project funds from parents to government capitation - which changed project sponsorship role from parents to the state which in turn reduced project performance in terms of the number of projects implemented. This evidence shows that management practices mediate the relationship between policy and performance.

Further evidence that management practices mediate the influence of policy on performance can be drawn from other studies done outside the education industry. In a study on the relationship between knowledge management and organizational performance of Malaysian private colleges: the mediating role of managing talent practices, Keat and Lin (2018) established that management practices in the area of talent development mediated the relationship between knowledge management and organizational performance. Another study done in China on strategic flexibility, innovative HR practices, and firm performance: a moderated mediation model; Xiu, Liang, Chen and Xu (2017), found management practices, in the form of innovative HR practices mediated the relationship between strategic flexibility and performance.

Folz (1999), in his study of recycling programs, found that cities with different recycling policies had significantly different program management practices and realized different program performance levels. Program performance varied by the program practices deployed by each city

which in turn were determined by the city's policy (Folz, 1999). Studies in other industries that support these findings include: Medlin, Green and Wright (2016) study on Comprehensive management practices and policies performance model; Leggat, Bartram, and Stanton's (2011) study on high performance work systems-the gap between policy and practice in health care reform; Tian, Cordery and Gamble's (2016) study titled staying and performing: how human resource management practices increase job embeddedness and performance. These empirical findings agree that policy framework influences performance through management practices.

This study sought to test the mediating role of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects. The school infrastructure policy of Somaliland sets the scope for school project management, but not the specific practices. Project management practices are indicated by level of stakeholder influence in project identification, level of consultations in project selection *(project inception);* use of experts at the project design stage, level of stakeholder participation in planning *(project planning);* diversity of project finance sources, distribution of project implementation control (*project implementation);* completeness of clean-up after completion and consistency of project inspections before use *(project close-out).*

2.7 Community Participation and Performance of Construction Projects

Researchers have consistently underscored the importance of community participation in social projects. Community participation is an effort to draw from the social capital of the community; resources, information, and networks; among other community possessions to benefit an organization or a project (Trigilia, 2001). It also drums up support for the project from the community by creating either a sense of ownership or belongingness where the project is regarded as an accepted constituent of the community (Coleman 1990; Trigilia, 2001; Carolan, 2014).

In a cross-sectional survey of nine primary schools titled parental participation in primary schools-the views of parents and children, done in Ireland; Yetunde, Akinola and Gabhainn (2014), found that both parents and pupils perceived parental participation in school activities and projects as good for the school and that such participation had potential benefits in increasing the connections between the school and its stakeholders. Parental participation in school activities and projects increased their perceived level of ownership of the school. The results reveal that parents tend to be willing to participate in school activities and projects that improve the education and welfare of

their children in schools and the pupils would like to see this happening. A study done by Swift-Morgan (2006), in Southern Ethiopia on what community participation in schooling means, found that community participation in school construction projects was the main method of establishing infrastructure facilities in rural schools and entailed participation in planning, resources mobilizations, volunteering labour and project monitoring and evaluation, and was guided by government policy on community participation in schools. This finding adds to the evidence that governments have continued to devolve responsibility for school development to the community increasing the influence of community participation on the performance of construction projects in schools and that community participation in school projects involve activities along the project cycle and include a diverse range of projects

Kumar (2015), found that community involvement with a vision, efficient management and leadership benefited the society in many ways and that PPP between the government and the community was necessary for community participation to be sustainable. The study by Kumar (2015), was on governance and management of common property resources and analysed community participation in sustainable village development in India. Thomas, Rowe and Harris (2010), did a study in Australia on factors that characterize school-community partnerships. The study found that effective school-community partnerships need to be established for there to be meaningful and successful participation of the community in school projects and that to establish effective school-community relationship, four factors are necessary: deliberate commitment to nurturing good relations between the school and the community partners, common goals and objectives, competence in relationship management and complementary capacities of school personnel. These two studies highlight the need for community participation in school construction development to be guided by a school infrastructure policy.

In a study on the role of rural schools in community development- policy issues and implications, Miller (1995), adds a different perspective that when schools partner with local leaders in undertaking projects, the schools positively impact the community and that community participation in school activities also yields school participation in community activities. Miller (1995), concludes that, for community participation in school projects and activities to be sustainable, it needs to be anchored on a policy.

Other studies undertaken outside the education sector post similar findings. Gwynn, (2016) in a research study on community connections found that some projects cannot be undertaken without community participation especially where the community is the contributor to a core input to the project. Gwynn (2016) further notes that corroborating with the community is critical in projects where the community is required to accept, contribute to, use, operate or sustain the project. In their study on understanding project stakeholders' perceptions of public participation in China's infrastructure and construction projects, Xie, Yang, Hu, and Chan (2014) found that public participation in projects provides a good avenue for solving social economic and environmental challenges such as education provision. These two studies' findings stress the fact that development and social projects have been known to fail due to lack of community participation, support and buy-in. A sample case here is the lake Turkana fish processing factory built using Norwegian aid in the 1980s and which shut down completely, barely two weeks after its inauguration due to lack of raw materials (fish). The local community, being pastoralists and not fishermen had no interest in a project that went against their culture and way of life and in which they did not participate (Harden, 1991).

Community engagement in education development and community development, in general, is a known way of bridging the gap left by governments inadequacies, responding to crisis and natural disasters, reducing poverty, attaining efficiency and equity in development, and attaining sustainable development (Bray, 2000; Rose, 2003; Foster, 2012; Chambers, 2013). Community involvement in schools nurtures the will by the community to contribute local resources (human, material, and economic) (Bray, 2000; Bagaka, 2008; Foster, 2012).

These study findings demonstrate the influence of community participation on project performance and the aspects that indicate community participation, among them: diversity of the participation, community projects'/organization's sense of ownership, time spent in community participation, community representativeness, who is participated, participation practices and community satisfaction with the participation process. These indicators were used to measure community participation. This study explored the influence that community participation exerts on the performance of construction projects.

2.8 School Infrastructure Policy Implementation, Community Participation and Performance of Construction Projects

In Egypt, the Ministry of Education (MoE) initiated a community school policy initiative in 1992 as a way of meeting the needs of Upper Egypt's poor areas. The policy required, among others, the formation of education committees in each school area as local school boards (United Nations Development Programme [UNDP], 2007). The communities were to: give sites for the schools in the form of already existing structures, define the days and hours the school would be in session, and take part in teacher selection. Community involvement ensured the syllabus and education activities focused on the work of the community and was in harmony with the local culture. The result was the successful provision of education services in marginalized areas (UNDP, 2007). This empirical case shows how an education development policy dependent on community participation resulted in the realization of community schools' projects. This moderating role of community participation is further established in empirical findings

A cross-sectional survey of donors, NGOs and CBOs on the moderating influence of community participation on the relationship between technical assistance and sustainability of donor-funded projects in Samburu County by Lelegwe, Kidombo, and Gakuu, (2018), found that community participation moderated the influence of technical assistance on the sustainability of donor-funded projects. Another study by Lim, Lo, Mohamad, Chin and Ramayah (2017) on the moderating impact of community support on tri-dimensional impacts of tourism (economic, socio-cultural, and environmental) towards rural tourism competitive advantage, the researchers established that community support moderated the influence of environmental impact on tourism competitive advantage. These two studies provide empirical evidence of the moderating role that community participation can play.

In a study on appraisal of community involvement in secondary schools' development in Okigwe education zone in Nigeria, Emenalo, and Ibekwe (2013), found that community involvement in school development in Okigwe took the form of financial donations, land donations to schools, infrastructural facilities donations such as constructing school buildings, donation of laboratory equipment's, donations of sporting gear and library materials such as books and furniture, and payment of school fees. This, the authors note, is facilitated by the Nigeria national policy on education (2004) which promotes community involvement in school development. Veloso,

Craveiro and Rufino (2013), posted similar findings in their study on community involvement in school management in Portugal. They found that community involvement practices were present and similar in all the schools in the three regions of study owing to national education legislation that both promotes and specifies the manner of community involvement in schools. Of the schools surveyed in the study, 66% reported having involved the community in the management of school projects. Thus, an education legislation that requires opening up of public schools to allow community involvement had resulted to schools being autonomous management units where communities practice "citizenship" in Portugal (Veloso et al., 2013).

In another study on community foundations, organizational strategy, and public policy, Graddy and Morgan (2006) found that community foundations have increasingly been called upon to assume greater roles in local governance especially in community development such as school projects and that engagement of community foundations in social development is often propelled through devolution and decentralization of policymaking.

Tiongson's (2005) comparative analysis of education policy and policy reform found that in Bhutan, the government education policy is that; the local communities are given the responsibility and are held to account for all constructions in the schools including classrooms, staff houses and their maintenance. And, although teachers' salaries come from the central government, the inadequacy of teachers cause communities to employ teachers and pay them to supplement the government employed teachers (Tiongson, 2005).

These study findings demonstrate how education policy when supported by community participation attains greater project performance results than policy could achieve alone. Knowing this, governments usually provide for community participation in social development policies such as education policy to mobilize community resources to directed development work, gain community support in community projects, improve project performance and increase project sustainability by transferring perceived project ownership to the community through community participation. This study sought to examine the moderating influence of community participation on the relationship between school infrastructure policy implementation, and performance of construction projects. The study took on a rare setting of school construction projects in a post-conflict education sector in Somaliland where schools are recovering from wanton school infrastructure destruction that a civil war visited on the country.

2.9 Theoretical Framework

The study was guided by the punctuated equilibrium theory, program theory, social capital theory and Arnstein's ladder of participation.

2.9.1 Punctuated Equilibrium Theory

The punctuated equilibrium theory (PET) seeks to offer explanations behind the cycles of policy stability and instability witnessed in policy-making processes. Baumgartner and Jones advanced the theory in 1993 basing it on the 'punctuated equilibrium' theory in biology proposed by palaeontologists Gould and Eldredge in 1972 (Givel, 2010). The theory proposes that government policy tends to remain stable for long periods in some areas while in other areas it experiences regular incremental changes. Where it has long term stability, it will, often after a long period experience intense periods of major changes when the policy monopolies equilibrium shift (Givel, 2010; Cairney, 2011; Cairney and Heikkila, 2014). The theory explains both the stability and the changes that characterize school infrastructure policy, with a period of long-term policy stability often being followed by rapid incremental policy changes which are then followed by another period of long-term policy stability (True, Jones and Baumgartner, 2007). When applied to school construction projects, PET recognizes the fact that project management practices will be constrained within the existing school infrastructure policy framework until a review, repeal or institution of a new policy or change in policy occurs to change the policy framework and allow for management practices to change to adapt to a new policy. During this time performance results for school construction projects will remain constrained under the existing policy. Policy should, however, serve the system and not the other way round (UNESCO, 2014). This study uses the PET theory to help explain the role of school infrastructure policy implementation in determining the performance of construction projects directly or by determining the project management practices that schools adopt in complying with the existing school infrastructure policy and how in turn those management practices determine infrastructure project's performance.

2.9.2 Program Theory

The originator(s) of program theory remains unknown; however, the theory can be traced back to the 1950s in the work of Kirkpatrick, Jacques van Doorn and other evaluators (Leeuw, 2003). Program theory seeks to ascertain the theoretical and logical sensibility of a program or project (Sharpe, 2011). In this way, the theory seeks to explain how, why and in which situation the program effects happen. The tenets of this theory hold that there exists a relationship between

inputs, processes, outputs and outcomes, each affecting the other in that order (Chen, 1990; Lipsey, 2000). By explaining this relationship, the theory provides a framework for planning projects in which projects are planned with the inputs, processes, outputs and outcomes specified (Sharpe, 2011). When applied to school construction projects, program theory gives rise to the specific project management practices employed in a specific project (Sharpe, 2011). Program theory forms the basis for theory-based evaluations which seek to test a hypothesized model by using project theory to separate the variables and define the cause-effect relationships conceived about the variables in the project's program theory to determine the data that should be collected for evaluation (Bickman, 1987). It is in this latter sense that program theory is applied in this study to test the hypothesized model conceived in Figure 1 on page 38.

2.9.3 Social Capital Theory

The theory of social capital emerged in the 1960s in the work of sociologist Pierre Bourdieu (Trigilia, 2001). Since then other scholars have contributed to the concept, continuously evolving the theory of social capital. Social capital is seen as a network of ties which are, as a result of long-term investments of various resources that are connected to the existence and ownership of lasting networks of mutual recognition institutional relationships (Bourdieu, 1985; Portes, 1998; Putnam, 2000; Field, 2003). Social capital can be seen as a kind of an investment that can be mobilized, accessed and used in social projects such as education, water and school construction projects (Coleman, 1990; Putnam, 1993; Putnam, 2000; Schuller, Baron and Field, 2000; Daly, 2010). In education projects, social capital in the form of networks and relations, cognitive resources like information, and normative resources like trust, that schools can tap to realize objectives that would otherwise either not be realized or be realized at much higher costs (Trigilia, 2001; Bienzle et al., 2007). Catts and Ozga (2005) proposed four centres of social capital for a school as: families, community establishments, neighbourhoods, and the school itself that can be tapped for school construction projects. This study utilizes the social capital theory to explain why community participation in social projects such as school construction projects is a common occurrence as schools, often underfunded by the government utilize the conducive school infrastructure policy environment set by the government to engage the community's social capital base to establish, expand and enhance the school's infrastructure facilities.

2.9.4 Arnstein's Ladder of Citizen Participation

Arnstein (2007) first published the model - the ladder of citizen participation in 1969 (which was later re-published in 2007), in which she sought to explain citizen participation in public planning processes by the government. Over time, this has since evolved as the theory of citizen participation. Other scholars have since developed modified concepts to the ladder of participation among them, Burns and Taylor's (2000) ladder of citizen empowerment, and Wilcox (1999) continuum of involvement. Arnstein (2007) proposed eight different levels of participation which are grouped into three stages: non-participation, tokenism and citizen power. Community contributions to a project, therefore, vary by the level of engagement that the community participates. The higher the level, the more the community can contribute to the projects. The *Non-participation* stage often takes the form of sham participation that Arnstein (2007) referred to as manipulation and therapy. Community members are involved by being integrated into advisory committees, and boards whose resolutions are non-binding and are often ignored. They are also involved in ceremonies (*manipulation*) and to mobilize and educate other members of the community about the projects being implemented (*therapy*) all of which has no managerial implication to the project. At the stage of *tokenism*, participation takes the form of one-way communication updates about the organization or the project (*informing)*, community consultation meetings and community surveys whose findings and results are non-binding (*consulting*) and integrating community members into management boards and committees that make decisions on the projects (*placation*). At the stage of *citizen power*, projects are jointly undertaken with the community (*partnership*), community needs and plans are used to identify and plan projects in the community (*delegated power*), and community takes control of managing the projects in their area (*citizen power*) (Arnstein, 2007). In this study, Arnstein's ladder of participation was used to model an assessment of the type, scope and level of community participation that exists in different school construction projects in the study region and how they influence the performance of construction projects.

2.10 Conceptual Framework

From the theoretical framework and preceding review of literature, the conceptual framework is formulated in Figure 1.

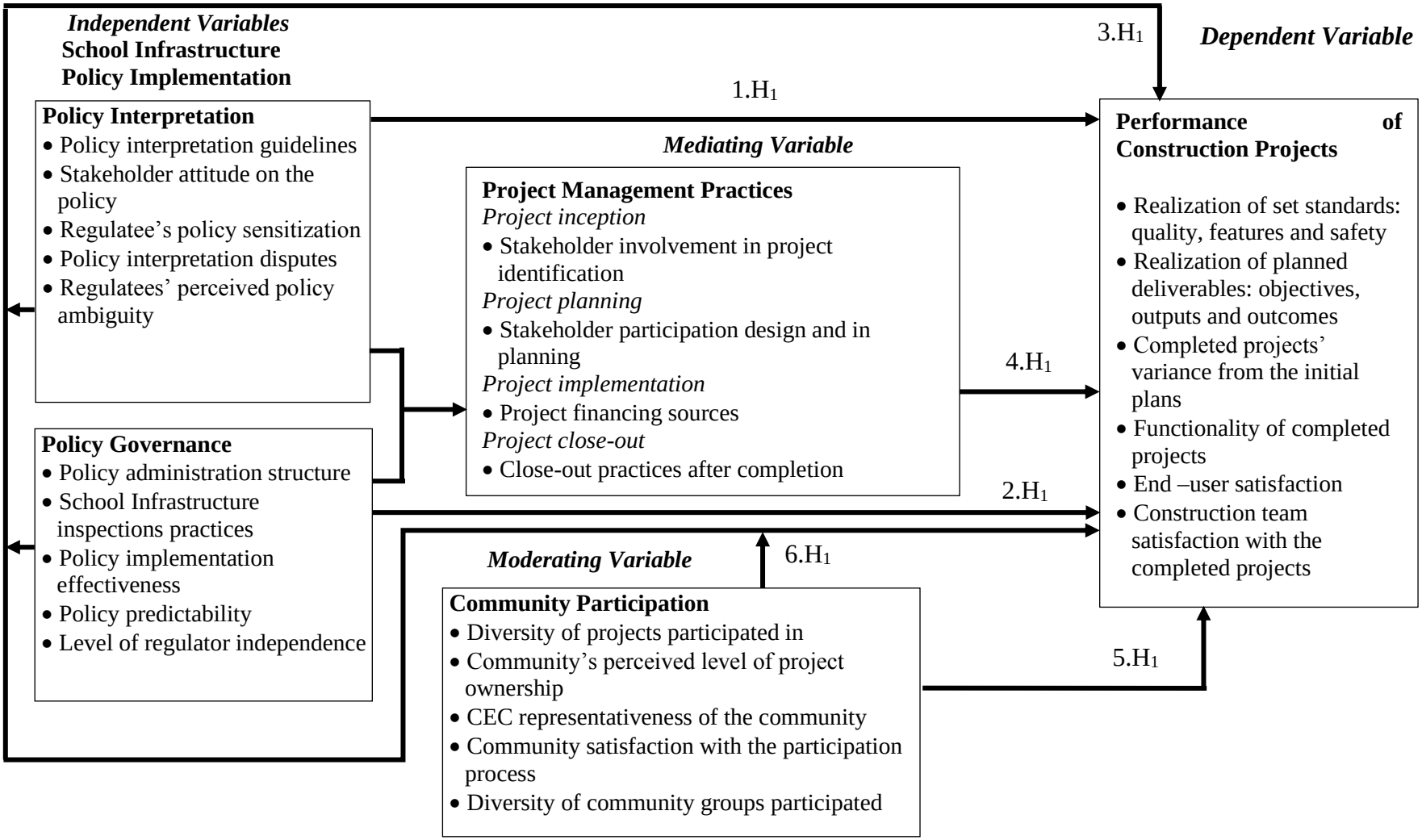

Figure 1. Conceptual framework of the relationship among school infrastructure policy implementation, project management practices, community participation and performance of construction projects.

In the model, the independent variable is school infrastructure policy implementation whose indicators are policy governance and policy interpretation. It is hypothesized that policy interpretation and policy governance directly explain the performance of construction projects separately ($1.H_1$ and $2.H_1$) and when combined ($3.H_1$). Further, it is hypothesized that project management practices mediate the relationship between school infrastructure policy implementation and performance of construction projects ($4.H_1$). Community participation is hypothesized as directly influencing the performance of construction projects ($5.H_1$) and moderating the relationship between school infrastructure policy implementation and performance of construction projects ($6.H_1$). The dependent variable, performance of construction projects, is construed as having both objective and subjective indicators (Chan and Chan, 2004). The formulated conceptual model is informed by the punctuated equilibrium theory, program theory, social capital theory and empirical literature reviewed. The indicators for measuring each variable are shown under each variable in Figure 1.

2.11 Summary of Literature Reviewed

A review of empirical literature was presented around the variables and objectives of the study. The review focused on establishing the relationships that exist among the variables of the study and to highlight the knowledge gaps that exist around the variables and their relationships, that the current study sought to fill. Four theories were reviewed in line with the variables of study: punctuated equilibrium theory, program theory, social capital theory and Arnstein's ladder of participation.

Whereas many studies have focused on the effects of policy on performance, these studies have largely focused on macroeconomic policies such as monetary policy, fiscal policy and industrial policies; while others have focused on corporate policies and national infrastructure policies. A knowledge gap exists about school infrastructure policy and how its implementation affects the performance of construction projects, as scanty empirical findings exist in this area and the researcher did not find a study that specifically focused on these relationships.

Studies have been done to examine the relationship between policy and management practices on one hand and management practices and performance on the other. A knowledge gap exists about how management practices mediate the relationship between policy and performance. The researcher did not find a study that specifically focused on the mediated relationship in the project

context. A further knowledge gap for this mediated relationship is the context of school infrastructure policy implementation's influence on the performance of construction projects mediated by project management practices as no study was found that focused on this relationship. Further, no study was found that was set in a post-conflict country.

Many of the studies that have examined management practices have focused on one or a few selected aspects of this variable. This study adopts the broader view of project management practices based on the classical project cycle's four stages and attempts to cover the four key aspects of project management practices. The study used this broadness to collect data that would better establish the relationship between this variable and the others in the model. On community participation, many studies have focused on the explanatory and moderating effects of community participation on performance and much empirical literature exists especially in the educational infrastructure context. A knowledge gap, however, emerged in that those studies have not focused on a post-war-conflict community.

Other gaps exist in methodology, in that, most of the studies reviewed used either a qualitative or quantitative approach. This study combines both methods in a mixed approach aimed to allow the researcher to triangulate the data collected from each approach. The mixed approach was intended to offer a better understanding of the variables and their relationships. Many studies that have focused on mediating and moderating relationships have used multiple regression analysis, stepwise regression, hierarchical regression or logistic regression analysis. This study used path analysis which according to Bernard (2006) is a powerful tool for analysing mediating and moderating relationships.

2.12 Knowledge Gaps

The literature reviewed offers substantive theoretical and empirical evidence that policy influences management practices which determines performance. When community participation is added to the relationship, the literature indicates that performance is enhanced. Table 2.1 gives a summary of the empirical studies reviewed and the knowledge gap perceived in the reviewed literature. The findings lead to the formulation of the problem statement and the conceptual framework to guide the study and forms the framework upon which the study results are discussed and interpreted.

Table 2.1.

Matrix Table for Knowledge Gaps.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
Performance of construction projects	Marishane, R. N. (2013)	*Management of school infrastructure in the context of a no-fee Schools policy in rural South African schools: Lessons from the field.* The study was done in South Africa. **Independent variable:** Management of school infrastructure. **Dependent variable:** School infrastructure facilities performance.	A qualitative study. **Target population:** Headteachers of rural free education schools. **Sampling:** Purposive sampling of schools. Criteria: rural, free education schools. **Sample:** Two primary schools and two secondary schools. **Data collection methods:** observations and in-depth-interviews, semi-structured questionnaire. **Data analysis:** Thematic analysis	The study established that: a) Although free education policy had relieved parents the burden of paying for the education of their children, it hampered schools' effort to provide adequate school infrastructure for learning as state funding is insufficient. b) For there to be effective school infrastructure establishment and management, effective school leadership is required. c) Sustainable funding of school construction projects requires putting in place a state-school partnership. d) School construction projects are best handled through the strategic planning and management process.	The study adopted a case study approach in four schools that were purposively selected. This resulted in only four respondents for the study. The study did not establish or test the relationship between study variables.	This study used a large sample of free education schools resulting in more respondents. Study variable relationships were established and tested.
	Ofori, D. F. (2013).	*Project management practices and critical success factors–A developing country perspective.*	The study adopted an exploratory approach. **Target population:** Managers undertaking managerial studies at Ghana Business School. **Sampling:** Purposive sampling.	The study found that: a) A well laid down project policy guides project managers to effectively complete projects and to realize the set outcomes. b) Critical success factors for projects include	The study focused on organizations in Accra Ghana only hence the findings could not be generalized to other projects in other parts of the country.	This study sought to use a representative sample that allowed for generalization of the findings.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		The study was undertaken in Accra, Ghana **Independent variable:** Project management practices **Dependent variable:** Project success	**Sample:** 200 managers from different sectors of the economy. **Data collection methods:** Questionnaire **Data analysis:** Descriptive analysis, chi-square.	effective communication. Support by top management, clear project goals and objectives and stakeholder participation.	The variable relationship was not tested	Variable relationships were tested.
	Kambuga, Y. (2013).	*The role of community participation in the ongoing construction of ward-based secondary schools: Lessons of Tanzania.* The study focused on the role of the community in construction and establishment of school infrastructure specifically the community's contributions, participation, methods of engagement and barriers to participation. The study was based in Tanzania. **Independent variable:** Role of Community participation. **Dependent variable:** Performance of constructions of ward schools.	The study adopted a case study approach. **Target population:** Staff and stakeholders of administrative wards in Dodoma Municipality in Tanzania. **Sampling:** Multistage sampling: - Purposive sampling of 2 administrative wards, purposive sampling of administrative ward staff, and simple random sampling of villagers' representatives. **Sample:** 35 respondents representing administrative wards staff, headteachers and village representatives in Makulu and Nzuguni wards. **Data collection methods:** Interviews, observations and researcher administered questionnaire. **Data analysis:** Descriptive analysis.	The study found that: a) There were three forms of community participation in the construction of school infrastructure in use: cash contributions, material contribution and volunteering labour. b) Poverty, lack of transparency and accountability, corruption, negative political persuasions and disinformation campaigns were key barriers to attaining community participation in some areas. c) Information campaigns, public mobilization and public education on the school projects and explanations as to why the community should get involved are necessary efforts if significant community participation is to be realized.	Although the sample of 35 respondents is statistically adequate, the study was purposively limited to only two wards hence the results may not generalize to the many other wards and the larger country. Statistical tests on study variables and their relationships were not conducted.	This study involved more respondents and covered a wider geographical region of the target country and hence it was expected that the results would be generalizable across the country. Significance tests were conducted on the variable relationships.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
				d) Participation manifested as information, consultation, placation and partnerships.		
	Kimani, E. N. & Kombo, D. K. (2011).	*An investigation of community participation in the development of schools and income-generating projects in rural areas in Kenya.* The study-undertaken in Kiambu district, Kenya-sought to uncover the factors that enhance community participation in school development projects and school income-generating projects. **Independent variables:** Social-economic background, community participation, Policies on people's participation, rural people participation enhancement strategies. **Dependent variables:** Development of schools and income-generating projects.	The study was an exploratory case study of one district. **Target population:** Project members, project officials and local administrators. **Sampling:** Multistage stratified random sampling of primary schools, secondary schools and polytechnics and then one project from each stratum **Sample:** 280 members, 10 each from the 28 projects sampled and 84 project officials, 3 each from the 28 sampled projects. 59 local administrators. **Data collection methods:** Interviews, focus group discussions, observations and secondary data from project records. **Data analysis:** Descriptive analysis	The study established: a) Participation in school projects to be inversely related to income and social-economic status. b) Good accountability of project resources, project management related skills and quality leadership positively affected peoples' participation in school development and income-generating projects. c) Not involving the community at the project inception stage, corruption of project officials, peoples' lack of motivation, inadequate financial resources for the projects and political interference negatively affected peoples' participation in school development and income-generating projects. d) Education legislation in Kenya provided avenues for community participation in school projects through schools' Board of Governors, Parents Teachers Association, DEOs, District	The authors did not test the relationship between the variables to statistically prove them. Some of the independent variables in the study such as *participation enhancement strategies* could have been playing moderating or mediating role to the other variables but this was not explored.	This study sought to statistically test variable relationships. The conceptual model envisioned exogenous variables that play mediating and moderating roles.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
				Development Officers and the District Focus strategy for Rural Development.		
	Rao, V., & Ibáñez, A.M. (2003).	*The social impact of social funds in Jamaica: A mixed-methods analysis of participation, targeting and collective action in community-driven development.* An impact evaluation study evaluating the JSIF social funding of school and community construction projects as a community-driven development initiative in Jamaica. The study focused on two groups: communities that received JSIF social funds for school projects and those that did not receive any social funds. **Independent variables:** Social funding policy, Community participation. **Dependent variable:** Impact of the social fund on school projects.	The study took two forms: a qualitative study and a survey. **Target population:** Communities in Jamaica given social funds and those not given social funds for school construction projects. **Sampling:** Multistage sampling using simple random sampling for the survey and purposive sampling for the qualitative study. **Sample: Survey**-500 households from five different communities in Jamaica**.** **Qualitative study:** four communities that had received social funds and one community that had not received social funds for school projects. **Data collection methods:** Semi-structured in-depth interviews, focus group discussions and field visits observations were used for the qualitative study while the quantitative study used a questionnaire. **Data analysis:** Propensity score matching method, logistic regression, and t-test.	The study found that: a) Community-driven development did not necessarily empower the poor people, schools and communities as the participatory process, although representative often saw the more empowered pushing their agenda better and therefore 'capturing' the development initiative to their favour. b) The politics of community-driven development often resulted in a mismatch of projects where 3 out of 5 communities and schools did not get financing for projects that were of top priority to them but rather those of lower priority. c) The elite dominated the social fund allocation process.	The study did not include project management practices as a factor that could affect the impact of the social projects funded by the JSIF social fund.	This study included project management practices as a factor that significantly affect the performance and impact of school projects.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
	Ploom, K., & Haldma, T. (2013).	*Balanced performance management in the public education system: An empirical study of Estonian general education schools.* The study investigated performance management policies and various levels and how they affect public school's performance. **Independent variables:** Stakeholder satisfaction, School expenditure, 24 other School characteristics. **Dependent variable:** Pupil Performance measures.	An empirical survey study. **Target population:** All principals, parents, students and teachers of all 209 Estonia general schools providing upper secondary education. **Sampling:** The study targeted the entire target population (census). **Sample:** Response rate was 119 headmasters (principals), 1,251 teachers, 4,118 pupils, and 1,244 parents from 164 different schools **Data collection methods:** Mailed and electronic questionnaires, secondary data from government publications and central database (Estonia education information system) **Data analysis:** Pearson's Correlation analysis, Factor analysis.	The study came to the following finding: Putting policy requirements in place without giving adequate practice advice and support deters the realization of the desired performance objective.	The study focused on school operational policy and practices only and did not cover school construction projects policy and practices.	The focus was on school construction projects policy, project management practices and performance.
Policy interpretation	Dubois, H. F. W. (2014).	*Ambiguously divided responsibilities across government spheres: How they impact the policy process and result in coordination problems in the case of Poland.* The study examines ambiguities that result from policy interpretation and rationale behind the	The study design was a cross-sectional qualitative study. **Target population:** Local government officials in five regions in Poland **Sampling:** Purposive sampling. **Sample:** 17 local government officials. **Data collection methods:** Field and site visits observations, in-depth interviews and secondary data.	The study found that: a) Internal policy ambiguity in responsibility for investment in schools caused a coordination problem which resulted in a complete halt of school development infrastructural projects for over 6 years. b) Where the policy substance was ambiguous as to who is responsible for what, there was jostling and	The study used qualitative data only. As such study variable relationships were not statistically tested. The sample of 17 may raise generalization issues with regards	This study used a mixed-methods approach that allowed for quantitative data to be collected for use in hypothesis testing. The sample used was large

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		policy responsibilities. The study was done in Poland. **Independent variables:** Internal ambiguities in policy substance, external ambiguities in policy substance **Dependent variable:** Impact on policy process.	**Data analysis:** Theoretical coding was done inductively from open coding to selective coding.	back passing which resulted in delays of new projects or failure of existing projects. c) Ambiguities in education policy heavily increased after education administration of schools were devolved as compared to when it was centralized. d) External ambiguities led to slack service delivery, government officials feeling they were wrongly held accountable for certain things and generally, confusion in terms of what to expect from who, in education.	to the study's findings	and representative enough to allow for generalization of findings.
	Ngware, M.W., Oketch, M., & Ezeh, A. C. (2011).	*Quality of primary education inputs in urban schools: Evidence from Nairobi.* The study compared the quality of education inputs, mainly infrastructure such as textbooks, buildings, drinking water and sanitation facilities against national norms and international standards. The study was done in Nairobi, Kenya. **Independent variables:**	The study took a cross-sectional survey design. **Target population**: Primary schools in Nairobi area. **Sampling:** Purposive sampling of primary schools with 20 or more of its pupils coming from Korogocho, Viwadani, Jericho, and Harambee estates where a longitudinal study was ongoing. **Sample: 83** primary schools **Data collection methods:** one Interview, questionnaire, secondary data from school inspection reports.	The study established that: a) Inequalities in education inputs notably school infrastructure continued to exist because it was not spelt out in the education policy substance agenda. b) The differences noted in the quality of education inputs in the schools was due to ownership resource capital and implementation of both the quality and standards policy set by the government rather than school location. c) Pupils in government primary schools face	The study adopted a comparative approach and used descriptive analysis which the author's note was inadequate, and recommend more thorough studies to be done to study the relationship between quality of education inputs and pupil aspirations and quality of education. The study did not specify variable	This study specified a conceptual model to be tested statistically using data. Variable relationships were specified

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		Primary education inputs: school size, teacher qualifications, safe drinking water, sanitation facilities, classroom space, construction materials, pupil-textbook ratio, PTR, teaching load. **Dependent variable:** Quality of education provision	**Data analysis:** Descriptive analysis	considerable inequality in access to school infrastructure as compared to pupils in Non-government schools. d) Private schools were within national and international standards on school infrastructure but public schools were below and barely met the national standards.	relationships nor develop a conceptual model but rather did a comparison of data collected with national and international standards.	
	Kadzamira, E., & Rose, P. (2001).	*Education policy choice and policy practice in Malawi: Dilemmas and disjunctures.* The study examined FPE in Malawi and how a donor influenced FPE policy was geared towards increasing the quantity of primary school education but the resulting increase in enrolment was at the expense of quality as school infrastructure was overstretched and schools could not expand the infrastructure to cope with demand as school fees had been abolished. **Independent variables:** education policy choice,	The study took the form of desk research. **Target population:** All public primary schools implementing FPE since 1994. **Sampling:** Census approach was used. **Data collection methods:** secondary data from education statistics and records from government departments and international organizations. **Data analysis:** Descriptive analysis	The study concluded that: a) When the FPE policy was implemented in Malawi, a requisite school resource and infrastructure policy had not been developed to consider the infrastructure implications of FPE. b) In Malawi, FPE was increasing the quantity of education at primary schools due to increased enrolment but that was happening at the expense of quality as more enrolment overstretched school facilities infrastructure beyond meaningful access by an individual pupil. This has led to questioning whether FPE was contributing to the poverty alleviation goal.	The study did not statistically prove the relationship between the study variables nor develop a conceptual model. As such, it is not known –as a result of the study – how the variable interacts.	This study was guided by a conceptual model and tested the variable relationships using statistical tests.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		education policy practice. **Dependent variable:** Achievement of poverty alleviation goal.		c) Most of the disjuncture's and dilemmas around FPE can be resolved not by increasing government expenditure on FPE but rather by better formulation, design and implementation of the FPE policy.		
	Nishimura, M., & Yamano, T. (2008).	*School choice between public and private primary schools under the free primary education policy in rural Kenya.* The study sought to explain whether the increase of pupil transfers from public schools to private schools recorded in 2003 and subsequent years was as a result of FPE policy in Kenya and if so, why? **Independent variables:** Child characteristics, Parent characteristics, education policy. **Dependent variable:** Choice of school	The study was designed as a longitudinal study monitoring respondent for three years. **Target population:** Pupils and households in central and western Kenya. **Sampling:** Purposive sampling of households whose data could be traced over the three years of study. **Sample:** 718 households, 1248 pupils aged 6-15 years. **Data collection methods:** Secondary data analysis of data collected in a longitudinal study on poverty, environment and agricultural technology. **Data analysis:** Descriptive analysis, modelling.	a) The study found that although FPE lowered the cost of education in public primary schools significantly as compared to private schools, private schools saw an increase in enrolment after FPE was introduced. This, the study concludes, is due to the negative quality effect that FPE had on education services in public primary schools because it expanded education without expanding infrastructure and increasing teachers. b) The study concluded that the only option for the government to increase fairness in the education system is to introduce a policy to improve the quality of primary education in public schools. This can be realized through a school infrastructure policy that seeks to ensure public	The study examined the effects of education policy on the performance of construction projects indirectly through its effect on the perceived quality of education at public primary schools and private primary schools. Perceived quality of education was operationalized by the choice of school.	This study measured the effect of school infrastructure policy implementation on the performance of construction projects directly

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				schools meet infrastructural and resource standards set.		
	Moshi, G., & Vavrus, F. (2009).	*The cost of a 'free' primary education in Tanzania.* The study examines Free Primary Education (FPE) policy as applied in Tanzania and looks at the implications of the school infrastructure policy part of the FPE that has introduced capitation grants and introduced an investment fund for primary school infrastructure. The study was located in Old Moshi Tanzania. **Study variable:** Cost of FPE.	The study was designed as a longitudinal study between 2000 and 2006. **Target population:** Parents with pupils in class 6 and 7 in 11 public primary schools in Old Moshi Tanzania. **Sampling:** Simple random sampling. **Sample:** 300 parents with pupils in 4 public primary schools in Old Moshi Tanzania. 4 heads of school. **Data collection methods:** Interviews, Focus group discussions. **Data analysis:** Descriptive analysis.	The study established that: a) Policy substance ambiguity on FPE had resulted in confusion where parents expected not to pay any fees and yet schools were still charging mandatory contributions. Policy documents were vague as to what fees had been abolished resulting in different interpretations by schools' management. b) Removal of fees charged for development and school projects in the implementation of FPE resulted in schools scaling down new facilities and infrastructure development yet FPE increased enrolment increasing demand for school infrastructure.	Although the sample of 300 parents for the study appears sufficient for generalization, the generalization can only be made in Old Moshi where the study was done as the 4 schools that were studied are too few to be representative of the schools nationally.	This study sampled school's state-wide resulting in results that can be generalized across the state
Policy Governance	Usman, N. D., Kamau, P. K., & Mireri, C. (2014).	*Impact of policy and procedural framework on project performance.* The study examined the influence of policy administration on projects performance. The study was	The study used an explanatory survey method (case study). **Target population:** Public and private projects in Abuja, Nigeria. **Sampling:** Stratified random sampling. **Sample:** 3 projects	The study found that: a) Policy governance affects project performance to the extent to which the policy is implemented. b) When the policy is not actively enforced project implementers flout the policy by taking	The study did not consider other factors that may interfere in the policy governance-performance relationship.	Project management practices and community participation are integrated into the study as factors that mediate and

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		undertaken in Abuja, Nigeria. **Independent variable:** Policy/procedural framework. **Dependent variable:** Performance of projects.	**Data collection methods:** Secondary data from project files. **Data analysis:** Descriptive analysis	construction shortcuts resulting in poor quality projects. c) Strict policy compliance often increases the cost of projects which explain the resistance to applying the construction policy. d) Policy implementation (in the building sector) faces resistance necessitating enforcement.		moderate the relationship between school infrastructure policy implementation and performance of construction projects.
	Torres, M. S., Zellner, L., & Erlandson, D. (2008).	*Administrator perceptions of school improvement policies in a high-impact policy setting.* The study surveyed perceptions of primary school headteachers on school infrastructure policy implementation in Texas, USA. **Independent variables:** Site-based management, Accountability, Professional development, and Schedule reform. **Dependent variables:** Academic outcomes, Staff morale, Parent and community involvement.	The study was conducted as an online survey: **Target population:** Public primary schools' Principals in Texas, USA. **Sampling:** Convenience sampling **Sample:** 49 primary schools principals **Data collection methods:** Online questionnaire **Data analysis:** Descriptive analysis and grounded theory approach. Open, axial and selecting coding was used.	The study discovered that: a) Policies that upset the status quo were considered to be both arduous and threatening. b) Policy formulators are usually caught up in a dilemma of changing policy to improve the schools on one hand and maintaining staff morale on the other hand. c) Bellicose school enhancement policies often have good results but at the cost of low morale and loss of confidence.	The study surveyed perceptions of primary school principals on the implementation of school infrastructure policy but did not look at the performance of specific construction projects directly but rather indirectly through the perceptions of the principals.	This study measures the performance of construction projects directly.
	Limon, M. R. (2016).	*The effect of the adequacy of school*	The study used a mixed-methods design.	The study found that:	The study was based on 16	This study took on a larger

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		facilities on students' performance and achievement in technology and livelihood education. The study looked at the effects of school facilities and how they affect the student's performance. The study was done in Ilocos Norte, Philippines **Independent variable:** Adequacy of school facilities. **Dependent variable:** Student's performance.	**Target population:** Heads of departments and instructors at the Department of Technology and Livelihood Education at Mariano Marcos State University. **Sampling:** The study adopted a census approach with all 16 staff at the department participating in the study. **Data collection methods:** Interviews, questionnaire, secondary data from school records. **Data analysis:** Descriptive analysis and tests of significance using the Z-Score.	a) School facilities policy guidelines did collaboratively help link educational goals with facilities design. b) Inadequate school facilities negatively impacted student and school performance. c) Regular and effective inspection and maintenance of facilities procedure are necessary to maintain a good state of infrastructure and by extension maintain the performance of learners. d) Stakeholders should be involved in resource mobilization to ensure projects are properly funded to deliver high-quality facilities.	respondents which may be inadequate for generalization of findings. The study did not measure the performance of construction projects directly but rather looked at school performance which is affected by the performance of construction projects.	sample to allow for generalization of findings. It also focused on the performance of construction projects directly.
	Serem, D., & Ronoh, D. K. (2012).	*Challenges faced in implementing free primary education for pastoralists in Kenya.* The study looked at 10 perceived challenges of implementing FPE among pastoralists' communities in Turkana, Ijara, Garissa, Suba and Isiolo in Kenya. **Independent variables:**	The study used an ethnographic design. **Target population:** Headteachers, Education officials, Teachers, Community Leaders, Parents, Community members, Education NGOs staff and School Dropouts. **Sampling:** Purposive sampling and saturation procedure.	The study established that: a) Lack of infrastructure and inadequate physical facilities in schools were identified as the key handles to implementation of FPE policy. b) Inadequate funding, delay in disbursement of funds; teachers who lack project management skills, accounting skills and financial management skills,	The study focused on the absence of physical facilities in schools and how that was hindering the implementation of FPE. Variable relationships were not tested	This study focused on how policy governance aspect of implementation affects the performance of construction projects.

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		10 perceived challenges of implementation of FPE. **Dependent variable:** Implementation of FPE policy.	**Sample:** 170 respondents' representative of the various groups. **Data collection methods:** structured and unstructured interviews, focus group discussions, observations and desk research. **Data analysis:** Thematic analysis and descriptive analysis.	were among the key impediments to FPE Policy implementation among pastoralists communities and affected the ability of schools to mount and realize good performance of FPE related infrastructural projects. c) Negative attitude towards education was seen to hamper FPE policy implementation and mounting of FPE construction projects among pastoralists.		Variable relationships were tested.
	Ileoye, S. A. (2015).	*Effects of school facilities on pupil's satisfaction with schooling in Ondo State, Nigeria.* The study looked at how physical facilities affects pupil satisfaction in school in private, public, rural and urban schools in Ondo State, Nigeria. **Independent variable:** School facilities **Dependent variable:** Satisfaction with schooling	The study took a survey design. **Target population:** Primary school pupils in all 18 local government areas in Ondo State, Nigeria. **Sampling:** Multi-stage sampling using stratified sampling. **Sample:** 900 primary school pupils. **Data collection methods:** Questionnaire, secondary data. **Data analysis:** Descriptive analysis and hypothesis testing.	The study found that: a) School infrastructure inspections practices significantly affect the state of school infrastructure and their performance. b) Rural schools are less stretched in terms of facilities-to-pupil ratio due to less student population which means less wear and tear. c) Students in private primary schools were more satisfied with the schools' physical facilities than their public primary schools' counterparts leading to the conclusion that facilities in private schools were more,	The study focused on projects that entail maintenance of existing physical facilities and not the establishment of new facilities.	This study focused on establishment, repair and maintenance construction projects in primary schools.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
				better and in better condition than those in public schools.		
School infrastructure policy implementation	Kuzich, S., Taylor, E., & Taylor, P.C. (2015).	*When policy and infrastructure provisions are exemplary but still insufficient: Paradoxes affecting education for sustainability in a custom-designed sustainability school.* The study took place at a school in a Green suburb in Western Australia. **Independent variables** Physical infrastructure, Pedagogical infrastructure. **Dependent variables:** Affordances, and counter-affordances	An ethnographic interpretive research study. **Target population:** Primary schools under education for sustainability program. A case study of one school. **Sampling:** Purposive sampling of administrators and teachers in the school. **Sample:** 12 participants **Data collection methods:** Observations and in-depth semi-structured interviews. **Data analysis:** Grounded theory approach	The study found that: a) A sustainable infrastructure policy can significantly increase school infrastructure facilities. b) Purpose-designed physical infrastructure sufficiency is a significant determinant of school objectives realization. c) The maintenance cost of physical infrastructure can thwart a school's ability to realize its potential.	The study had the following shortcomings: a) The study sample, of 12 staff in one school is too small to generalize the findings over other schools. b) The case study of one school may not provide a clear picture of how the policy effect is in other schools. c) Variable relationships were not tested.	This study covered a large sample to allow for generalization. Variable relationships were statistically tested for significance.
	McDonald, N.C., Salvesen, D.A., Kuhlman, H.R., & Combs, T. S. (2014).	*The impact of changes in state minimum acreage policies on school siting practices.* The study was done in seven states in the USA (4 states that had repealed their minimum acreage policy and 3 states that had maintained their minimum acreage policy).	A survey study employing a mixed-methods approach. **Target population**: 283 schools with approved siting decisions in the 7 states included in the study. **Sampling:** Judgmental sampling of schools that met the research criteria from the target schools. **Sample:** 166 schools with siting decisions approved during the four years of study.	The study found that School siting policy changes at the state level aimed at creating the flexibility of school infrastructure siting by relaxing the regulations had no impact on school infrastructure siting and expansion because: a) changes in state policies were not matched by equivalent changes in district and schools'	The study focused on changes in siting policies for construction projects specifically acreage decisions and did not cover the aspect of management practices. The relationship between the study	The study's focus is on infrastructure policy in schools as a whole. The variable relationships in the model were statistically tested for significance.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		Independent variable: Changes in School minimum acreage policy **Dependent variables:** Education infrastructure facilities planning, infrastructure siting decisions	**Data collection methods:** Online survey, desk analysis of school siting decisions, key informant interviews, analysis of change in school acreage. **Data analysis:** Descriptive analysis.	infrastructure regulatory policies b) School infrastructure decisions are complex and a change in infrastructure policy has little impact on school infrastructure in the short-term.	variables was not tested.	
	Rutherford, A., & Rabovsky, T. (2014).	*Evaluating the impacts of performance funding policies on student outcomes in higher education.* The study examined performance funding policies impact on students' outcomes. The study was undertaken in all the 50 states in the USA. **Independent variable:** Performance funding policies. **Dependent variable:** Student Outcomes.	A longitudinal empirical study using descriptive study approach. **Target population:** 568 institutions in 50 states in the USA. **Sampling:** judgmental sampling based on completeness of self-reported data over the 18 years of study. **Sample:** 460 out of 568 institutions **Data collection methods:** Secondary data collected from the National Centre for Education statistics institutional self-reported data generated over 18 years (1993-2010). **Data analysis:** Descriptive analysis and Test for robustness.	The study found that: a) Performance funding policies have no significant enhancement effect on student outcomes or completion rates. b) School management modifies (relaxes) management strategy on attraction and retention in light of enhancement funding reducing its intended impact.	The study had gaps, among them: a) It focused on graduation and completion rates as the only measures of performance. b) The influence of school management practices was not tested. c) The study did not specifically focus on school infrastructure.	This study focused on school infrastructure policy implementation context. It considered school management practices as a mediator between school infrastructure policy implementation and infrastructure project performance.
	Berryhill, J., Linney, J.A., & Fromewick, J. (2009).	*The effects of education accountability on teachers: Are policies too stress-provoking for their own good?*	An empirical study adopting an exploratory research approach.	The study found that: a) Policy influences performance.	The study was limited to accountability policies and focused on the effect of	This study includes wider aspects of education policy to cover school

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		*The study e*xamined policies and their effects on education accountability on teachers. The study was done in Springfield, USA. **Independent variable:** Schools test scores. **Mediating variables:** Role conflict, policy pressure, and Self-efficacy. **Dependent variables:** Depersonalization, Personal achievement, and emotional exhaustion.	**Target population:** Teachers in the 11 elementary schools in the target district. **Sampling:** Simple random sampling **Sample:** 100 teachers in 9 elementary school in the district. **Data collection methods:** self-administered questionnaire and semi-structured interviews. **Data analysis:** Factor analysis, Descriptive statistics and Path analysis.	b) Accountability policies result in diminished job engagement for teachers.	teacher performance. The influences of school management practices and community participation were not tested.	management and external linkages. It introduces management practices and community participation variables.
	Rambo, C. M., & Lucas, S. O. (2016).	*Macro-economic factors influencing the financing of build-operate-transfer projects: evidence from a railway project in Kenya*. The study examines the influence of selected macro-economic factors on the financing of a concession agreement project in Kenya that had failed to realize its set objectives. **Independent variables:** Inflation rates, interest rates debt ratio and taxation burden.	A causal-comparative approach using natural selection codes, instead of manipulation of explanatory variables to forecast relationships. **Target population:** Staff of firms and government department stakeholders in the PPP consortium. **Sampling:** Stratified sampling **Sample:** 402 participants but 348 was the effective sample. **Data collection methods:** self-administered questionnaire, self-reported secondary data.	The study noted that: a) Macro-economic variables of Inflation rates, interest rates debt ratio and taxation burden (which are elements of government monetary and fiscal policy) influence project financing. b) The government need to establish a supportive policy environment and c) Put in place measures to cushion the concessionaire for the later to thrive in the market.	The study delimited itself to four selected macroeconomic influences of project financing and one project – the railway project. The study focused on one aspect of project management practices only: project financing.	This study focused on school infrastructure policy implementation and included other variables, not in the model such as community participation and the wider project management practices.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		Dependent variable: Project financing	**Data analysis:** Descriptive analysis, Chi-square tests, One-way ANOVA and Relative Importance Index analyses.			
	Nagaraj, R. (2003)	*Industrial policy and performance since 1980: Which way now?* The study was done in India. **Independent variable:** Industrial policy. **Dependent variable**: Industrial performance.	A longitudinal study using exploratory study approach. **Target population:** Firms in the manufacturing sector in India. **Sampling:** Study uses industrial average's data hence no sampling. **Data collection methods:** Secondary data **Data analysis:** Trend analysis.	The study established that: Industrial policy reforms increased the competitiveness of industries and stirred industrial growth.	The study used secondary data and only policy and performance variables were studied in the model.	This study used primary data. The study incorporated other variables that affect the policy – performance relationship
Project management practices	Mills, V., & Whittaker, S. (2001)	*Work-based learning in Scottish higher education: Policy and practice.* The study was undertaken in Glasgow, UK. **Independent variable**: policy **Dependent variable:** practice	The study design was an opinion survey. **Target population:** Strategic management-level staff, academic staff and academic-related staff members at GCU. **Sampling:** The study adopted a census approach. **Sample:** 3 strategic management level members of staff and 22 academic members of staff. **Data collection methods:** Self-administered questionnaire. **Data analysis:** Thematic analysis.	The study concluded that: a) Government policy is not always coherent. b) When the policy is not coherent, individual institutions determine how best to implement the policy resulting in different applications of the policy across organizations and thus differences in management practice and differences in results.	The study focused on the staffs of one institution. The relationship between the study variables was not tested. The study did not cover performance as a variable.	This study aimed to test the relationship between policy and practices and how that influences the performance

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
	Liu, T., & Wilkinson, S. (2014).	*Using public-private partnerships for the building and management of school assets and services.* The comparative study examined critical strategies of applying PPPs specific to schools. The study examined two PPP projects; one in Australia, the other in New Zealand. **Independent variable:** Public-private partnerships arrangements. **Dependent variable:** Management of school infrastructure assets.	A Comparative case studies approach was used. **Target population:** Stakeholders of school PPP projects. **Sampling:** Multistage purposive sampling of 1) school's PPP projects and 2) stakeholders of the school PPP Projects sampled. **Sample:** 12 stakeholders of two school PPP projects sampled. **Data collection methods:** Semi-structured questionnaire and in-depth interviews. **Data analysis:** Thematic analysis	The study noted that: a) Good project inception practices, appropriate tendering process, a local private sector partner, wide stakeholder engagement and effective leadership and governance enhanced the partnership increases the likelihood of project success. b) For school projects that tend to be small in scale, a programme approach where several projects are grouped into a programme offers more hope for making a viable business case of PPPs in schools. This may require several schools to team-up.	The study was based on two case studies only, hence raising issues on the generalization of the findings. Being a comparative study, no relationships between variables were established and or tested.	This study focused on more school projects and purposed to establish and test the relationship between study variables. It focuses on 8 types of school construction projects being undertaken in the sampled schools.
	Keat, K., & Lin, A. (2018)	*The relationship between knowledge management and organizational performance of Malaysian private colleges: A mediating role of managing talent practices* The study sought to examine the mediating role of management talent practices	The study was designed as a survey. **Target population:** Academic and non-academic staff in 390 private colleges **Sampling:** Simple random sampling. **Sample:** 785 staff from 157 private colleges. The effective sample was 243. **Data collection methods:** Questionnaire **Data analysis:** PLS-SEM technique using SmartPLS	The study found that: Talent development practices mediated the relationship between knowledge management and organizational performance	The study focused on colleges and managing talent practices	This study focuses on construction projects and project management practices

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		Independent variable: Knowledge management **Dependent variable:** Organizational performance **Mediating variable:** Managing talent practices (talent development and talent retention)				
	Xiu, L., Liang, X., Chen, Z., & Xu, W. (2017).	*Strategic flexibility, innovative HR practices, and firm performance: A moderated mediation model.* The study examined the mediating role of innovative HR practices **Independent variable:** Strategic flexibility **Dependent variable:** Firm performance **Mediating variable:** Innovative HR practices	The study was designed as a survey. **Target population:** CEOs of 598 small and medium-sized firms in the Yangtze Delta region. **Sampling: S**imple random sampling **Sample:** CEOs of 113 small and medium-sized firms. **Data collection methods:** Self-administered questionnaire **Data analysis:** Conditional procedural analysis	The study found that: Innovative HR practices mediated the relationship between strategic flexibility and firm performance	The study focused on innovative HR practices	This study focuses on project management practices
Community participation	Yetunde, O., Akinola, J., & Gabhainn, S., N. (2014).	*Parental participation in primary schools: The views of parents and children.* The study examined how pupils and parents view parental participation in school activities and	A cross-sectional opinion survey of nine primary schools. **Target population:** Parents and pupils in primary schools in the County of Galway, Ireland	The study concluded that: a) Both parents and pupils had a positive view of parents' participation in school activities. b) Parents participation in school activities and projects has potential benefits in increasing the	Although the study respondents (218 parents and 231 pupils) make a significant sample, the sampling of nine primary schools may not be	This study incorporates the community in examining community participation in primary schools'

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		projects and how they would like parents to participate. The study took place in County of Galway, Ireland. **Dependent variables:** Perception of parents, Perception of pupils. **Dependent variable:** Parental participation in schools.	**Sampling:** Multistage sampling using stratified and purposive sampling **Sample:** 9 primary schools, 218 parents and 231 pupils. **Data collection methods:** Self-administered questionnaire **Data analysis:** Descriptive analysis, Pearson's chi-square.	connections between the school and its stakeholders.	representative to generalize findings. The study did not consider the participation of other groups in the community other than parents.	construction projects. A significantly large sample is used to allow for generalization of the study findings.
	Swift-Morgan, J. (2006).	*What community participation in schooling means: Insights from southern Ethiopia.* The study looked at two community participation programs in school construction projects (CSAP and BESO-II CGPP) implemented by donors and the Ministry of Education in Southern Ethiopia. This was an exploratory study examining the forms of participation that exist in the schools and their impact on the schools' ability to realize their goals.	The study adopted an exploratory qualitative approach. **Target population:** Schools in southern Ethiopia region communities. **Sampling:** Purposive Stratified sampling of schools from three strata (schools that had completed the CSAP grant community participation project, school running the BESO-II CGPP community participation support project and schools, not on any assistance programme) **Sample**: 8 communities and 8 schools (4 schools that had completed the CSAP grant project, 2 schools running the BESO-II CGPP support project and 2 schools not on any assistance programme) **Data collection methods:** Interviews, and Focus group	The study established that: a) The Ethiopian policy on community participation aims to achieve community participation in all aspects of the schools and eventually result in local ownership of schools in the long run. b) Community participation in school construction projects was the third most common form of community participation in schools in southern Ethiopia. c) The main community participation in school construction projects took the form of planning, resources mobilizations, volunteering labour and project monitoring and evaluation.	The author employed a qualitative research approach within a small sample of schools and did not intend that the results could be generalized over the larger Ethiopia. Other than community participation, other Variables of the study were not specified nor was there any attempt to test variable relationships in the exploratory study.	This study used a larger sample of schools to get results that can be generalized. The study Variables were specified and the variable relationships were tested.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
			discussions with community groups and school stakeholders in the selected communities and schools. **Data analysis:** Thematic analysis.	d) Policies for promoting community participation do not yield equal engagement and often women and the poor are left out in the main participation activities such as school enrollment, financing and construction projects. f) Participation ranged from therapy to partnership under the Arnstein's ladder.		
	Emenalo, F.C., & Ibekwe, C. (2013).	*Appraisal of community involvement in secondary school's development in Okigwe education zone of Imo state.* The study sought to appraise community involvement in school development projects in Okigwe, Nigeria. **Independent variables:** community school project sponsorship, community monitoring of project funds, community provision of school facilities and community fundraising strategies. **Dependent variable:** School development	A descriptive and inferential survey. **Target population:** All senior secondary schools in Okigwe region were targeted for the study. The respondents were all 78 school principals and all 78 chairpersons of the schools' Board of Governors of the 78 senior secondary schools in the location of study. **Sampling:** A census approach was adopted. **Data collection methods:** Four-point Likert scale questionnaire. **Data analysis:** Descriptive statistics, Z-score hypotheses testing.	The study concluded that: a) Community involvement in school development in Okigwe takes the form of finances donations, payment of school fees and donation of land to schools. b) Communities also donate infrastructural facilities by constructing school buildings, donating laboratory equipment's, donating sporting and library materials such as books and furniture. c) That although the community makes such donations to school development, they don't monitor to ensure the facilities are properly utilized and maintained but rather they trust the school management to ensure that.	Though the study is on community involvement in school development it only targeted school principals and Board of Directors as respondents and did not include community members instead it assumed that the two are representative of their school's community	This study used as its respondents: headteachers and DEOs.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
				d) Community involvement in school development is a cherished age-old practice in Okigwe. e) The Nigeria national policy on education (2004) promotes community involvement in school development.		
	Kumar, N., K. (2015).	*Governance and management of common property resources: An analysis of community participation in sustainable village development in India*. The study looks at how government and communities can team up to establish and manage social resources such as watersheds and schools. The study was done in India. **Independent variable:** Community participation. **Dependent variable:** Common property resource management.	The study used a descriptive mixed-methods approach. **Target population:** Hiware Bazar organizational and individual residence. **Sampling:** Judgmental sampling **Sample:** Members of the village Panchayat and staff of NGO's operating in the area. **Data collection methods:** Open-ended discussions, secondary data and direct observations **Data analysis:** Descriptive analysis	The study found that: a) Community involvement with a vision, efficient management and leadership benefits the society in many ways. b) A public-private partnership between the government and the community is necessary for community participation to be sustainable.	The study was based on only two variables and the relationships between the variables were not tested. The exact sample of the study was not specified as the researcher was dependent on available secondary data and willing participants.	This study incorporated more variables and sought to test the relationship between the study variables. The specific sample of the study was specified.
	Thomas, M., Rowe, F., &	*Understanding the factors that characterize school-community partnerships: The case of*	The study adopted an explanatory case study approach.	The study found that: a) Effective school-community partnerships need to be established for	The study was done in five schools with 16 respondents hence the results	This study used a larger sample to justify the

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
	Harris, N. (2010).	*the Logan healthy schools project.* The study examined the factors that result in effective community partnerships in undertaking sustainable school projects. It was done in South-East Queensland, Australia. **Independent Variables:** Factors affecting school community relationship **Dependent Variable:** Effective school-community relationships.	**Target population:** Schools implementing the Health Promoting Schools Project in Logan (LHSP), South-East Queensland, Australia **Sampling:** Purposive sampling of LHSP schools and criterion sampling of respondents in the sampled school. **Sample:** 16 respondents from 5 schools implementing the LHSP project. **Data collection methods:** Semi-structured interviews, observation and documentary analysis. **Data analysis:** Thematic analysis and grounded theory using axial and open coding techniques.	there to be meaningful and successful participation of the community in school projects. b) Four factors are necessary to establish effective school-community relationship: deliberate commitment to nature good relations between the school and the community partners, common goals and objectives, competence in relationship management and complementary capacities of school personnel.	may not be easily generalized due to the inadequacy of the sample. The study did not formulate a relationship model nor test the variable relationships.	generalization of findings. This study took effective school-community relationships further by examining the effect on the performance of construction projects.
	Veloso, L., Craveiro, D., & Rufino, I. (2013).	*Community involvement in school management in Portugal.* The study looks at community participation in schools in Portugal which is guided by a national policy that promotes community involvement in schools' management, school projects and operations. **Independent variable:**	The study took the form of longitudinal investigative analysis. **Target population:** Public schools in all the regions in Portugal. **Sampling:** Stratified sampling of regions using urban, semi-urban and rural strata. **Sample:** Schools in Lisbon, Alentejo and Algarve regions of Portugal (298 schools and school group reports covering three academic years 2006-07, 2007-08 and 2008-09).	The study concluded that: a) Community involvement practices were present and very similar in all the schools in the three regions of study owing to national education legislation that promotes and specifies the manner that community involvement in schools should be. b) Legislation that requires opening up of public school to allow community involvement had resulted in	The study focused on the community involvement aspect of the education policy and how it affected school management practices, school activities and projects but did not cover the school infrastructure aspect of the policy.	This study focused on the school infrastructure policy implementation aspect. The study sought to statistically test the variable relationships.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		Education policy on community involvement. **Dependent variables:** School management practices, School activities and projects	**Data collection methods:** Secondary data collected by reviewing of Inspectorate General of Education reports for all the sampled schools in the three academic years the study covered. **Data analysis:** Multiple correspondence analysis, content analysis using classic thematic coding and descriptive analysis.	schools being autonomous management units where communities practice "citizenship". c) 66% of the schools reported having involved the community in the management of school projects.	The study did not test the variable relationships.	
	Graddy, E.A. & Morgan, D.L. (2006).	*Community foundations, organizational strategy, and public policy.* The study examined how community foundations influence social organizations strategy and strategic direction. The study was done in the state of California, USA. **Independent variables:** organizational characteristics, community characteristics, external factors, policymaking **Dependent variable:** Organizational strategy.	The study was designed to test a hypothetical model. **Target population:** Participants in the League of California Community Foundations. **Sampling:** A census study **Sample**: CEOs of 34 community foundation members of the League of California Community Foundations and the 47 counties they serve. **Data collection methods:** Observations and interviews **Data analysis:** Descriptive analysis, simple regression, binary-logit estimation.	The study found that: a) The public sector depends on the private sector to supplement efforts to meet the collective needs of society, especially at the local level. b) Community foundations are always being called upon to assume greater roles in local governance especially in community development such as school projects. c) Community foundations need time to grow and mature before they can be tasked with significant responsibilities such as community development and local governance. d) Engagement of community foundations in social development is	The authors noted that the location of study (California state) had unique social and community characteristics which render the study results unrepresentative of other communities for generalization of findings. Further, the authors note that the study model did not address the moderating role of leadership on the relationship between community foundations and social	This study was based on a wide area of the state to increase the generalizability of the results. This study considered the mediating role of project management practices and the moderating role of community participation.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
				propelled through devolution and decentralization of policymaking.	organization's strategy.	
	Miller, B.A. (1995).	*The role of rural schools in community development: Policy issues and implications.* The study examined the role of policy in community participation in schools' projects and the reverse school participation in community development. It was undertaken in Georgia, South Dakota and Colorado, USA. **Independent variables:** Policy, community participation. **Dependent variable:** Performance of community-based projects.	The study was conducted as an invitational symposium that brought together students, and stakeholders from successful community-based initiatives from Georgia, South Dakota and Colorado. **Target population:** Students and adult stakeholders in school projects involving the community. **Sampling:** Purposive sampling **Sample:** 28 participants representing students and adults. **Data collection methods:** Focus group discussions **Data analysis:** Thematic analysis.	The study established that: a) When schools work in partnership with local leaders, they can have a positive impact on the community and that community participation in school activities also yield school participation in community activities. b) By building the social capital of the school and the youth the community creates opportunities for more solid community-school initiatives in the future. c) For community participation in school projects and activities to be sustainable, it needs to be anchored on a policy.	The study, although focusing on community-school projects participation, did not include school staff as part of its respondents, instead, it focused on the operators and managers of those projects. The study collected qualitative data only and as a result variable relationship were not statistically tested.	This study focused on school headteachers as the main respondents. Both qualitative and quantitative data were collected and variable relationships were tested statistically.
	Lelegwe, L., S., Kidombo, H., & Gakuu, C. (2018).	*Empirical analysis of the moderating influence of community participation on the relationship between technical assistance and sustainability of donor-funded projects in Samburu county, Kenya.*	The study design was a cross-sectional survey. **Target population:** Donors, NGOs and CBOs **Data collection methods:** Questionnaire and document analysis **Data analysis:** Stepwise regression	The study found that community participation moderated the relationship between technical assistance and sustainability of donor-funded projects	The study did not focus on policy but rather on technical assistance as the independent variable.	This study focused on the moderating role of community participation on policy - performance relationship.

Variable	Author(s) and Year	Title of Study	Methodological Approach	Findings	Knowledge Gaps	The focus of this Study
		The study examined the moderating role of community participation. **Independent variable:** Technical assistance **Dependent variable:** Sustainability of donor-funded projects **Moderating variable:** Community participation				
	Lim, J., Lo, M., Mohamad, A. A., Chin, C., & Ramayah, C. (2017)	*The moderating impact of community support on tri-dimensional impacts of tourism (economic, socio-cultural, and environmental) towards rural tourism competitive advantage.* The study sought to establish the moderating role of community support. **Independent variable:** Impacts of tourism • Economic • Social-cultural • environmental **Dependent variable:** Tourism competitive advantage **Moderating variable:** Community support	The study was designed as a quantitative survey. **Target population:** Residents aged 16yrs and above residing in the targeted area of study **Sampling:** Simple random and purposive sampling **Sample:** 238 residents **Data collection methods:** Questionnaire **Data analysis:** Path modelling, bootstrapping and blindfolding.	The study found that community support had a moderating effect on the relationship between environmental impact and tourism competitive advantage.	The study did not examine the role played by the policy. Performance was examined by one of its indicators: competitive advantage.	This study examined the role of policy and focused on the performance of projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the methodology that was used in the study is presented. The chapter contains details of the research paradigm, research design, target population, sample size, sampling procedures, research instruments, data collection procedures, data analysis techniques, ethical issues and operationalization of the variables.

3.2 Research Paradigm

The study was guided by pragmatism philosophy. Pragmatism - believed to be an off-shoot of realism - was developed in the last century (Hall, 2013). Among its protagonist are Charles Peirce, William James, John Dewey and Arthur Bentley (Maxcy, 2003; Pansiri, 2005). Of positivism, post-positivism, constructivism, interpretivism, transformative and pragmatism; only the latter two paradigms are considered suitable for mixed methods research (Hall, 2013). Of the two, pragmatism is the better preferred by social scientists doing mixed methods research because it allows the researcher to focus on adopting the best methodology to investigate the problem rather than aligning the methodology of study to a certain paradigm (Kaushik and Walsh, 2019).

Pragmatists believe human actions, beliefs and past experiences cannot be separated; reality keeps on changing, the world is ever-changing and human action has an intermediary role in those changes (Kaushik and Walsh, 2019). Pragmatists accept the existence of both single and multiple realities (Croswell and Clark, 2011) and hold that knowledge is gained from experience, reality is 'what works' and it cannot be identified with finality. Pragmatism is considered appropriate in social science studies using either qualitative approach, quantitative approach or both (Morgan, 2014) because it embraces a plurality of methods (Kaushik and Walsh, 2019). The paradigm allows researchers to adopt the methods they believe are best suited to investigate a research problem (Kaushik and Walsh, 2019).

On epistemology, pragmatism assumes that methods of inquiry are independent and can be combined as appropriate to realize the goals of the investigation (Robson, 1993). Guided by this paradigm, a researcher can combine methods of inquiry such as observation, focus group discussions, interviews, questionnaires, desk analysis among others, as is necessary to investigate the research problem at hand (Patton, 2002). With this in mind, the study adopted the pragmatism

paradigm as it allowed the researcher to customise a blend of quantitative and qualitative methods of inquiry that were found to be suitable and fit to adequately investigate the research problem and realize the objectives of the study.

3.2.1 Research Design

The study used a cross-sectional survey research design and correlational convergent parallel design. A survey research design entails data collection from members of a target population to determine the present status of that population concerning the study variables (Gay, Mills and Airasian, 2011). Since the data were collected at only one point in time, a survey approach was suitable. On the number of contacts made with the study population, the study adopted a cross-sectional approach which is a one-shot look or a status study where an overall picture of the phenomena under study is obtained at a specific time (Kumar, 2014). Kumar (2014) further notes that cross-sectional studies are suitable for finding out the prevalence of phenomena, problem, attitude or issue while Nachmias, Nechmias and DeWaard (2014) adds that cross-sectional research is suitable for survey research.

In a study, if the concern of the researcher is to explain or predict, a quantitative approach is appropriate; if the researcher aims to comprehend the experiences of the phenomena in the actors' perspectives, a qualitative approach is suitable and if the researcher aims realize both, a mixed-methods approach is suitable (Holliday, 2007; Wellington and Szczerbinski, 2007). Since this study aimed to both explain the study variables relationships as well as, understand how these study's variables interact in the study context, the study adopted a mixed-methods approach in line with the tenets of pragmatism. According to Kidombo, Gakuu, and Ndiritu (2016), the mixed methods approach borrows from various methodologies and allows for data triangulation. The study also adopted a convergent parallel design, where qualitative and quantitative data are collected and analysed separately and converged at the interpretation stage.

Studies done in Kenya that have used cross-sectional design include Otieno, Rambo, and Odundo (2014), and, Khaemba, and Mutsune (2014). Mixed methods approach has been used in local studies, among them; Kidombo, Gakuu, and Ndiritu (2016). Other studies that have used a combination of cross-sectional survey and mixed methods approach design include Kagaari (2011), Rambo and Odundo (2015), Cavens, Kidombo, and Gakuu (2016).

3.3 Target Population

The target population of a study refers to the entire set of individuals or items that the researcher is interested in generalizing the conclusions (Amin, 2005; Coopers and Schindler, 2008). The study targeted 920 headteachers in 920 public primary schools in Somaliland. The general population of primary schools in Somaliland was 1042 primary schools in 2015 of which 920 were government-owned and 122 were privately owned schools (MoEHE, 2015). In each public school is the headteacher who is in charge of school administration.

Headteachers were targeted as the appropriate respondents for their schools for the following reasons. They head the school's administration and therefore have implementation responsibility of the school infrastructure policy. They are in charge of project management practices used in school projects. They determine the level and scope of community participation activities that the school deploy and own the performance of construction projects realized in the schools. For these reasons, headteachers are in a position to provide reliable information for the study.

The study also targeted the 82 DEOs in the 82 Districts in Somaliland. DEOs have an oversight role on the schools in their district and are therefore familiar with operations and construction projects of the schools in their district. The target population is presented in Table 3.1.

Table 3.1

Target Population

			Public primary schools		
No.	**Region**	**Districts/DEOs**	**Urban schools**	**Rural schools**	**Schools'/HT Total**
1	Awdal	6	19	70	89
2	Badhan	5	22	21	43
3	Buhodle	4	8	31	39
4	Gabiley	6	17	54	71
5	Hawd	3	4	11	15
6	Maroodi-Jeex	7	68	88	156
7	Odwayne	5	20	12	32
8	Sahil	8	35	49	84
9	Salal	4	11	15	26
10	Sanaag	12	41	125	166
11	Saraar	5	23	7	30
12	Sool	7	30	42	72
13	Togdheer	10	37	60	97
	Totals	**82**	**335**	**585**	**920**

Source: MoEHE (2015), pp 77-79

Note: HT- Headteachers. DEO- District Education Officer

The 920 public primary schools and the 82 DEOs form the target population of the study. The total target population was therefore 1002.

3.4 Sample Size and Sampling Procedure

The study used both random and non-random sampling methods. Sampling is the aspect of selecting a few (sample) from a larger group to form the basis of estimating or predicting the characteristics of the larger group (Kumar, 2014).

3.4.1 Sample Size

To determine the sample size of respondents to be included in the study, the study applied the Cochran (1963) sample size formula for estimating proportions in a large population (N>10,000) and then applied the Cochran finite population correction (Cochran, 1963; Mugenda and Mugenda, 2003; Bernard, 2006). In social science, the desired sample size when estimating proportions in a large population can be computed as:

$n = z^2 (P) (Q)/ (\text{level of statistical significance})^2$

Where:

z = the standard normal deviate at the necessary confidence interval,

n = is the sample size desired,

P = the proportion of the population bearing the characteristics being measured and

Q = 1-P.

Using a 5% level of significance, the 95% confidence preliminary probability sample was:

$n = 1.96^2(0.5)(0.5)/(0.05)^2 = 384.16$ which is equal to 385 sample members.

Applying the Cochran's finite population correction formula;

$n' = n / [1+ (n-1)/N]$

n' = the corrected sample size,

n = the sample size

N = the size of the population from which n is drawn

The final representative sample at 5% level of significance calculated as:

$n' = 385/ [1+ (385-1)/1002] = 278.33 \approx 279$

The desired sample for the study, at 5% level of significance, was therefore 279 respondents comprised of 257 headteachers (computed as 279*920/1002) and 22 DEOs (computed as 279*82/1002).

3.4.2 Sampling Procedures

To draw the sample, the study adopted multistage sampling. Multistage sampling entails sampling in stages where smaller sampling units are defined and sampled out of larger units at each stage of the process until the desired sample is reached (Singh and Mangat, 1996). The study used Somaliland's 2008 regional demarcation of 13 administrative regions. The 13 regions had a total of 86 districts and 920 public primary schools at the time of undertaking this study.

First, purposive sampling was used to sample regions resulting in a sample of 7 regions with 56 districts and 735 public primary schools. The results are shown in Table 3.2.

Table 3.2

Purposive Sampling of Regions

Target population						**A purposive sample of Regions**					
			Public primary schools						**Public primary schools**		
No.	**Region**	**District s/DEOs**	**Urban schools**	**Rural schools**	**Total Schools/ HTs**	**No.**	**Region**	**District s/DEOs**	**Urban schools**	**Rural schools**	**Total School s/HTs**
1	Awdal	6	19	70	89	1	Awdal	6	19	70	89
2	Badhan	5	22	21	43	2	Gabiley	6	17	54	71
3	Buhodle	4	8	31	39	3	Maroodi-Jeex	7	68	88	156
4	Gabiley	6	17	54	71	4	Sahil	8	35	49	84
5	Hawd	3	4	11	15	5	Sanaag	12	41	125	166
6	Maroodi-Jeex	7	68	88	156	6	Sool	7	30	42	72
7	Odwayne	5	20	12	32	7	Taghdeer	10	37	60	97
8	Sahil	8	35	49	84						
9	Salal	4	11	15	26						
10	Sanaag	12	41	125	166						
11	Saraar	5	23	7	30						
12	Sool	7	30	42	72						
13	Togdheer	10	37	60	97						
	Totals	**82**	**335**	**585**	**920**		**Totals**	**56**	**247**	**488**	**735**

Note: The following purposive sampling criteria were used: security and absence of armed conflicts; physical accessibility, a high number of primary schools, a relative balance of rural and urban schools and attaining a national geographical spread

HT- Headteachers. DEO- District Education Officer.

In sampling the 7 regions, the purposive sampling criteria used were: security and absence of armed conflicts; physical accessibility, a high number of primary schools, a relative balance of rural and urban schools and attaining a national geographical spread. These criteria were applied in that order. Data collection in regions with security issues and those difficult to access due to poor road infrastructure was considered untenable. Seven regions that were considered secure, physically accessible by road, having moderate to a high number of public primary schools and combining rural and urban schools were sampled.

Secondly, proportionate stratified random sampling with replacement was applied to sample 257 public primary schools from the 735 schools purposively sampled using the fishbowl method. Each school is headed by a headteacher and sampling a school was representative of sampling a headteacher. This was appropriate since, at this stage of the study, the identities of the schools were known but the identities of the headteachers were not. The number of schools to be sampled from each region were determined using proportionate stratified random sampling. The process and the resulting sample from each region are shown in Table 3.3.

Table 3.3

Proportionate Stratified Random Sampling of Public Primary Schools.

No.	Region	Districts	Number of public primary schools (x)	Randomly sampled public primary schools. y = (257/735) *x
1	Awdal	6	89	31
2	Gabiley	6	71	25
3	Maroodi-Jeex	7	156	55
4	Sahil	8	84	29
5	Sanaag	12	166	58
6	Sool	7	72	25
7	Taghdeer	10	97	34
	Total	**56**	**735**	**257**

Note: 1. Method - proportionate stratified random sampling.
2. Each school represent a headteacher on a 1on 1 ratio

Table 3.3 shows the proportionate regional distribution of the 257 headteachers to be sampled for the study. To draw the actual sample the fishbowl method was used. The names of each of the 735 schools and the region where the school is located were coded on 735 equal-sized raffle pieces of paper. The papers were arranged by regions. For each region, the region's raffle papers were put

into a container (fishbowl) and shuffled. A raffle paper was drawn out, read, recorded in a table by region, replaced in the container and the papers re-shuffled. Replacement was used to ensure that all the schools within a region had an equal chance of being sampled (Cottrell and McKenzie, 2011). This was repeated until the desired number of schools to be sampled from that region was reached. This process was used to draw the desired sample of schools - each region at a time - until all the 257 schools were sampled. If a paper that had already been drawn earlier was drawn again, it was returned unrecorded to the container and the papers re-shuffled. The was done according to the procedure described by Cottrell and McKenzie (2011).

From each of the 257 sampled schools, expert sampling was used to sample the headteacher as the respondent for the study. In the expert sampling technique, respondents are considered experts in the matter under study (Kumar, 2014). The headteacher being the manager of the school is in charge of school infrastructure policy implementation, community participation process and construction projects undertakings in the school and therefore the most appropriate respondent for the study. Headteachers provided both quantitative and qualitative data by completing questionnaires.

In every district, MoEHS had established a DEO. At this stage of the study, the identities of the DEOs were not known to the researcher and therefore districts were used to represent DEOs in the sampling frame since the districts' identities were known and each district had one DEO. To draw the sample of 22 DEOs from the 56 districts in the 7 purposively sampled regions, simple random sampling was used. With simple random sampling, the items in the sampling frame have an equal chance of being sampled (Cottrell and McKenzie, 2011).

The 56 districts were listed and each assigned a number from 001 to 056. A three-digit computer-generated table of random numbers was used. A random starting point on the table was blind-picked. From that starting point, the numbers in the table were read across the table consistently. Every time a number within the range 001 to 056 was encountered, it was recorded into the sample. This went on until 22 numbers were entered into the sample. This was done according to the process described by Nachmias et al., (2014). With this process, all the 56 districts had an equal chance of being sampled.

DEOs participated in the study as expert informers providing qualitative data. DEOs oversee school operations in their districts and are therefore conversant with school projects, school infrastructure policy, CEC operations and project management practices in the schools. The final samples drawn are shown in Table 3.4.

Table 3.4

Sample for the Study

Units of observation	Participation in the Study	Target population	Sample Size
Headteachers	Completing Questionnaires	920	257
DEOs	Semi-structured interviews	82	22
Total		**1002**	**279**

3.5 Research Instruments

Primary data was collected using questionnaires and interviews while secondary data was collected through desk analysis. The survey's self-administered questionnaire was given to 257 sampled headteacher respondents in the 257 sampled public primary schools. The questionnaire contained closed-ended questions and open-ended questions. The latter was used to collect qualitative data (alongside DEO interviews) while the former was used to collect quantitative data for use in measuring the stated objectives (Mugenda and Mugenda, 2003). The questionnaire was anchored on a 5-point Likert attitudinal scale. The likert attitudinal scale is suitable for measuring perception, attitude, values and behaviour (Kumar, 2014). The questionnaire had an introduction section followed by Section A which sought basic details about the school; the school headteachers' gender, the highest level of education, years of service as a headteacher in current school, training in project management skills; whether construction projects were undertaken in the last five years and adequacy of infrastructure facilities in the school. The other part of the questionnaire was organized into four sections: B, C, D and E according to the variables of study: school infrastructure policy implementation (policy interpretation and policy governance), project management practices, community participation and performance of construction projects respectively.

Semi-structured interviews targeted to collect qualitative data from 22 simple randomly sampled DEOs from the 7 regions of study. This method entailed using an interview guide to provide the overall direction of the interview but the interviewers maintained discretion to follow leads (Bernard, 2006). This method allowed the interviewers to probe the interviewees for information

that may not have been captured in the interview guide and to elucidate responses received from the headteachers through the questionnaires. Finally, secondary data was collected from district educational reports, regional educational reports, MoEHS strategic plans, regional development plans, district statistical abstracts, school census statistical yearbooks, and education statistics yearbook among others.

3.5.1 Pilot Testing of Instruments

A pilot study is essentially a trial run done in preparation for the major study (Joppe, 2009), mainly pre-testing the research tool to address any possible problems it may have (Kumar, 2014). A pre-test of the questionnaire before the actual study was done to help the researcher to assess the clarity of the research instrument, its ease of use and suitability to collect the data needed to realize the research objectives. Pretesting was done in Awdal region on 28 primary school headteachers from 28 randomly sampled primary schools - which is a 10.9% proportion of the sample. According to Mugenda and Mugenda (2003), pre-testing lets errors be revealed before the actual data collection begins and 10% of the sample size is satisfactory for a pilot study. Awdal was selected for pilot testing because of its ease of physical accessibility, its relatively high number of schools and its mix of rural and urban schools. Questionnaires were administered on a drop-and-pick-later method. A feedback form (Appendix III) attached to the questionnaire was used to collect feedback from the respondents on the clarity of the questions, the respondents' ability to understand the questions and the appeal of the questions to the respondents. On the feedback form, respondents were requested to suggest improvements to each of the questions in the questionnaires. When collecting the completed questionnaires, two to six days after they were dropped, verbal feedback on the questionnaire was also sought from the respondents where possible. The feedback obtained included suggestions to simplify the wording of the questionnaire, to slightly increase the font; and to increase clarity in the policy governance and the project management practices sections of the questionnaire. These feedbacks were used to fine-tune the questionnaire before the main study. Further analysis of the pilot testing data (section 3.5.2 and 3.5.3) showed that the questionnaire had high predictive validity ($r=0.82$) and high reliability (Cronbach alpha values > 0.7) indicating the instrument was suitable for collecting the intended data.

The interview guide was pilot tested on two education officers at MoEHS regional offices in Awdal. This entailed the researcher conducting two mock interviews. The results helped fine-tune

the interview guide and modify the interview approach from one interviewer to at least two interviewers sharing roles in the interview.

3.5.2 Validity of Instruments

Internal validity (credibility) is the ability of an instrument to measure what it is designed to measure (Kumar, 2014), is the truthfulness, accuracy or meaningfulness of the research results (Coopers and Schindler, 2008; Joppe, 2009), and is determined by absence or presence of non-random error (systematic error) in the data. The following section describes how the researcher ensured construct, content and criterion-related validity of the questionnaire; internal validity of interviews and external validity of the study's results.

Construct validity assesses the extent to which data obtained by a research instrument accurately represents the theoretical concept under study (Mugenda and Mugenda, 2003; Nachmias et al., 2014). The underlying concept in this study is that primary schools undertake infrastructural projects. The theoretical concept upon which the research instruments were developed is that the school infrastructure policy instituted by the government is related to the project management practices and community participation approaches adopted by the school management and these affect the performance of construction projects realized. The study ensured construct validity by constructing questionnaire items based on the proven indicators of the study variables - verified through empirical review of literature; ensuring the questionnaire items were clear, straight forward and unambiguous; and ensuring the variables were clearly defined. Further, a triangulation design was used so that the same study concepts were measured through questionnaires, interviews and, data from secondary sources. Pilot testing of the instruments before the actual data collection also served to ensure construct validity.

Content validity measures the degree to which the data collected using the research instrument is representative of the concept under study (Mugenda and Mugenda, 2003), and comprises of face validity (the level to which the researcher is persuaded that the instrument is appropriate) and sampling validity (the extent to which the content of the research instrument is representative of the content population of the phenomena under study) (Nachmias et al., 2014). The sampling validity of content validity was ascertained firstly, by the academic supervisors' who were supervising this study confirming the research tool's content population representativeness. Secondly, expert opinion and recommendations were sought from two education specialists

working in education programmes in Hargeisa. Face validity was ensured by the researcher exercising due diligence through theoretical and empirical review of literature on the study variables to ensure capture of relevant and sufficient content in the research instrument to adequately cover the variables under study.

Criterion-related validity (empirical validity) which is the degree to which the results produced by the research instrument correlate or agree with the real relationship existing among the study variables measured, was measured by predictive validity (Nachmias et al., 2014). The validity correlation coefficient (using Pearson's product-moment correlation) was computed between primary data collected from headteachers on the performance of construction projects and secondary data collected from DEOs on the same, for the same schools and during the same period. The secondary data collected from DEOs are data that these officers had earlier collected from the schools through routine reporting and monitoring processes and, has been analysed and verified and therefore its validity is acceptable. This determination is according to the process given by Nachmias et al., (2014). Thirty schools were purposively selected for this, the criteria being schools for which secondary data from DEOs were available to the researcher. The size of the validity coefficient was $r = 0.82$ indicative of a high predictive validity of the questionnaire (Nachmias et al., 2014) showing that empirical validity was ensured in the questionnaire.

Internal validity of interviews was ensured in the following ways. The informants were selected by simple random sampling. Interviews were triangulated with observations and desk analysis of secondary data. Informants participated in the study voluntarily and were therefore willingly sharing information with the researcher. Interviews were made interactive and the interviewers used various strategies such as follow up questions and probing to elucidate responses. Respondent validation was used to confirm responses earlier received from headteachers. After every interview, the researcher and the research assistants held a debrief session to discuss the experiences gained from that interview which were used to modify the approach and conduct of the next interview. The research assistants engaged were locals - well versed with their country and culture. They were experienced in data collection and interviewing having participated in other data collection activities with various NGOs and other entities in Somaliland. The researcher trained them on the scope of the study, its objectives, research instruments and the ethics to be observed. Finally, the researcher had, before the study, acquired knowledge and familiarity with

the work culture and modalities of MoEHS and schools in Somaliland. These credibility ensuring measures were used according to the guidelines given by Shenton (2004).

External validity which is the extent of transferability of the study results to other situations (Shenton, 2004) was ensured in this study in the following ways. Firstly, the selected target population of the study was finite and clearly defined as 920 headteachers in 920 public primary schools and 86 DEOs in 86 administrative districts in Somaliland. This ensured that the scientifically defined sample was representative of the target population. Secondly, random sampling was used to draw the sample. Proportionate stratified random sampling was used to sample headteachers while simple random sampling was used to sample DEOs.

3.5.3 Reliability of Instruments

Reliability is the measure of the level to which a research instrument gives consistent data upon repeated trials, all other things remaining constant (Ritter, 2010). Researchers agree on four methods of testing the reliability of a questionnaire: test-retest, equivalent form, split half, and Cronbach alpha coefficient of internal consistency (Ritter, 2010; Thorndike and Thorndike-Christ, 2010). The study adopted the Cronbach alpha coefficient of internal consistency because it is more practical (Ritter, 2010), it uses all items in the research instrument (Gliem and Gliem, 2003) and is more convenient as compared to other methods since it requires one test administration approach (Ritter, 2010; Tavakol and Dennick, 2011). The alpha was computed using data obtained during questionnaire pilot testing as:

$$\alpha = [k/ (k-1)] [1 – (\sum (S_i^2)/ S_X^2)]$$

Where:
k = the number of items on the test

S_i^2 = the obtained variance for item i,

S_X^2 = the variance of the total test scores.

The results are presented in Table 3.5.

Table 3.5

Reliability Statistic for the Headteachers' Questionnaire

Variable	Cronbach alpha	n	Number of items
Policy interpretation	0.969	26	10
Policy governance	0.878	27	10
Project management practices	0.754	26	10
Community participation	0.866	27	10
Performance of construction projects	0.826	28	10
All variables combined	0.924	22	50

Different researchers use different cut-off values for alpha which according to Bland and Altman, Nunnally and Bernstein; and DeVellis (as cited in Tavakol and Dennick, 2011) range from 0.7 to 0.95. George and Mallery (2003), made the following interpretation of the value of alpha coefficient as rule of thumb: "…> 0.9 – Excellent, > 0.8 – Good, > 0.7 – Acceptable, > 0.6 – Questionable, > 0.5 – Poor, and < 0.5 – Unacceptable" (p. 231). This interpretation was applied to the resulting values of the alpha in the study. With the values of alpha ranging above 0.7, the reliability of the questionnaire was considered acceptable for data collection. Having fine-tuned the questionnaire using feedback obtained from the pilot testing group and having ascertained that the questionnaire was valid and reliable, the researcher determined it ready and suitable for data collection.

Reliability of interviews was ensured, first by triangulation. The study used overlapping methods to collect data. Data collected through interviews were compared with data collected from secondary sources and data collected using questionnaires. These comparisons showed that the data was largely congruent except for minor exceptions. Since there were no significant departures noted in the interview data from the other two streams of data, the interview-collected data was considered reliable. Secondly, respondent validation was used. A few findings from one interview were presented to an informant in another interview to see if they will be affirmed or refuted and to elucidate further information on them from the interviewee. No major departures in responses were noted indicating the interview-collected data was reliable. Thirdly, responses to the same question from different interviewees were compared. Responses were most similar on questions regarding policy governance, project management practices and community participation variables of the study. Questions on policy interpretation and performance of construction projects elucidated significant disparities in responses. Despite this, the interviews were, overall,

considered reliable based on the combined findings from the three methods applied. These methods were applied using the guidelines given by Shenton (2004).

3.6 Data Collection Procedures

Primary data was collected by the use of questionnaires, and semi-structured interviews. First, the researcher obtained authority to undertake the research from MoEHS head offices at Hargeisa which was shared with the respondents during data collection. This was in observance of ethical research practice as MoEHS is in charge of all public schools and DEOs in Somaliland. Secondly, the researcher engaged five research assistants to assist in data collection under the researcher's supervision. They operated in two teams of two persons while the fifth research assistant, who was also the translator, accompanied the researcher in the field. Thus, a total of three teams embark on data collection across the seven regions. The research assistants were briefed on the study and trained on the scope, purpose, methods, respondents, tools of data collection, research ethics; and were monitored throughout the data collection exercise by the researcher as recommended by Bernard (2006). The research assistants engaged were experienced in data collection having participated in numerous data collection exercises in the past for MoEHS and other organisations. They were versed with the local language and dialects spoken in Somaliland. Thirdly, the researcher mapped out the 257 schools by their districts, location and proximity to each other. This was followed by the drawing of daily schedules and route plans specifying the schools to be visited each day by each team. In each district, data collection started by a visit to the DEO for introductions, briefing on the research, and sharing of the research authorization from Hargeisa.

Fourthly, the questionnaire was administered to 257 school headteachers on a drop-and-pick-later method. However, whenever possible, the questionnaires were picked the same day they were conveyed. Errors and completeness of responses in the questionnaire were checked on the spot and clarifications sought from the respondents where necessary before leaving the school.

Fifthly, the data collection exercise in each district ended, at the district education office where qualitative primary data was collected by interviewing the DEO. In the interview, the researcher was accompanied by at least two research assistants. The interviews were conducted in both English and Somali languages with one research assistant providing translation. The sessions were made as interactive and free-flowing as possible. The interview guide was used to ensure the scope and give the interview progression. The researcher and any of the research assistants present could

ask questions and, or probe an answer as necessary, but the researcher played the lead role to ensure order. Order was also ensured by sharing out interviewing roles and the 11 sections of the interview guide among the researcher and the research assistants taking part in the interview except the research assistant designated to take the interview notes. The translator and the researcher shared the preliminary section but the ending was always done by the researcher.

The DEOs were allowed the freedom to have other officers from their office present in the interview as they deemed fit. Where a DEO was accompanied by other officers to the interview, completeness of responses was enhanced as the officers could often chip in on response and the DEO could confer with them as necessary before making a response. Most of the interviews were held in the DEO's office except for a few instances where a neutral venue, mainly a boardroom was available. The interviews culminated with the expression of gratitude and thanks to the DEO before the research team headed out to another district. Data collection was often slowed down by interviewees' and research assistants' time-specific religious practices that interrupted the interviews. After each interview, the research team held a debrief session to discuss how effective the interview approach was, recommend amends going forward and draw a reflective summary of the interview findings.

Sixthly, secondary data was collected from district reports, statistical reports, policy documents and other documents relevant to the study objectives that the respondents were willing to share, both partial or complete documents. Finally, the fieldwork culminated with a visit to MoEHE head offices in Hargeisa to express appreciation and gratitude. Leaving the study location in the appropriate cultural way is important and makes it easy for you to return or even send others (Bernard, 2006). The fieldwork was done from Monday to Thursday of each week as Friday is the day of worship in Somaliland.

3.7 Data Analysis Techniques

The raw data collected on the variables were cleaned by editing for completeness and errors before being coded for analysis to ensure the data were free from inconsistencies and incompleteness. A codebook was developed for use in coding the data. The coded data were tabulated and analysed using correlation analysis, regression analysis and path analysis technique. Descriptive statistics were used to bring out the characteristics of the data by calculating statistics such as mean and standard deviation and presenting the data in frequency distribution tables. Inferential statistics:

Pearson's correlation coefficients, regression coefficients and standardized path coefficients were used to determine association and relationship, and to test hypotheses. Standardized path coefficients, moderation and mediation coefficients were computed with the aid of Andrew Hayes *Process* (a computational tool for analysing mediation, moderation and conditional process modelling).

3.7.1 Path Analysis

The study adopted the path analysis technique to analyse the relationship between the variables. A form of structural equation modelling, path analysis deploys bivariate and multiple linear regression methods to test causal relationships in a hypothesized model with more than three variables (Nachmias et al., 2014) and applies multiple regression to test conceptual models for multivariate relationships; which makes it suitable for testing causal models or theories about how variables influence each other (Pedhazur, 1997; Bernard, 2006; Sheskin, 2011; Sanchez, 2013; Wuensch, 2016) especially in mediation and moderation models where there is a chain of causation (Klem, as cited in Sheskin, 2011). Path analysis is recommended for analysis of mediation relationships by Pedhazur (1997), Lleras (2005), Bernard (2006), Sheskin (2011), and Kline (2011). The study adopted a recursive model. Tests were conducted on the data using the calculated standardized path coefficients to ensure that all the variables in the model were represented and computed on the same measurement scale of a standard normal distribution (Sheskin, 2011).

Considering the mediation analysis technique presented by Hayes (2012), Preacher, Rucker and Hayes (2007), Fairchild and MacKinnon (2009), Sheskin (2011), Field (2013), Kenny (2014) and the Moderation analysis technique presented by Hayes (2012), Pedhazur (1997), Fairchild and MacKinnon (2009), Sheskin (2011), Field (2013) and Kenny (2015); the conceptual framework (Figure 1) was converted into a recursive path analysis model (Figure 2) with all the variables expressed as standard scores (Pedhazur, 1997). Figure 2 shows the total effect model and the mediation - moderation models that were developed and used in the study.

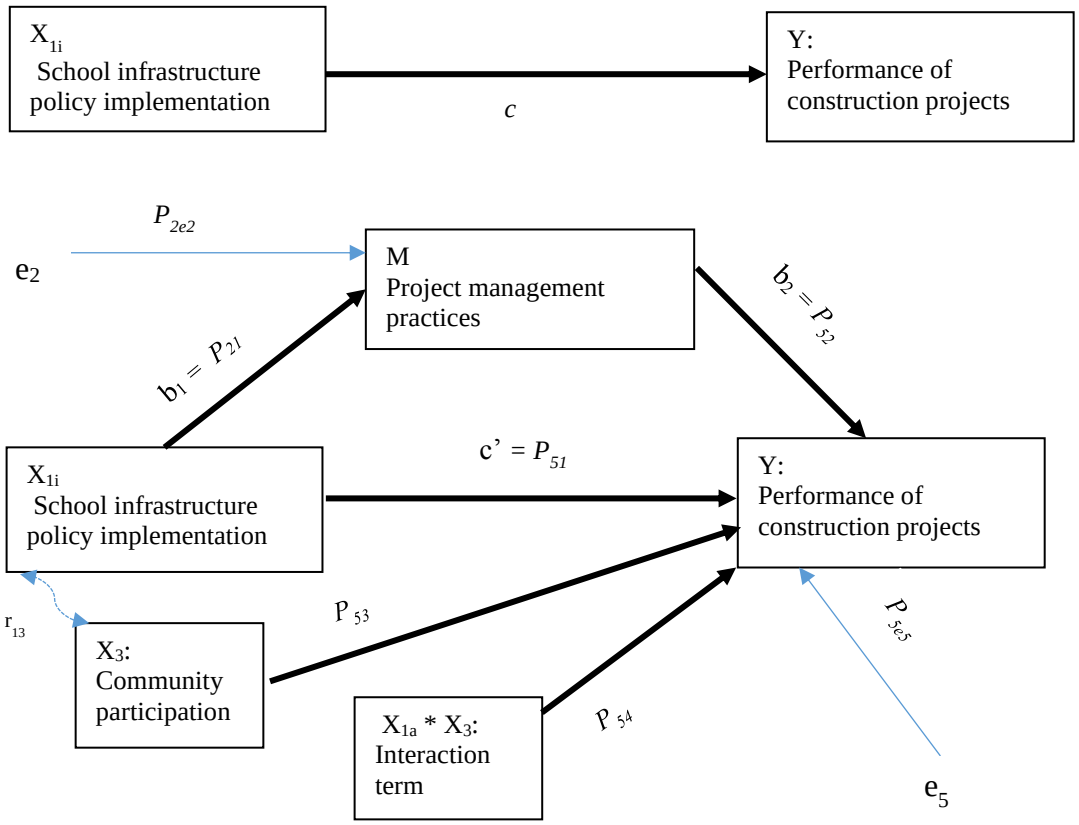

Figure 2. Recursive models for the study.

Where:

X_{1i} –Composite independent variable:

X_{1a} -Policy interpretation (PI)

X_{1b} -Policy governance (PG)

X_1 - School infrastructure policy implementation (PI and PG)

M – Mediator variable

X_3 - Moderator variable

X_1*X_3 - Interaction term (not observed, but computed as the product of X_1 and X_3)

Y – Dependent variable

r_{13} - Correlation coefficient between X_{1i} and X_3

p_{ji} - Path coefficients

c - Total effect of X_{1i} on Y

b_1* b_2 –indirect effect of X_{1i} on Y through M

c’ - direct effect of X_{1i} on Y controlling for M

School infrastructure policy implementation (X_{1i}) is a composite variable. A composite variable is one that is made of two or more variables that are statistically or conceptually related and is used to control Type I error rate, resolve multicollinearity in regression analysis, and organize variables that are highly correlated into one variable so that analysis can be feasible (Song, Lin, Ward and Fine, 2013). Further, a composite indicator is used to measure a multidimensional concept that is difficult to capture as a single indicator (OECD, 2008). School infrastructure policy implementation (X_{1i}) consists of two variables: a) policy interpretation, and b) policy governance; hence its representation in Figure 2 as X_{1i} where $i = a, b,$ representing the part variables. The composite form of X_{1i} was derived from its observed component variables, using the simple averaging method (Song et al., 2013). For mediation and moderation analysis, the variable X_{1i} was entered into the model in its composite form. For analysis of total effects and direct effects, X_{1i} was entered into the model first, in its separated form as $X_{1i,}$ each i at a time and then in its composite form as X_1. This composite variable, $X_{1,}$ was used to fulfil the three purposes of composite variables stated by Song et al. (2013).

The path coefficients for the direct effects are represented on their respective paths as $p_{21,}$ $p_{51,}$ $p_{52,}$ $p_{53,}$ and p_{54}. The disturbance terms are represented as e_2 for M and e_5 for Y. From Figure 2, recursive equations for the model are derived as follows:

$$M = p_{21} X_1 + e_2$$

$$Y = p_{51} X_1 + p_{52} M + p_{53} X_3 + p_{54} X_1{*}X_3 + e_5$$

The recursive forms of the other variables are: $X_1 = e_1$, $X_3 = e_3$ and $X_1{*}X_3 = e_4$.

These recursive equations from which the equations for the total effect, indirect effect and direct effect were derived are expressed as linear regression equations as follows:

$$M = a_0 + a_1 X_1 + e_2$$

$$Y = b_0 + b_1 X_1 + b_2 M + b_3 X_3 + b_4 X_1{*}X_3 + e_5$$

Where: $a_1 = p_{21,}$ $b_1 = p_{51,}$ $b_2 = p_{52,}$ $b_3 = p_{53,}$ $b_4 = p_{54}$; and X_1 can also be interpreted as $X_{1i.}$

The mediation influence of M was obtained as the indirect effect of the path $X_1 \rightarrow M \rightarrow Y$ as the product of p_{21} and p_{52} using multiplication rule (Sheskin, 2011). The moderating effect of community participation (X_3) was measured by p_{54}, the indirect effect of X_3 which is the direct effect of $X_1{*}X_3$ - the interaction term (Sheskin, 2011). In order to test hypotheses $4.H_1$, and $6.H_1$

on mediation influence and moderation influence, the path coefficients were decomposed into direct and indirect effects using the *multiplication rule* and the *tracing rule*. (Pedhazur, 1997, Sheskin, 2011).

Previous empirical studies that have used path analysis to measure mediation, moderation or both effects include Ross and Gray (2006), Machikowa and Laosuwan (2011), Johnson, Zhang, and Bichard (2011), Nicole and Patry (2012), Zhang, Li, Ahmad and Li (2014), Torres and Singh (2016) among others. Measures that were used to analyse the variable relationships and test the hypotheses are summarized in Table 3.6.

Table 3.6

Testing of Hypotheses

Objective	**Null and Alternative Hypotheses**	**Analytical Model**	**Hypotheses Tests and Results' Interpretation.**
1. To establish the influence of policy interpretation on the performance of construction projects.	**1. H_O**: There is no significant relationship between policy interpretation (X_{1a}) and performance of construction projects (Y). **H_A**: There is a significant relationship between policy interpretation (X_{1a}) and performance of construction projects (Y).	Path analysis $Y = f(X_{1a})$ controlling for M Total effect X_{1a} on Y model: $Y = a_0 + cX_{1a} + e_5$ Indirect effect model (first part): $M = a_1 + b_1 X_{1a} + e_2$ Direct effect and second part of indirect effect model: $Y = a_2 + c' X_{1a} + b_2M + e_2$ Where: a_0, a_1 and a_2 are model constants c: the total effect of X_{1a} on Y $b_1 = P_{21a}$: the effect of X_{1a} on M $c' = P_{51a}$: direct effect of X_{1a} on Y controlling for M $b_2 = P_{52a}$: the effect of M on Y e_2 and e_5: disturbance terms. M: mediator variable $c' = p_{51a}$, the path coefficient for $X_{1a} \rightarrow Y$, and the coefficient for testing $1.H_1$.	Path coefficient p_{51a} estimate the direct effect of X_{1a} on Y. Testing hypothesis $1.H_1$: $H_O: p_{51a} = 0$ $H_A: p_{51a} \neq 0$. *Pass if H_A is accepted.* *Tests were done using 2-tail t-score at 0.5 level of significance.*
2. To determine the influence of policy governance on the performance of construction projects.	**2. H_O**: There is no significant relationship between policy governance (X_{1b}) and performance of construction projects (Y). **H_A**: There is a significant relationship between policy governance (X_{1b}) and	Path analysis $Y = f(X_{1b})$ controlling for M Total effect X_{1b} on Y model: $Y = a_0 + cX_{1b} + e_5$ Indirect effect model (first part): $M = a_1 + b_1 X_{1b} + e_2$ Direct effect and second part of indirect effect model:	Path coefficient p_{51b} estimate the direct effect of X_{1b} on Y. Testing hypothesis $2.H_1$: $H_O: p_{51b} = 0$ $H_A: p_{51b} \neq 0$. *Pass if H_A is accepted.* *Tests were done using 2-tail t-score at 0.5 level of significance.*

Objective	Null and Alternative Hypotheses	Analytical Model	Hypotheses Tests and Results' Interpretation.
	performance of construction projects (Y).	$Y = a_2 + c' X_{1b} + b_2M + e_2$ Where: a_0, a_1 and a_2 are model constants c : total effect of X_{1b} on Y b_1, = P_{21b}: the effect of X_{1b} on M c' = P_{51b}: direct effect of X_{1b} on Y controlling for M b_2, = P_{52b} : the effect of M on Y e_2 and e_5 : disturbance terms. M: mediator variable Where: $b_1 = p_{51b}$, the path coefficient for the path $X_{1b} \rightarrow Y$, and is the coefficient for testing 2.H_1.	
3. To examine the influence of school infrastructure policy implementation on the performance of construction projects.	**3. H_O**: There is no significant relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y). **H_A**: There is a significant relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).	Path analysis X_1 in its composite form: $Y = f(X_1)$ controlling for M Total effect X_1 on Y multiple regression model: $Y = a_0 + c_aX_{1a} + c_bX_{1b} + e_5$ Indirect effect model (first part): $M = a_1 + b_1 X_1 + e_2$ Direct effect and second part of indirect effect model: $Y = a_2 + c' X_1 + b_2M + e_2$ Where: a_0, a_1 and a_2 are model constants c_a and c_b: total effects of X_{1a} and X_{1b} on Y respectively b_1, = P_{21}: the effect of X_1 on M c' = P_{51}: direct effect of X_1 on Y controlling for M b_2, = P_{52}: the effect of M on Y	Coefficient p_{51} estimate the direct effect of X_1 on Y. Testing hypothesis 3.H_1: *H_O: $p_{51} = 0$ H_A: $p_{51} \neq 0$* *Pass if H_A is accepted.* *Tested using 2-tail t-score at 0.5 level of significance.*

Objective	Null and Alternative Hypotheses	Analytical Model	Hypotheses Tests and Results' Interpretation.
		e_2 and e_5: disturbance terms. M: mediator variable Where: $b_1 = p_{51}$, the path coefficient for the path $X_1 \rightarrow Y$, and is the coefficient for testing 3.H_1.	
4. To establish the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects.	**4. H_O**: Project management practices (M) does not mediate the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y). **H_A** Project management practices (M) significantly mediates the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).	Path analysis: X_1 in its composite form. $Y = f(X_1)$ mediated by M. Total effect X_1 on Y multiple regression model: $Y = a_0 + c_aX_{1a} + c_bX_{1b} + e_5$ Indirect effect model (first part): $M = a_1 + b_1 X_1 + e_2$ Direct effect and second part of indirect effect model: $Y = a_2 + c' X_1 + b_2M + e_2$ Where: a_0, a_1 and a_2 are model constants c_a and c_b: total effects of X_{1a} and X_{1b} on Y respectively $b_1 = P_{21}$: the effect of X_1 on M $c' = P_{51}$: direct effect of X_1 on Y controlling for M $b_2 = P_{52}$: the effect of M on Y e_2 and e_5: disturbance terms. M: mediator variable Mediation estimated by calculating the indirect effect of X_1 on Y through M	Mediation effect estimated by $p_{52} * p_{21}$ using the multiplication rule. The resulting product is the coefficient for testing 4.H_1. Testing hypothesis 4.H_1: i). Coefficient test; *H_O: $p_{52} * p_{21} = 0$ H_A: $p_{52} * p_{21} \neq 0$.* *Pass if H_A is accepted.* *Tested using 2-tail t-score at 0.5 level of significance.* ii)The extent of mediation test: *H_O : $p_{51} = 0$ H_A : $p_{51} \neq 0$* *If H_O is accepted- complete mediation occurs.* *If H_A is accepted – partial mediation occurs.* *Tests were done using 2-tail t-score at 0.5 level of significance.*
5. To determine the influence of community participation on the performance	**5. H_O**: There is no significant relationship between community participation (X_3) and the	Path analysis $Y = f(X_3)$. Regression model: $Y = a_0 + c X_3 + e_5$ Where:	Coefficient *c* estimate the total effect of X_3 on Y. Testing hypothesis 5.H_1: *H_O: $c = 0$ H_A: $c \neq 0$* *Pass if H_A is accepted.*

Objective	Null and Alternative Hypotheses	Analytical Model	Hypotheses Tests and Results' Interpretation.
of construction projects.	performance of construction projects (Y). **H_A**: There is a significant relationship between community participation (X_3) and the performance of construction projects (Y).	a_0: constant; c: the total effect of $X_3 \rightarrow Y$, and is the coefficient for testing 5.H_1; e_5: disturbance term	*Tested using 2-tail t-score at 0.5 level of significance.*
6. To establish the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects.	**6. H_O**: Community participation (X_3) does not moderate the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y). **H_A**: Community participation (X_3) significantly moderates the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).	Path analysis: X_1 in its composite form. $Y = f(X_1, X_3, X_1*X_3)$. Model: $Y = a_4 + b_4 X_1 + b_5 X_3 + b_6 X_1*X_3 + e_5$ Where: a_4 : constant $b_4 = p_{51}$: effect of X_1 on Y $b_5 = p_{53}$: effect of X_3 on Y $b_6 = p_{54}$: the path coefficient for the path $X_1*X_3 \rightarrow Y$. X_1*X_3 = interaction term for the moderator, e_5 = disturbance term.	Path coefficient p_{54} estimated by b_6 measure the moderation effect of X_3 on the relationship between X_1 and Y and is the coefficient for testing. p_{53} estimated by b_5 measure the effect of X_3 on Y, while p_{51} estimated by b_4 measure the effect of X_1 on Y. Testing hypothesis 6.H_1: i). Path coefficient; $H_O: p_{54} = 0; p_{53} \neq 0$ $H_A: p_{54} \neq 0; p_{53} = 0$ *Pass if H_A is accepted.* ii)Extent of moderation test: $H_O: p_{51} = 0$ $H_A: p_{51} \neq 0$ *If H_O is accepted- complete moderation occurs.* *If H_A is accepted – partial moderation occurs.* *Tests were done using 2-tail t-score at 0.5 level of significance.*

3.7.2 Testing the Data for Methodology Assumptions

The study used Pearson's correlational analysis, simple and multiple linear regression analysis and path analysis parametric techniques to analyse the data. Relationships were tested using the parametric student *t*-test. Parametric methods and tests require data to fulfil certain assumptions among them: normality, linearity, homogeneity of variance, independence of data and use of interval or ratio measurement scales (Sheskin, 2011; Pedhazur, 1997). The assumptions underlying path analysis are the same as those of casual modelling and multiple regression analysis (Pedhazur, 1997; Lleras, 2005; Garson, 2008; Sheskin, 2011; Kline, 2011). It was thus necessary to test the data for these assumptions to determine its suitability for the application of parametric tests. This section examines how these and other parametric assumptions were fulfilled in this study.

To check whether the data satisfied the assumption of normality, normality tests were performed on the data using *Kolmogorov -Smirnov goodness-of-fit test* and *Shapiro-Wilk test for normality* (section 4.4.1) and the data was determined to have been obtained from a normally distributed population with *P values* >0.05 for the five observed study variables. On the assumption that variable relationships should be linear and additive, the homogeneity of variance test was done using the Levene statistic (*F*). The results for the variables (section 4.4.4) were: policy interpretation F (29, 212) = 1.087, policy governance F (29, 212) = 0.907, project management practices F (29,212) = 0.890 and community participation F (29,212) = 1.546. All had *P values* >0.05 indicating the assumption of linearity was met.

Concerning the assumption that causal flow should be unidirectional, the conceptual model of study (section 2.10) depicts the variable relationships which flow in one direction with no back causal relationship. This is further addressed in sub-section 3.7.1. On the assumption that no correlations exist among the disturbance terms and between the disturbance terms and the variables, the Durbin Watson statistic was computed. The result was D = 2.070, indicating that there was no correlation among the disturbance terms in the data (section 4.4.5), which also means that the data satisfied the assumption that no important variables have been left out of the study model and there were no irrelevant variables in the model (Pedhazur, 1997).

The assumption that no multicollinearity exists among the study variables was tested using *tolerance value* and its *related inverse*; the *variance inflation factor (VIF).* The results (section 4.4.2)

returned tolerance values higher than 0.5 and VIF values of 1.741 and below indicating the absence of collinearity in the data.

For path analysis to yield reliable results, the subjects of study should be at least 10 times and ideally 20 times the number of parameters being analysed (Kline, 2011). In this study, six paths were analysed (Figure 2) which meets the afore-mentioned threshold as the final study subjects were 247 school organizations (section 4.2) which is 38 times the six path parameters that were being analysed. The study had five variables which satisfy the requirement of at least three variables (Sheskin, 2011).

Other assumptions include the use of interval or ratio scales to measure the variables, and sufficiency of the sample size to yield reliable results. The assumption on sample size is dealt with in section 3.4 while the assumption on the measurement scale is addressed in Section 3.9.

3.7.3 Qualitative Data Analysis

Qualitative and quantitative data were collected and analysed separately but converged at the interpretation stage in a correlational convergent parallel design. Thematic content analysis using open coding method was used to analyse qualitative data. The themes were added as they emerged from the data and the coding evolved accordingly. The analysis was done on fieldnotes from semi-structured interviews with DEOs and headteachers' responses on structured questions in the questionnaire.

The process entailed sorting the interview notes and structured responses from headteachers by districts. The researcher read through them to gain a general outlook of the responses. Themes were identified from the data and responses grouped based on similarities and differences. As the process progressed some themes were modified, new ones created and others merged as was appropriate. Once a response was categorised under a theme, it was coded, typed and posted under that theme. Codes were used to identify a theme and to track a response's source school or district. This was done according to the process given by Bernard (2006). The process made use of MS Excel spreadsheet software.

The findings are presented verbatim under themes drawn from the study objectives and are merged with quantitative findings to create a wholesome discussion and interpretation of data in chapter 4.

3.8 Ethical Issues

The researcher was keen to assure the respondents of confidentiality and accuracy in reporting the data collected. Participation of respondents in the research process was voluntary. Authority to research in the schools was sought from ministry officials in Hargeisa. Respondents' anonymity was ensured by the researcher in data presentation and the entire research report. The Researcher disclosed in this report all findings relevant to the study objectives without withholding or filtering. The purpose of the research was disclosed to the respondents through the letters of transmittal. The researcher researched in such a way as to ensure no physical, psychological or any other harm was caused to any respondent and the research process did not exploit anyone.

3.9 Operationalization of the Variables

Policy interpretation was operationalized using the indicators proposed by Coglianese (2012) while policy governance was operationalized according to the approach proposed by Brown et al. (2006). School infrastructure policy implementation is a composite variable comprising of policy interpretation and policy governance. It was measured at an interval scale using the simple averaging method. Project management practices were operationalized as per the Centre for Business Practices [CBP], (2005) list of measures for project management performance and value, and was measured at an interval scale. Community participation was operationalized as per the indicators by Butterfoss (2006), and Arnstein's (2007) ordinal 8-levels ladder of participation and was measured at an interval scale. According to Awang (2012), when measuring the moderating effect, any measurement scale can be used for the moderating variable but the independent and dependent variables in the relationship should be measured at an interval or ratio scale. Performance of construction projects is operationalized using the measures formulated by Chan and Chan (2004) and was measured at an interval scale. The operational definitions of the variables in this study, their indicators and scales of measurement that have been used to guide the questionnaire design are presented in Table 3.7.

Table 3.7

Operationalization of the Variables

Objectives	Variables	Indicators	Measurement scale	Data collection instruments	Research approach	Type of tests	Tools of data analysis
1. To establish the influence of policy interpretation on the performance of construction projects.	Policy Interpretation	1. Policy interpretation guidelines 2. Stakeholder attitude on the policy 3. Regulatee's policy sensitization 4. Policy interpretation disputes 5. Regulatees' perceived policy ambiguity	Interval scale	Headteachers (HT) questionnaire using Likert's 5 points scale. Section B-11 items. Interview guide.	Mixed methodology	Parametric	Path analysis. Pearson's product-moment correlation r, R^2 Descriptive analysis.
	Performance of construction projects	1. Realization of set standards: quality, features and safety 2. Realization of planned deliverables: objectives, outputs and outcomes 3. Completed projects' variance from the initial plans 4. The functionality of completed projects 5. End-user satisfaction 6. Construction team satisfaction with the completed projects	Interval scale	HT questionnaire using Likert's 5 points scale. Section E-11 items. Interview guide.	Mixed methodology	Parametric	Path analysis. Pearson's product-moment correlation r, R^2 Descriptive analysis.
2. To determine the influence of policy governance on the performance of construction projects.	Policy governance	1. Policy administration structure 2. School Infrastructure inspection practices 3. Policy implementation effectiveness 4. Policy predictability 5. Level of regulator independence	Interval scale	HT Questionnaire using Likert's 5 points scale. Section B-11 items. Interview guide.	Mixed methodology	Parametric	Path analysis. Pearson's product-moment correlation r, R^2 Descriptive analysis.
3. To examine the influence of school infrastructure policy implementation on	School infrastructure policy implementation	A composite variable combining the indicators of policy interpretation and policy governance.	Interval scale	HT questionnaire using Likert's 5 points scale. Section B-22 items. Interview guide.	Mixed methodology	Parametric	Path analysis. Pearson's product-moment correlation r,

Objectives	Variables	Indicators	Measurement scale	Data collection instruments	Research approach	Type of tests	Tools of data analysis
the performance of construction projects.							R^2 Descriptive analysis.
4. To establish the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects.	Project management practices	1. *Project inception* • Stakeholder involvement in project identification 2. *Project planning* • Stakeholder participation design and in planning 3. *Project implementation* • Project financing sources 4. *Project Close-out* • Close-out practices after completion	Interval scale	HT questionnaire using Likert's 5 points scale. Section C - 11 items. Interview guide.	Mixed methodology	Parametric	Path analysis. Pearson's product-moment correlation r, R^2 Descriptive analysis.
5. To determine the influence of community participation on the performance of construction projects.	Community participation.	1. Diversity of projects participated in 2. Community's perceived level of project ownership 3. CEC representativeness of the community 4. Community satisfaction with the participation process 5. Diversity of community groups participated	Interval scale.	HT questionnaire using Likert's 5 points scale. Section D-12 items. Interview guide.	Mixed methodology	Parametric	Path analysis, Pearson's product-moment correlation r, R^2 Descriptive analysis.
6. To establish the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects.				Variables for this objective are already operationalized above.			

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

In this chapter the data collected, analysis of the data and discussion of findings are presented. The presentation is organized into sections as follows: response rate, demographic profiles of respondents, basic tests of statistical assumptions, the performance of construction projects, policy interpretation and performance of construction projects, policy governance and performance of construction projects, school infrastructure policy implementation and performance of construction projects; school infrastructure policy implementation, project management practices and performance of construction projects; community participation and performance of construction projects; and school infrastructure policy implementation, community participation and performance of construction projects.

4.2 Response Rate

Questionnaires were filled by headteachers in the sampled schools. Where the headteacher was unavailable for the survey, the deputy headteacher, if available, provided the survey response. This design and approach helped improve the response rate. Inspection of the questionnaires for missing values was done at the respondent's location when collecting the questionnaires and missing responses were sought from the respondent where possible, before leaving the site. A total of 253 (98.44%) questionnaires were received back. Of these, 6 (2.3%) were dropped out of the tally for having significant gaps in responses for variable items. The effective response was 247 (96.1%). The response was well distributed, coming from schools in all the 56 districts sampled for the study.

A total of 20 DEO's were interviewed representing a 90.9 % interview response rate. This was achieved partially by replacing 4 DEO's who were sampled but were not available for interview with other DEO's from the same regions. This was appropriate since the initial 22 DEOs had been sampled by simple random sampling method and therefore replacement of the four by simple random sampling did not result to bias (Cornish, 2002; Hasler, 2015). The response received is presented in Table 4.1.

Table 4.1

Survey Response

Units of observation	Survey participation method	Target population	Sample size	Total response	Usable sample	% Effective response rate
Headteachers	Questionnaire	920	257	253	247	96.1%
DEOs	Interviews	82	22	20	20	90.9%
Total		**1002**	**279**	**273**	**267**	

Whereas there is no consensus among researchers on a specific acceptable response rate cut-off point (Mundy, 2002; Fincham, 2008; Nachmias et al., 2014), a questionnaire response rate of 96.1% and an interview response rate of 90.9% is considered adequate based on recommendations made by scholars and editorial teams of research publication journals. After analysing the editorial policies of various journals, Fincham (2008) recommends that researchers undertaking survey studies should aim to attain a minimum response rate of 60% while studies done to generalize findings should attain at least 80% response rate. These recommendations are supported by researchers' viewpoints as summarized by Mundy (2002).

The high questionnaire return rate is attributed to the use of purposive sampling to sample accessible regions, the short drop-and-pick duration which was the same day in most cases and the simplicity of responding in the questionnaire by ticking which, according to Cornish (2002) can significantly reduce non-response in a survey.

4.3 Demographic Profiles of Respondents

The study collected data from headteachers and DEOs. Headteachers filled questionnaires while DEOs were interviewed. This section presents the demographic profiles of the study respondents.

4.3.1 Demographic Profile of Headteachers

Headteachers were asked to give information about themselves and their schools on the following items: gender, the highest level of education, years of experience as a headteacher, project management training, their schools' undertaking of construction projects and, adequacy of certain specified school infrastructure facilities in their schools. The results are presented in Table 4.2

Table 4.2

Demographic Profile of Headteacher Respondents

Demographic Characteristic	Number of respondents	% (per cent)
Gender		
Male	202	82
Female	35	14
Non-response	10	4
Total	**247**	**100**
Highest level of education		
High school	47	19
Certificate level	72	29
Diploma level	52	21
Bachelor's degree	10	4
Master's degree	0	0
Other	52	21
Non-response	14	6
Total	**247**	**100**
Years of experience as a headteacher		
Less than 1 year	13	5
1-2 years	25	10
3-4 years	64	26
5 years	79	32
More than 5 years	66	27
Total	**247**	**100**
Training in project management		
Yes	35	14
No	202	82
No response	10	4
Total	**247**	**100**
The school had undertaken construction projects in the last 5 years		
Yes	247	100
No	0	0
Total	**247**	**100**

The results presented in Table 4.2 show that 202(82%) of the respondents were male while 35(14%) were female. Combining this finding with the findings on the performance of construction projects (Table 4.10) there was no notable association between gender and performance of construction projects. It is inferred that the gender of the headteacher did not influence the performance of construction projects. Nine (4%) respondents did not indicate their gender.

On the highest education qualifications; 72(29%) had a certificate, 52(21%) had a diploma 47(19%) had a high school certificate, and 10(4%) had a bachelor's degree. There were 52(21%) headteachers who indicated they had other types of qualifications while 14(6%) did not give a response. None (0%) of the surveyed headteachers indicated having a Master's degree. This finding explains the challenges faced in mounting projects in primary schools and the high level of negative inspection reports (table 4.10 items 9 and 10) as most of the headteachers have low education attainment as a result of the ravage visited on the education system by the years of war.

On the years of experience as a headteacher; 79 (32%) had 5 years, 66(27%) had more than 5 years, 64(26%) had 3-4years, 25(10%) had 1-2 years, while 13(5%) had less than 1 year of experience. This shows that 209 of the 247 headteachers had more than 3 years of experience in the job which indicates that most headteachers had a significant on-the-job experience of handling school construction projects. This could significantly have a positive influence on the performance of construction projects.

Of the 247 respondents, only 35(14%) reported having had some form of training in project management skills with, 202(82%) having had no such training. Ten (4%) headteachers did not respond to the question. Lack of project management training on the part of the headteachers can negatively affect the performance of construction projects.

All the 247(100%) respondents indicated that their schools had undertaken construction projects in the last five years. This shows that they were suitable respondents for the study.

The results show that although all (247) schools surveyed had undertaken construction projects, most headteachers were ill-equipped to manage projects with 82% (202) having had no form of training in project management skills. Of the 247 headteachers, 171, (69%) reported a level of

education of Diploma or lower. These factors, separately and combined, could deter the headteachers' ability to mount and implement school construction projects effectively in order to realize desired project performance levels. However, 145 (58%) of the headteachers had 5 or more years of experience as headteachers. This can be seen as countering their lack of project management training and their relatively low educational attainment levels, with on-the-job experience gained over years of implementing school construction projects and learning how to improve project performance in the school.

4.3.2 Demographic Profile of DEOs

During the interviews, DEOs were requested to give information about their years of service as DEOs in their current districts, and total years of service as DEOs. Gender was noted. The results are presented in Table 4.3.

Table 4.3

Demographic Profile of DEO Respondents

Demographic Characteristic	Number of respondents	% (per cent)
Gender		
Male	16	80
Female	4	20
Total	**20**	**100**
Years of service as a DEO in the current district		
Less than 1 year	1	5
1-2 years	3	15
3-4 years	5	25
5 years	6	30
More than 5 years	5	25
Total	**20**	**100**
Total years of service as a DEO		
Less than 2 years	0	0
2-5 years	1	5
5 -10 years	9	45
More than 10 years	10	50
Total	**20**	**100**

The results in Table 4.3 show that of the 20 DEOs interviewed, 16(80%) were male while 4(20%) were female. On years of service as DEO at the current district, 1(5%) DEO had not completed 1

year in the current station, 3(15%) had 1-2 years, 5(25%) had 3-4 years, 6(30%) had 5 years, while 5(25%) had more than 5 years in the current district station as DEOs. On the total years of service as a DEO, 1(5%) DEO had 4years, 9(45%) had 5-10 years, while 10 (50%) had more than 10 years.

These results indicate that DEOs tend to stay long (>5years) in one district before they are transferred thus allowing them adequate time to gain significant knowledge of the state of the schools in that district. DEOs were thus suitable respondents with significant knowledge of public schools in their districts, the construction projects they mount, how they mount them, how they participate the community and how school infrastructure policy affects the performance of construction projects. DEOs do not undertake school construction projects but rather exercise an oversight role. More experienced DEOs demonstrated a thorough knowledge of the performance of school projects in general and school construction projects specifically than less experienced and newly appointed DEOs.

4.3.3 Profile of School Infrastructure Facilities

The study sought information on the adequacy of school infrastructure facilities. This is because inadequacies in school infrastructure facilities are largely resolved by mounting school construction projects and therefore the adequacy of these facilities are informative of the performance of construction projects in schools. Data collected on school infrastructure facilities were grouped into three clusters: adequate, inadequate and not available. The results are presented in Table 4.4

Table 4.4

School Infrastructure Facilities

Infrastructure facility	Adequate	Inadequate	Not available	Total
Classrooms	0 (0%)	247 (100%)	0 (0%)	247
Storages	15 (6%)	114 (46%)	118 (48%)	247
Sanitation facilities	0 (0%)	134 (54%)	113 (46%)	247
Toilets	13 (5%)	234 (95%)	0 (0%)	247
Fence	20 (8%)	148 (60%)	79 (32%)	247
Offices	105 (42.5%)	142 (57.5%)	0 (0%)	247
Sports facilities	16 (6.5%)	188 (76%)	43 (17.5%)	247
Furniture	0 (0%)	247 (100%)	0 (0%)	247

The results show that of the 247 public primary schools' headteachers that responded to the study, all (100%) indicated that their classroom facilities were inadequate. On the adequacy of storage facilities 118 (48%) of the schools reported they had no storages, 114(46%) had storages but they were inadequate, while 15(6%) had adequate storage facilities. Sanitation facilities were inadequate in 134(54%) schools and unavailable in 113(46%) schools. None (0%) of the schools surveyed reported having adequate sanitation facilities. Toilet facilities were inadequate in 234(95%) schools and adequate in 13(5%) schools. No school (0%) reported having no toilets at all. Only 20(8%) schools had adequate fencing with, 148(60%) schools reporting inadequate fencing and 79(32%) having no school fence. Offices were reported to be adequate in 105(42.5%) schools and inadequate in 142(57.5%) schools. No school (0%) reported having no offices at all. Sports facilities were adequate in 16(6.5%) schools, inadequate in 188(6%) schools and unavailable in 43(17.5%) schools. All the 247 schools who responded to the study reported having inadequacies of furniture facilities.

These findings show that there are significant inadequacies of physical facilities in the schools. This highlights the need for school construction projects. In seven out of eight infrastructure facilities for which data was collected, over 50% (>124) of the schools reported a state of inadequacy. This further highlights the need for undertaking construction projects in schools to close the infrastructure facilities' gaps that exist. Performance of such school construction projects also need to be measured to ascertain whether the project results are realizing the infrastructure objectives, output and outcomes expected. With such an acute inadequacy of school infrastructure facilities, the need for school infrastructure policy is also underscored as a way to ensure the construction projects undertaken by the schools to fill the infrastructure facilities' gaps, result in infrastructure that meets minimum standards. These school infrastructure inadequacies negatively affect the delivery of free primary education by reducing access to education, enrolment, retention, pupils school experience and performance among others.

4.4 Basic Tests of Statistical Assumptions

The study sought to use parametric tests to test the study hypotheses. Parametric tests assume that the data is normally distributed, has no multicollinearity, has homogeneity of variance and the error terms are independent among others. For a set of data to apply parametric tests, these

assumptions need to be satisfied if the conclusions are to be valid and reliable. Data collected using questionnaires were tabulated, cleaned and edited before data analysis. Of the 247 questionnaires, 8 questionnaires had a total of 19 missing values which were imputed for using the respondent mean imputation method (Cornish, 2002; Hasler, 2015).

4.4.1 Normality Tests

Parametric tests assume the set of data is normally distributed (Sheskin. 2011). A violation of this assumption can render unreliable the resulting interpretations and inferences (Razali and Wah, 2011). To determine if the data collected was normally distributed, the *Kolmogorov-Smirnov goodness-of-fit test* and *Shapiro-Wilk test for normality* were done to test the following hypothesis.

H_0: $F(X) = F_0(X)$ for all values of *X. That is, the data is drawn from a normal distribution.*

H_1: $F(X) \neq F_0(X)$ for at least one value of *X*. *That is, the data is not from a normal distribution*.

The results are shown in Table 4.5.

Table 4.5

Normality Tests Results

	Kolmogorov-Smirnov[a] (K-S)			Shapiro-Wilk (S-W)		
Variables	**Statistic**	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Policy interpretation	0.053	247	0.095	0.991	247	0.113
Policy governance	0.057	247	0.052	0.986	247	0.017
Project management practices	0.048	247	0.200*	0.995	247	0.585
Community participation	0.052	247	0.099	0.992	247	0.242
Performance of construction projects	0.046	247	0.200*	0.994	247	0.454

Note: $\alpha = 0.05$ *. This is a lower bound of the true significance. a. Lilliefors Significance Correction applied. Sig.: significance, df.: Degrees of freedom

For the K-S test - which is often used to test large samples (D>2000) (Sheskin, 2011), the results obtained indicated that data collected on: policy interpretation $D(247) = 0.053$, $P = 0.095$; policy governance $D(247) = 0.057$, $P = 0.052$; project management practices $D(247) = 0.048$, $P = 0.2$; community participation $D(247) = 0.052$, $P = 0.099$; and performance of construction projects $D(247) = 0.046$, $P = 0.2$; were all normally distributed as the P values were ≥ 0.05 (Field, 2013) and therefore not statistically significant at 5% level of significance. The null hypothesis was accepted that data for the five variables came from normal distributions and were normally distributed.

For the Shapiro-Wilk test - which is usually used to test small samples (D<2000) (Sheskin, 2011); the results indicated that the data collected on: policy interpretation, $D(247) = 0.991$, $P = 0.113$; project management practices, $D(247) = 0.995$, $P = 0.585$; community participation $D(247) = 0.992$, $P = 0.242$; and performance of construction projects, $D(247) = 0.994$, $P = 0.454$; were normally distributed since the P values were not statistically significant ($P>0.05$). The null hypothesis was accepted. The S-W results confirmed the K-S results that data on the four variables came from normally distributed populations and were normally distributed. For policy governance, the K-S results indicated that the data were normally distributed but the S-W results contradicted the K-S results with a $P< 0.05$ (D (247) = 0.986, $P = 0.017$) indicating that the data deviated from the normal distribution. Further analysis of policy governance data indicated a skewness of -0.212 (standard error = 0.155), and kurtosis of -0.314 (standard error = 0.309), representing a slight negative skew.

4.4.2 Multicollinearity Tests

Assessment of multicollinearity was done using the *tolerance value* and *variance inflation factor (VIF)*. Multicollinearity exists when there is the presence of strong correlation between or among the predictor variables (Sheskin, 2011; Field, 2013) and can result to increases in the standard errors associated with the *b* coefficients, limit the value of *R* and make it difficult to determine the importance of each predictor in the model (Field, 2013). The *tolerance value* ranges between 0 and 1 with a value below 0.1 indicating serious multicollinearity while values below 0.2 indicate a potential multicollinearity problem (Field, 2013). The VIF statistic, which is the inverse of the tolerance value, has no definite cut off but VIF values greater than 10 are indicative of possible multicollinearity (Bowerman and O'Connell; Myres, as cited in Field, 2013). Multicollinearity test results are shown in Table 4.6

Table 4.6

Collinearity Statistics

Variables	Tolerance value	VIF
Policy interpretation	0.657	1.523
Policy governance	0.782	1.279
Project management practices	0.574	1.741
Community participation	0.987	1.013

Note: Dependent variable is *Performance of construction projects*

The tolerance values were all above 0.5 and closer to the maximum value of 1 than to the minimum value of 0 which indicated the absence of multicollinearity. The VIF values are all closer to 1 than to 10, the average of the values being 1.389, which is not substantially greater than 1 (in a range of 1-10) indicating absence on collinearity and absence of bias in the regression model (Bowerman and O'Connell, as cited in Field, 2013).

4.4.3 Correlation Analysis

Bivariate correlation, which measures the association between two variables, was computed for the observed variables in the study using the Pearson correlation coefficient. Pearson *r* ranges between 0 and ±1, indicating the extremes of no correlation and perfect correlation respectively (Field, 2013); and show the extent to which a linear relationship exists between two variables (Sheskin, 2011). The Pearson correlation statistic values for the study variables are presented in Table 4.7.

Table 4.7.

Bivariate Correlation Statistics

Variables		Policy interpretation	Policy governance	Project management practices	Community participation	Performance of construction projects
Policy interpretation	Pearson *r*	1	0.314**	0.577**	0.070	0.064
	Sig. (2-tailed)		0.000	0.000	0.275	0.319
Policy governance	Pearson *r*		1	0.463**	0.007	-0.040
	Sig. (2-tailed)			0.000	0.909	0.536
Project management practices	Pearson *r*			1	-0.031	0.562**
	Sig. (2-tailed)				0.627	0.000
Community participation	Pearson *r*				1	-0.105
	Sig. (2-tailed)					0.100
Performance of construction projects	Pearson *r*					1

Note: **. Correlation is significant at the 0.01 level (2-tailed). n = 247

Correlation between policy interpretation and policy governance ($r = 0.314$, $P < 0.001$) indicates a low positive correlation; policy interpretation and project management practices ($r = 0.577$, $P < 0.001$) indicates average positive correlation; policy interpretation and community participation ($r = 0.07$, $P = 0.275$) shows weak positive correlation; while, policy interpretation and performance of construction projects ($r = 0.064$, $P = 0.319$) also suggests weak positive correlation.

Between policy governance and project management practices (r = 0.463, P < 0.001), the correlation is positive and average; policy governance and community participation (r = 0.007, P = 0.909) suggests weak positive correlation, while policy governance and performance of construction projects (r = -0.04, P = 0.536) indicates a weak negative correlation.

Correlation between project management practices and community participation (r = -0.031, P = *0.627*) suggest weak negative correlation; project management practices and performance of construction projects (r = 0.562, P < 0.001) indicates average positive correlation while, community participation and performance of construction projects (r = -0.105, P = 0.1) indicates negative weak correlation.

4.4.4 Homogeneity of Variance Tests

Path analysis assumes that the relationships among the variables are linear and additive (Pedhazur, 1997) while, linear models assume that the outcome variance remains steady as the explanatory variables vary (Field, 2013) - otherwise referred to as homogeneity of variance or homoscedasticity. Existence of homoscedasticity is crucial as it establishes the validity of confidence intervals and statistical tests results performed on the data and, its absence – heteroscedasticity- would invalidate the same (Filed, 2013). The study used the Levene statistic to test the null hypothesis that the variances of the explained variable are equal across all levels of the explanatory variables. The results are shown in Table 4.8.

$$H_0: \sigma_1^2 = \sigma_2^2 = \ldots = \sigma_K^2$$

$$H_A: \sigma_1^2 \neq \sigma_2^2 \neq \ldots \neq \sigma_K^2$$

Table 4.8

Homogeneity of Variance Tests

Variables	Levene Statistic	df1	df2	Sig.
Policy interpretation	1.087	29	212	0.355
Policy governance	0.907	29	212	0.608
Project management practices	0.890	29	212	0.633
Community participation	1.546	29	212	0.051

Note: Dependent variable is *Performance of construction projects.* $\alpha = 0.05$

The Levene statistic is significant when $P<0.05$ which would lead to rejection of the null hypothesis, but when $P>0.05$ we accept the null hypothesis. For policy interpretation F (29,212) = 1.087, P = 0.355 the null hypothesis was accepted since $P > 0.05$. The null hypothesis was also accepted for policy governance F (29,212) = 0.907, P = 0.608; project management practices F (29,212) = 0.890, P =0.633 and community participation F (29,212) = 1.546, P = 0.051 since, in all these cases $P > 0.05$; indicating that the variances of the dependent variable are steady across different levels of the explanatory variables and the data fulfils the assumption of homogeneity of variance.

4.4.5 Independence of Error Terms test

Path analysis assumes that no correlations exist among the error terms and between the error terms and the variables (Sheskin, 2011). To test the independence of the error terms, the Durbin Watson statistic (*D*) was calculated. *D* assumes values between 0 and 4, with a *D* value close to 2 indicative of the existence of independence of error terms (Field, 2013). Smaller values of *D* (nearer to 0 than to 2) are characteristic of positive autocorrelation while large values of *D* (nearer to 4 than to 2) are indicative of negative autocorrelation (Field, 2013). Field (2013) provides a conservative rule of thumb for interpreting the value of *D*: values <1 or >3 are indicative of error terms that are autocorrelated. The results of the Durbin Watson test are shown in Table 4.9.

Table 4.9

Independence of Error Terms Test.

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.723[a]	0.522	0.514	4.96585	0.522	66.074	4	242	0.000	2.070

Notes: a. Predictors: (Constant): *policy interpretation, policy governance, project management practices and community participation*. Dependent Variable: *Performance of construction projects.*

The Durbin Watson statistic was 2.070 which is ≈ 2. This shows that the error terms are independent and there is no autocorrelation in the data residues.

4.4.6 Analysis of Likert-type Data

The study used a five-point Likert scale to collect Likert type data on the study variables. The scale was: Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly

Disagree (SD) = 1. Negative items were used to reduce response bias (Croasmun and Ostrom, 2011) and were reverse scored. Though researchers consider individual Likert items as yielding ordinal data, when more Likert scale items are used to measure a concept on a summative scale, the resulting Likert type data can be considered to be on an interval scale (Carifio and Perla, 2007). According to Bernard (2006), when a researcher uses an ordinal scale of five or more ranks, it can be treated as if it were an interval-level scale. Likert type questions were applied in this concept to collect data for this study with ten items used to collect Likert type data on one variable in a summative scale, thus allowing for use of parametric tests.

To satisfy the Likert scale assumption of equidistance, the study adopted Carifio and Perla (2007) equidistance of 8. Since each variable was measured using 10 Likert scale items on an attitudinal scale of 1-5, the resulting summative score ranged from 10 to 50. Applying an equidistance of 8 results to the following scale which was used in this study: 10 < Strongly Disagree < 18; 18 < Disagree < 26; 26 < Not Sure < 34; 34 < Agree < 42; and 42 < Strongly Agree < 50. For individual items with a low of 1 and a high of 5, the same scale was adopted as: 1 < Strongly Disagree < 1.8; 1.8 < Disagree < 2.6; 2.6 < Not Sure < 3.4; 3.4 < Agree < 4.2; and 4.2 < Strongly Agree < 5. To categorize the study findings the above 5 levels scale was regrouped into 3 clusters: disagree, not sure and, agree. The "disagree" cluster consisted of strongly disagree and disagree responses; "not sure" cluster comprised of the not sure responses; while "agree" cluster consisted of agree and strongly agree.

4.5 Performance of Construction Projects

This section presents data and analysis of data on the performance of construction projects - the dependent variable. The following indicators were used to measure the performance of construction projects: realization of set standards, the realization of planned deliverables, completed projects' variance from the initial plans, the functionality of completed projects, end-user satisfaction and, construction team satisfaction with the completed projects.

Quantitative data on the variable was collected by questionnaires administered on headteachers, while qualitative data was collected through interviews with DEOs and an open-ended question in the headteachers' questionnaire. To collect quantitative data, the questionnaire used 10, 5-point Likert type items to measure the performance of construction projects at an interval scale with Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly Disagree

(SD) = 1. Quantitative data was analysed into frequency distributions. The mean, the standard deviation and the composite mean were computed. The data is presented in Table 4.10.

Table 4.10

Descriptive Statistics for Performance of Construction Projects

Item No.	Item Statement	SA	A	NS	D	SD	MEAN	STDV
1	All of the school construction projects completed in my school have realized their planned standards (+)	78 (31.6%)	105 (42.5%)	41 (16.6%)	4 (1.6%)	19 (7.7%)	3.89	1.110
2	The school construction projects completed in my school have realized their planned deliverables (+)	56 (22.7%)	57 (23.1%)	57 (23.1%)	47 (19.0%)	30 (12.1%)	3.25	1.326
3	Most of the construction projects in the school are completed with minimal variance from the initial plan (+)	2 (0.8%)	42 (17.0%)	12 (4.9%)	134 (54.2%)	57 (23.1%)	2.18	1.002
4	All completed infrastructural projects have attained the intended functionality (+)	30 (12.1%)	97 (39.3%)	57 (23.1%)	3 (1.2%)	60 (24.3%)	3.14	1.360
5	In some cases, teachers were not satisfied with the projects' outcome (-)	4 (1.6%)	45 (18.2%)	33 (13.4%)	105 (42.5%)	60 (24.3%)	3.70	1.079
6	School management has expressed satisfaction with the project outcome of construction projects in the school (+)	30 (12.1%)	151 (61.2%)	44 (17.8%)	19 (7.7%)	3 (1.2%)	3.75	0.811
7	There have been some cases where the project design team has expressed dissatisfaction with the project outcome of some school construction projects (-)	75 (30.4%)	153 (61.9%)	1 (0.4%)	18 (7.3%)	0 (0%)	1.85	0.760
8	There have been some cases where contractors have expressed dissatisfaction with the project outcome of the school construction projects they were implementing (-)	76 (30.8%)	153 (61.9%)	0 (0%)	16 (6.5%)	2 (0.8%)	1.85	0.786
9	Some school construction projects undertaken by the school have received negative MoEHS inspection reports (-)	77 (31.2%)	151 (61.1%)	1 (0.4%)	16 (6.5%)	2 (0.8%)	1.85	0.792
10	We have not had cases where projects being implemented were discontinued for failure to comply with standards (+)	81 (32.8%)	143 (57.9%)	7 (2.8%)	13 (5.3%)	3 (1.2%)	4.16	0.809
	Composite mean and standard deviation						**2.96**	**0.983**

Notes: n = 247. Negative items are reverse scored.

The study sought to examine if construction projects completed in the schools had realized the planned standards. Of the 247 headteachers surveyed, 183(74.1%) agreed that the standards had been realized, 23(9.3%) disagreed, while 41(16.6%) were not sure. The mean score was 3.89 with a standard deviation of 1.110 which shows that most respondents were in agreement that most

completed projects in the schools met their planned standards. The item mean was above the composite mean of 2.96 indicating a positive influence on the composite mean. The standard deviation for the item was above the standard deviation of the variable of 0.983 indicating a wider spread in responses for the item than the variable. This shows that schools were realizing the planned standards for their projects however, this did not amount to realization of infrastructure standards as set out in the school infrastructure policy as some schools did not have the complete school infrastructure policy to base their projects' planned standards on. Some headteachers mounted construction projects without project planning, others had numerous stalled projects, while others had projects that were not yet inspected. These were among the 41 headteachers whose response was lukewarm.

On whether the completed school construction projects realized their planned deliverables, 113(45.8%) agreed, 77(31.1%) disagreed while 57(23.1%) were neutral. The mean score was 3.25 with a standard deviation of 1.326 which shows that respondents were indifferent as to whether the project deliverables were being realized. The item mean was greater than the composite mean of 2.96 indicating a positive influence on the variable composite mean. The item standard deviation was greater than the composite standard deviation of 0.983 indicating a wider spread in the item responses. This shows that a minority, 45.8% of the schools were realizing their construction projects planned deliverables. This can significantly reduce the performance of construction projects.

On the extent of variances between completed projects and their initial plans, 191(77.3%) respondents believed that significant variances existed, 44(17.8%) indicated no significant variances existed while 12(4.9%) were not sure. The mean was 2.18 and the standard deviation was 1.002, which indicate that most respondents had experienced variances between the projects delivered and the projects initially planned. When compared with the composite mean of 2.96 and the average standard deviation of 0.983, the item exerted a negative influence on the composite mean and had more spread in responses than the average of the variable. Such variances in completed projects can significantly affect the performance of construction projects.

The study sought to establish if all the completed projects had met their intended functionality. With a mean of 3.14 and a standard deviation of 1.36, the respondents were split over the issue

with 127(51.4%) respondents in favour as compared to 63(25.5%) against and 57(23.1%) not sure. The item mean and standard deviation were above the variable composite mean of 2.96 and standard deviation of 0.983 indicating the item had a positive influence on the composite mean and its responses were more polarized than the variable's average spread. This shows that attaining project functionality is an important determinant of the performance of construction projects and schools significantly differ on the issue.

On teachers' satisfaction with construction projects' outcome, most respondents, 165(66.8%), favoured the view that the teachers were satisfied, 49(19.8%) indicated that there were cases of teachers' dissatisfaction, while 33(13.4%) took a lukewarm position on the item. The mean was 3.7 with a standard deviation of 1.079, showing that the item response was positive. When compared to the composite mean of 2.96 and standard deviation of 0.983, the item exerted a positive influence on the composite mean and had a wider spread of response. This shows that in many schools, construction projects met the expectations of the teachers who are also users of the facilities.

On whether school management was satisfied with construction projects' outcome in their schools, the respondents were split over the issue with more respondents, 181(73.3%) in favour as compared to 22(8.9%) against and 44(17.8%) not sure. The mean was 3.75 and the standard deviation was 0.811 which indicate the item had a positive influence on the composite mean when compared to the composite mean of 2.96 and its responses were less polarized when compared to the composite standard deviation of 0.983. This shows that most headteachers were satisfied with the performance of their school's construction projects.

On whether project design teams had expressed dissatisfaction with projects' outcomes, most respondents, 228(92.3%) indicated that they had had such cases, 18 (7.3%) had had no such cases while 1(0.4%) was not sure. The mean was 1.85 and the standard deviation was 0.76 indicative of a negative influence on the composite mean and less spread of responses as compared to the variable composite mean of 2.96 and standard deviation of 0.983 respectively. This can be attributed to the significant project variance from initial plans experienced in school construction projects and is indicative of reduced project performance.

On whether contractors had expressed dissatisfaction with the outcomes of the construction projects they had implemented, most of the respondents, 229(92.7%) agreed with the negative item, 18(7.3%) disagreed and no respondent took a lukewarm position. The mean was 1.85 and the standard deviation was 0.786 indicating that contractor dissatisfaction with the project outcome had been experienced. This concurred with the response in the previous item. Compared to the composite mean of 2.96, the item had a negative influence on the composite mean. The item standard deviation was less than the composite standard deviation of 0.983 indicating the variable responses were less polarized.

On the issue of having school construction projects that had received negative reports from MoEHS, most of the respondents, 228(92.3%) agreed with only a few 18(7.3%) disagreeing, while 1 (0.4%) was lukewarm on the item. The mean was 1.85 and the standard deviation was 0.792 concurring the responses in the two previous items. The item mean was less than the composite mean of 2.96 indicating a negative influence on the composite mean, while the item standard deviation was less than the composite standard deviation of 0.983 indicating more compacted responses for the item than the variable average. This show that school management's satisfaction and teachers' satisfaction with completed construction projects does not amount to the project meeting laid out standards.

On whether the school had not had some of their construction projects terminated for failure to meet standards, the respondents were in agreement with a mean of 4.16 and a standard deviation of 0.809 indicating that although there were cases of projects not meeting standards, this did not result to the projects being terminated. These results indicate the item had a positive influence on the composite mean of 2.96 and its responses were less spread when compared with the variable average standard deviation of 0.983. Those who agreed with the item were 224 (90.7%), 16(6.5%) disagreed, while 7(2.8%) were not sure. Sustaining projects that have failed to meet standards is conservative of the investments made but can have a negative influence on the performance of construction projects as schools may be emboldened to undertake projects that do not comply with the set standards with the knowledge that they will not be terminated.

The items were a blend of positive connotation and negative connotation. Negative items were reverse scored. The responses received in the negative and positive items were in harmony. The

composite mean was 2.96 with a mean standard deviation of 0.983 which indicate that overall, the respondents were divided on the performance of construction projects in the schools with the average response falling within the range of *not sure* response. The findings indicate that school construction projects tended to largely realize the set standards, deliverables and, intended functionalities. Teachers and school management were satisfied with the outcome of construction projects in their schools. The findings also show that school construction projects were completed with significant variances from initial plans and there were cases where the project design teams and project implementation teams had been dissatisfied with the project outcome. Some school construction projects had also received negative inspection reports from MoEHS for failure to meet set standards but that did not result in the projects being discontinued. These findings add knowledge on the performance of construction projects in primary schools in a post-war setting.

These findings were triangulated with data collected from interviews with DEOs. One DEO noted:

> *"Many school projects suffer underfinancing and hence it is difficult to meet the ideal standards"- DEO 8.*

Another DEO stated:

> *"Since the war ended, schools have come a long way. Initially, we were doing makeshift facilities- any structure as long as it could host a class. Now we are starting to pay attention to standards for the new constructions, but the old ones remain the way they are"- DEO 11*

Yet another DEO observed:

> *"Due to the current infrastructure shortages in many of our schools, there are no facilities that would be idle in a school regardless of what the facility is or its current state. All are put into use"- DEO 19.*

These comments show that construction projects in the schools complete with significant variances from initial plans and miss set standards due to underfinancing and a construction culture of meeting the demand for physical facilities regardless of quality. It also explains why projects with negative inspection reports are not discontinued.

Response data from each respondent were summed up for the ten items measuring the variable to derive a respondent's score for the variable on a scale 10-50. The resulting data for 247 respondents were grouped into three categories: disagree, not sure and agree (section 4.4.6). The results are shown in Table 4.11.

Table 4.11

Respondents' Perception of Performance of Construction Projects

Response category	Frequency	Percentage	Mean	Standard Deviation
Disagree/low (10<26)	68	27.5	29.60	7.12
Not sure (26<34)	109	44.2		
Agree/high (34≤50)	70	28.3		
Total	**247**	**100.0**		

These findings indicate that the respondents were divided as to whether the performance of construction projects was high or low with 68(27.5%) respondents indicating that it was low, 70(28.3%) indicating that it was high and 109(44.2%) of respondents taking a lukewarm position. The mean score of 29.60 falls in the *not sure* category indicating indifference in the project performance they had experienced. The standard deviation was 7.12 indicating a low spread of responses around the composite mean. These findings concur with the single items data analysis findings in Table 4.10 with a composite mean of 2.96 indicating a lukewarm position on a scale of 1-5. This shows that there were schools that had experienced good performance of construction projects they had undertaken, 70(28.3%), while other schools had poor performance of construction projects that they had mounted, 68(27.5%). The majority, 109(44.2%), have had a mixture of both: some projects performing well while others realize dismal results.

The study used a mixed methodology design with quantitative data on the performance of construction projects collected using questionnaires while qualitative data was collected through semi-structured interviews. The study's quantitative findings were validated with qualitative findings as presented in the following section.

The study established that in most schools, completed construction projects had realized their planned standards (item 1). This means that the completed projects were found to be fit for the purpose for which they were constructed in the environment where they were located. This can

partially be attributed to the simplistic nature of the school construction projects undertaken in most schools which also implies on the few standards that such projects have to meet. Tines (2011) emphasizes this finding noting that schools' CEC's often mounted projects based on school needs, available resources and standards placed. However, such projects differed from school to school. One DEO commented:

> *"Realization of standards for school projects is relative. Many schools believe their completed projects realized the set standards but on inspection, some misses can be found" –DEO 9*

The study found that to a large extent, construction projects completed in the schools had realized their set deliverables (item 2). This shows that construction projects once completed were largely realizing the desired output and service delivery. MoEHS expresses its belief that this trend will continue in its Education sector strategic plan 2017-2021, in which it purposes to build 135 new primary schools by 2021 and to renovate 340 classrooms (MoEHS, 2017). A DEO discussing the issue commented:

> *"Schools here have no idle capacity, demand for enrolment is high. It is difficult for a project to fail to realize its planned deliverables unless it is totally flawed". - DEO 10*

The study found that most of the construction projects are usually completed with significant variations from the initial plan (item 3). Whereas this may sound alarming, it is normal for projects to experience change as they go through the project cycle, especially at the implementation stage (Jiang and Carroll, 2009). Variations of the delivered project from the initial plan are therefore not indicative of project failure per see but also indicate project flexibility and adaptiveness to changes in the environment. A headteacher commented:

> *"We do our best to follow project plans. However, issues of funding cause us to make changes. When funds are not forthcoming, we at times scale down the projects. When ministry funding comes or a donor offers to fund a project, we make project changes to improve the quality of the delivered facility" – Headteacher, Sheekh district.*

The study further found that completed infrastructural projects had attained the intended project functionality (item 4) meaning they were being put into the use for which they were constructed. This shows that there were no cases of wasted investments on construction projects that were never used. Further analysis revealed that huge demand for space in schools coupled with the limited infrastructure that existed in the schools had helped ensure completed construction projects realized their intended functionality. A DEO expressed this issue as follows:

> *"There has not been a case of a failed school construction project in my district during my tenure that I know of. We can't afford failed projects being hard pressed on school development funds as we are" – DEO 16*

In their study findings, Kadzamira and Rose (2001) paint a similar picture of a situation that played out in Malawi when the government declared free primary education without expanding physical facilities. The result was overstretched facilities in schools and any new construction facility would achieve full functionality by being put into use regardless of its quality or condition.

The study investigated whether teachers and the school management were satisfied with the project outcomes of construction projects (items 5 and 6). It was found that both the teachers and the school management were satisfied with the outcome of construction projects in their schools. This was collaborated by a DEO who noted that there had been no complaint in the district of unsatisfactory construction project outcomes from the teachers or headteachers.

> *"For the time I have been here, I have not received such a complaint from any teacher or headteacher"- DEO 18.*

This finding concurs with an earlier finding that all completed school construction projects had realized their intended functionalities (item 4). With project functionality realized, it would be unlikely that the school would complain of the project outcome. This is further emphasized by Ofori (2013) who found that a policy to guide project managers (such as the school infrastructure policy) increased the realization of project outcomes.

The study found that there had been some cases where the project design team had expressed dissatisfaction with the outcome of some school construction projects (item 7). The study further found that there had been cases where contractors had also expressed dissatisfaction with the

school construction projects they were implementing (item 8). Further analysis of these findings showed that significant project changes during implementation were the main cause of this dissatisfaction by the design team (finding on item 3) as the final project in some cases varied significantly from the initial plan. Project designers were drawing their dissatisfaction from the fact that the school had not strictly followed the design during implementation but had made significant changes and variations. Contractors drew their dissatisfaction from the significant project changes which affected their planning, caused them to undo work they had already done and, caused creeps in the schedule plans. Two DEOs, in different interviews, commented:

> *"Project changes are usually a disturbance to the contractor because you are asking him to deviate from his plan. But we have to do it especially when funding is no longer sufficient to complete say, three classrooms, the headteacher would then request that the contractor focus on completing at least one classroom" - DEO 5*

> *"When headteachers change the projects too much, project designers feel like their effort and time went to waste"- DEO 14*

These findings are validated by Ngware et al. (2011), who found that quality of education inputs, such as investments, was low in public schools. Low funding of school construction projects and other projects in schools often results in projects stalling and, significant project changes occurring during project implementation.

The study found that some school construction projects had received negative inspection reports (item 9). This finding is in line with the finding on item 1, that not all (only a majority) of school construction projects had realized their set standards. Those construction projects that had not realized their set standards would likely have gotten a negative inspection report from MoEHS if they ever got inspected. Combining these findings with the findings on policy governance (items 3 and 4); that school inspections were rare due to capacity and funding constraints at MoEHS, it would appear that there is a potential problem that completed construction facilities that do not meet the set standards existed in schools, and have not been inspected to expose the deficiencies. Limon (2016) emphasizes the importance of regular and consistent school facilities inspections and ensuring corrections and corrective actions are taken on the school inspection report findings.

A headteacher commented:

> *"Our most recent projects, 2 classrooms and a toilet block are yet to be inspected. We believe they meet the standards" – Headteacher, Laasgeel district.*

Finally, the study found that incidents, where projects had been discontinued for failure to comply with standards, were quite rare (item 10). This implies that missing standards or getting a negative inspection report did not necessarily translate into project condemnation. A DEO commented as follows:

> *"It is very rare for MoEHS to condemn a school project; they will recommend changes to make good but hardly do they require a project to be terminated"- DEO 20*

These findings show that overall, the performance of construction projects in public primary schools was satisfactory. Completed construction projects significantly realized their set standards, attained functionality and the project outcomes were accepted by teachers and school administration.

4.6 Policy Interpretation and Performance of Construction Projects

In this study, policy interpretation was conceptualized as an independent variable and measured using the following indicators: policy interpretation guidelines, stakeholder attitude on the policy, regulatee's policy sensitization, policy interpretation disputes and regulatees' perceived policy ambiguity. Data on the variable were collected through 10 Likert type questionnaire items administered on headteachers using the scale: Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1; and semi-structured interviews with DEOs. The data is presented in Table 4.12.

Table 4.12

Descriptive Statistics for Policy Interpretation

Item No.	Item Statement	SA	A	NS	D	SD	MEAN	STDV
1	In as far as I know, there are no policy interpretation guidelines for the MoEHS school infrastructure policy (-)	2 (0.8%)	26 (10.5%)	40 (16.2%)	85 (34.4%)	94 (38.1%)	3.98	1.020
2	I don't have the entire policy as it exists in different policy documents some of which I don't have a copy (-)	162 (65.6%)	65 (26.3%)	14 (5.7%)	0 (0%)	6 (2.4%)	1.47	0.810
3	Of the primary Headteachers I know, most of them believe the school infrastructure policy is good for the school (+)	80 (32.4%)	78 (31.6%)	38 (15.4%)	44 (17.8%)	7 (2.8%)	3.73	1.174
4	I have been trained /educated/sensitized on the school infrastructure policy (+)	1 (0.4%)	24 (9.7%)	61 (24.7%)	72 (29.1%)	89 (36.1%)	2.09	1.014
5	My school complies with all the requirements of the school infrastructure policy (+)	4 (1.6%)	62 (25.1%)	0 (0%)	170 (68.8%)	11 (4.5%)	2.51	0.971
6	I am conversant with the content of the school infrastructure policy (+)	16 (6.5%)	7 (2.8%)	56 (22.7%)	91 (36.8%)	77 (31.2%)	2.17	1.101
7	I know of some existing disputes / litigations/adjudications regarding the school infrastructure policy (-)	18 (7.3%)	13 (5.3%)	64 (25.8%)	92 (37.3%)	60 (24.3%)	3.66	1.122
8	There are some clauses in the policy that have more than one interpretation (-)	14 (5.7%)	11 (4.5%)	48 (19.4%)	91 (36.8%)	83 (33.6%)	3.88	1.100
9	There are some aspects of school construction projects that are not covered in the infrastructure policy (-)	14 (5.7%)	52 (21.1%)	95 (38.5%)	56 (22.6%)	30 (12.1%)	3.15	1.064
10	I find the school infrastructure policy easy to apply (+)	84 (34.1%)	110 (44.5%)	23 (9.3%)	28 (11.3%)	2 (0.8%)	4.00	0.982
	Composite mean and standard deviation						**3.069**	**1.0707**

Notes: n = 247. Negative items are reverse scored.

The study examined if policy interpretation guidelines for MoEHS school infrastructure policy existed. Majority of the respondents 179(72.5%) indicated that the guidelines were there, 28(11.3%) respondents indicated the guidelines were not there, while 40(16.2%) were not sure if the guidelines were there or not. With a mean of 3.98 and a standard deviation of 1.02 the response indicated that the policy guidelines were there or the policy was straight forward and self-

explanatory. This is further explained by the response in *item 2* that many of the respondents did not have all the sections of the school infrastructure policy as it is spread over many policy documents. Respondents without the entire policy would certainly have not had access to all the policy interpretation guidelines provided in different policy documents. Comparing with the composite mean of 3.069 and standard deviation of 1.0707, the item had a positive influence on the performance of construction projects and its responses had a less spread than the average spread for the variable. This shows that access to the school infrastructure policy by schools can increase the performance of the infrastructure projects they mount.

Many of the respondents, 227(91.9%) indicated that they didn't have the entire school infrastructure policy which existed in different documents; 14(5.7%) were not sure, while 6(2.4%) strongly disagreed. The mean was 1.47 while the standard deviation was 0.81. This highlights the challenges of policy communication and dissemination when the policy is not set out as one express document but is rather scattered in different regulatory documents: some policy users will have the entire policy while others will only have parts of it. The item mean was less than the composite mean of 3.069 indicating a negative influence on the performance of construction projects. The item standard deviation was less than the composite standard deviation of 1.0707 indicating the item responses were more compact and less spread as compared with the variable average. This shows that the headteachers' lack of access to the policy framework that set the standards for school construction projects can negatively affect the performance of construction projects and contribute to negative school infrastructure inspection reports.

On the opinion of headteachers on school infrastructure policy, more respondents, 158(64%) expressed the belief that the policy is good, 51 (20.6%) disagreed while 38(15.4%) were not sure. The mean was 3.73 and the standard deviation 1.174 which indicate a positive influence and a wider spread of responses when compared with the composite mean and standard deviation. This shows that headteachers perceive the school infrastructure policy as good for the school. On whether the headteachers had been trained or sensitized on the school infrastructure policy only 25(10.1%) of the respondents indicated they had had such training with 161(65.2%) having had no such training and 61(24.7%) not sure. The item mean was 2.09 and the standard deviation 1.014 which indicate a negative influence on the performance of construction projects and a lesser

spread of responses for the item when compared with the variable composites of 3.069 and 1.0707 respectively. This shows that a lack of user training or sensitization on the school infrastructure policy negatively influenced policy interpretation by policy users.

The study examined whether schools complied with all the requirements of the school infrastructure policy. Of the schools surveyed, 181(73.3%) indicated they did not comply with all the requirements while 66 (26.7%) indicated they had achieved compliance. No respondent took a lukewarm position. The mean was 2.51 and the standard deviation 0.971, which shows that the item exerted a negative influence on the performance of construction projects and its responses were less spread as compared to the variable's composite mean 3.069 and standard deviation 1.0707 respectively. This finding shows that compliance with the requirements of the school infrastructure policy by schools was low.

On being conversant with the content of the school infrastructure policy, a majority, 168(68.0%) of the respondents indicated that they were not conversant, 23(9.3%) indicated they were conversant, while 56(22.7%) were not sure. The mean was 2.17 and the standard deviation 1.101 which when compared with the variable composite mean of 3.069 and standard deviation of 1.0707 indicate the item exerted a negative influence on the performance of construction projects and its responses were more spread than the variable average respectively. The response in this item shows that many headteachers were not conversant with the substance of the school infrastructure policy. This is explained by the response in item 2 that most headteachers did not have with them the entire school infrastructure policy but only parts of it as it is spread over numerous documents. It follows that headteachers could only be conversant with the parts of the policy they have.

On the existence of policy disputes, litigations and adjudications regarding the school infrastructure policy, 152(61.6%) respondents indicated that they knew of no such occurrences, 31(12.6%) indicated that they knew of some while 64(25.8% were not sure. The mean was 3.66 and the standard deviation 1.122 which show that the item exerted a positive influence on the performance of construction projects and its responses were more spread as compared to the variable's composite mean 3.069 and standard deviation 1.0707 respectively. This finding confirms the earlier findings (item 1 and 3) that the policy is relatively easy to interpret and most headteachers believed the policy is good for the schools.

On policy ambiguity, 174(70.4%) of the respondents indicated that they did not know of any policy ambiguity that existed in the school infrastructure policy, 25(10.2%) indicated that policy ambiguity existed while 48(19.4%) were not sure. The mean was 3.88 and standard deviation 1.1, indicating the item had a positive influence on the performance of construction projects and its responses were more spread as compared to the variable's composite mean 3.069 and standard deviation 1.0707 respectively. This finding shows that the policy is largely clear and concise.

Respondents were, however, split over the comprehensiveness of the school infrastructure policy with 66 (26.8%) indicating that it did not cover all the aspects of school construction projects while 86(34.7%) indicated that it did, with 95(35.8%) not sure. The mean was 3.15 and the standard deviation 1.064 which when compared with the variable composite mean 3.069 and standard deviation 1.0707 indicate a positive influence on the performance of construction projects and a narrower spread of responses. This shows that the policy is regarded as fairly comprehensive but there are aspects of the policy that can be improved and others added.

Concerning the ease of applying the school infrastructure policy 194 (78.6%) of the respondents indicated that they found the policy easy to apply, 30(12.1%) disagreed while 23(9.3%) were not sure. The mean was 4.00 and the standard deviation 0.982 indicating a positive influence on the performance of construction projects and less spread of responses for the item as compared with the variable composite mean 3.069 and standard deviation 1.0707. This finding that the policy was easy to apply did not, however, result in the full application of the policy in all the schools (item 5) due to other aspects of implementing the policy being unfavourable such as inadequate funds and low school capacity among others.

The composite mean for the ten items was 3.069 with a standard deviation of 1.0707, indicating an overall lukewarm position on policy interpretation. The findings, however, show that the school infrastructure policy exists in different documents but, is well understood, unambiguous, easy to apply, and headteachers were conversant with it and have a positive perception of it. However, schools largely failed to fully comply with the school infrastructure policy and, many headteachers had not been trained on the school infrastructure policy. This adds to the body of knowledge the aspects of school infrastructure policy interpretation in a post-conflict state.

Comparing these findings with the findings on the performance of construction projects, it can be inferred that positive perception, good understanding, clarity and ease of application of the school infrastructure policy had resulted in the mounting of school construction projects that realize set standards, deliverables and, intended functionalities; and for which the teachers and school management are largely satisfied. Failure by the schools to comply with all the school infrastructure policy requirements and lack of training and sensitization of headteachers on the policy has resulted in some projects receiving negative inspection reports. Policy interpretation, therefore, influences the performance of construction projects in the above ways.

The responses for each school were summed up for the variable on a scale of 10-50 and grouped into three categories: disagree, not sure and agree. The results are shown in Table 4.13.

Table 4.13

Respondents' Perception of Policy Interpretation

Response category	Frequency	Percentage	Mean	Standard Deviation
Disagree/low (10<26)	64	25.9	30.64	8.67
Not sure (26<34)	91	36.9		
Agree/high (34≤50)	92	37.2		
Total	**247**	**100.0**		

Table 4.13 shows the response distribution among disagree 64(25.9%), not sure 91(36.9%), and agree 92 (37.2%) categories. This shows that, in 64(25.9%) of the schools surveyed, respondents had experienced policy interpretation issues concerning school infrastructure policy while 92(37.2%) of the schools surveyed had not experienced policy interpretation issues on school infrastructure policy with 91(36.9%) not sure. A further examination of the questionnaires revealed that most of the schools who had experienced policy interpretation issues were rural schools. This converges with an interview comment given by one rural DEO:

> *"This is an isolated area and not many headteachers have telecommunication, computers or other essential ICT equipment. Many (schools) operate without important policy documents. They depend on word of mouth communication and since the road network is as you have seen it, it*

takes time before we are able to visit these schools and equally before they are able to come to us"-DEO 6

Of the schools surveyed, 91(36.8%) reported not being sure that they had had policy interpretation issues concerning the school infrastructure policy. With a mean of 30.64 and a standard deviation of 8.67 the findings indicate that the respondents were lukewarm on policy interpretation.

The following section presents qualitative data collected on policy interpretation using semi-structured interviews with DEOs and comments made by headteachers in the questionnaire.

The study found that the school infrastructure policy was plain and straightforward and many respondents were able to understand it (item 1). This is because the policy was written in simple straightforward language as are, other MoEHS documents. A headteacher commented on the school infrastructure policy this way:

"It is straightforward, like other education policies we have". Headteacher Ceerigaabo district.

The study established that not all headteachers had the entire school infrastructure policy since it existed in several documents some of which they did not have (item 2). This is in line with Tiongson (2005) who postulates that when a policy is not packed into one document but is instead composed of various mentions in different policy documents, not all users understand or access the entirety of the policy. One DEO commented:

"Urban schools have more policy documents with them than rural schools because of more access….. Yes, some schools don't have some policy documents that form part of the infrastructure policy" – DEO 17

The study found that most headteachers had a positive attitude towards the school infrastructure policy and believed that it was good for them (item 3). A positive attitude towards a policy by its users and implementers is necessary for the policy to realize its objectives. When policy users have a negative attitude towards a policy, they withdraw their support and may sabotage the implementation process increasing the costs of enforcing the policy and frustrating realization of the policy objectives. Discoursing on this issue, one DEO said:

"The policy recognizes the reality and does not put on schools burdens they can't carry. That, in my view, is why there is acceptance" –DEO 1

This finding is in line with Rutherford and Rabovsky (2014) who found that performance funding policies did not have a significant effect on student outcomes since the policy changes did not bring about attitude changes. And among pastoralist communities, negative attitude towards free and compulsory basic education impeded the implementation of FPE (Serem and Ronoh, 2012).

The headteachers had not been trained or sensitized on the school infrastructure policy (item 4). This is largely due to financial constraints experienced by MoEHS. However, some DEOs and REOs had been trained on school infrastructure policy as part of public administration capacity development training, thanks to donors who had funded the training. Sensitizing and (or) educating policy users on a policy is instrumental to its successful implementation (Haddad and Demsky, 1995). One headteacher commented:

"I have not been trained or educated on this (school infrastructure policy) and numerous other policies" – Headteacher Salaxaley region.

These findings collaborate a study by Serem and Ronoh (2012) who found that not sensitizing headteachers in pastoralist communities on the FPE policy had impeded their ability to mount FPE projects successfully.

The study found that the schools were not compliant with all the requirements of the school infrastructure policy (item 5). This can partially be attributed to an earlier finding (item 2) that a significant number of schools did not have the entire school infrastructure policy and as such could not possibly comply with the provisions of what they did not have. The study also found underfunding of schools explanatory of their non-compliance with the school infrastructure policy. According to Tines (2011), MoEHS is largely underfunded and is therefore unable to significantly fund school development. One DEO noted:

"To comply with the policy, schools require a transition. Funding the transition is where the problem is". DEO 13.

In their study, Kadzamira and Rose (2001) offer a different approach to such noncompliance with education policies by schools. They note that funding the schools does not resolve the non-

compliance fully; better, they propose, is to redesign and reformulate the policy, and also ensure better implementation.

The study found that many respondents were not conversant with the content of the school infrastructure policy (item 6). This finding is in line with the findings on *items 2 and 4* that the respondents did not have the entire policy because it existed in numerous documents and they had not been sensitized or educated on the policy respectively. This finding explains the finding on item 5 that the schools were not complying with all the requirements of the school infrastructure policy because they were not aware of all the provisions of the policy. A DEO explained as follows:

> *"Communication is a major challenge. Ministry circulars or policies are often channelled to the REOs, and down to the DEOs, who send them down to reach the school headteachers. But some areas have no telecommunication or paved roads. You look for a headteacher for a week or longer without reaching them" – DEO 4.*

The study established that there were no significant disputes or litigations regarding the school infrastructure policy (item 7) and there were no notable clauses in the policy that had more than one interpretation (item 8). This supports earlier findings that the policy is simple and realistic. The study also found that the Somaliland school infrastructure policy when compared with similar policies in other countries, was much simpler and shorter, had fewer provisions and, lacked the extensiveness and strictness that other governments have put in their policies; for example, the Solomon Islands school infrastructure policy. In a study's findings, Dubois (2014), found that internal policy ambiguities led to disputes, conflicts, back passing, coordination problems and eventually - policy failure. External ambiguities led to service delivery failures and blame games between the schools and education officials. A DEO expressed the issue as follows:

> *"The reason we have had no litigations and significant conflicts on this policy and others is because our policies are simple, realistic and, do not demand from the school what they can't manage; also because of slow and light enforcement" – DEO 1*

The study established that there were no significant aspects of school construction projects that were not covered in the school infrastructure policy (item 9). If important aspects of what a policy seeks to regulate are left out of the policy, the result is policy ineffectiveness. In a study, Ngware et al. (2011), found that inequalities in school infrastructure continued to exist because the education policy had not addressed them. Kadzamira and Rose (2001) found that FPE implementation in Malawi almost failed because the FPE policy did not address school infrastructure requirements needed to support its implementation. In an interview, a DEO observed:

> *"Most of the aspects of school construction projects are addressed in the (school) infrastructure policy. I don't think there are wide gaps"- DEO 11.*

Lastly, the study found that the school infrastructure policy was - for many headteachers - easy to apply (item 10). This can be explained by earlier findings that the policy is simple, clear and realistic to the situations on the ground which would make it easy to apply by its users. A DEO said:

> *"The policy is not so demanding, hence with appropriate funding it is easy to comply with". –DEO 17.*

This finding is collaborated by Ploom and Haldma (2013) who in their study noted that setting in place policy requirements without giving practice advice and support deters realization of desired objectives.

These findings show that the school infrastructure policy substance is expressed in a simple to understand language, is clear and, is realistic to its users. However, the fact that it is contained in numerous documents had resulted to a significant number of policy users not accessing the entire policy which in turn had resulted to noncompliance and can be construed to explain the finding on the high occurrence of negative inspection reports for school construction projects (section 4.5). Low school capitation was also found to be a key inhibitor of school infrastructure policy implementation.

The findings were subjected to inferential analysis and hypothesis testing at 5% level of significance.

4.6.1 Correlation Analysis of Policy Interpretation and Performance of Construction Projects

The correlation coefficient between policy interpretation and performance of construction projects was 0.64 (Table 4.7 and Table 4.15) indicating a weak positive association that was not significant at $\alpha = 0.01$ ($p = 0.319$) (2-tailed test) (Table 4.7). This shows that policy interpretation alone is not a significant predictor of the performance of construction projects without an intervening variable.

4.6.2 Path Analysis of Policy Interpretation and Performance of Construction Projects

The study used path analysis technique to investigate the total, direct and indirect effects of policy interpretation on the performance of construction projects using the three-stage (three equations) convention model supported by various authors among them Hayes (2012), Preacher, Rucker and Hayes (2007), Fairchild and MacKinnon (2009), Sheskin (2011), Field (2013) and Kenny (2014).

At the first stage of the analysis, the study examined the total effect of policy interpretation on the performance of construction projects. Total effect measures the effect the independent variable has on the dependent variable in the absence of the mediator. Simple linear regression of policy interpretation on the performance of construction projects was done. The results are shown in Table 4.14 and Table 4.15

Table 4.14

Regression Model for Total Effect of Policy Interpretation on Performance of Construction Projects.

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.064	0.004	0.000	7.12411	0.004	0.998	1	245	0.319

Note: $n = 247$, $\alpha = 0.05$

Table 4.14 depicts the total effect model for policy interpretation on the performance of construction projects in the absence of project management practices (mediator). In the model R^2 is 0.004. This shows that only 0.4 % of the variations in the performance of construction projects are explained by variations in policy interpretation. This shows that the influence exerted by policy

interpretation is too small to bring any meaningful change in the performance of construction projects when project management practices is taken out of the model. This also indicates that policy interpretation does not exert significant influence on Performance of Construction project when it is the only exogenous variable in the model.

Table 4.15

Regression Coefficients for Total Effect of Policy Interpretation on Performance of Construction Projects.

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for b		Correlations		
Model	b	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
Constant	27.999	1.668		16.783	0.000	24.713	31.286			
PI	0.052	0.052	0.064	0.999	0.319	-0.051	0.156	0.064	0.064	0.064

Note: Dependent Variable: Performance of Construction Projects. PI: policy interpretation
n = 247, α = 0.05

The data in Table 4.15 give the resulting model coefficients for the total effect. The outcome model was not significant with c = 0.052, t = 0.999, and *P* = 0.319 (> 0.05). The total effect model was:

$Y = 27.999 + 0.052X_{1a} + e$; e = 0.052;

Where:

X_{1a} – Policy interpretation (independent variable)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

The total effect of policy interpretation on the performance of construction projects (c = 0.052) is statistically insignificant indicating that policy interpretation has no significant influence on the performance of construction projects when project management practices is taken out of the model.

At the second stage of the analysis, the study examined the first part of the indirect effect of policy interpretation on project management practices (P_{21} in Figure 3). The path coefficients for this analysis were computed using Andrew Hayes *Process* model 4 tool. The results are shown in Tables 4.16, 4.17 and Figure 3.

Table 4.16

Regression Model for Indirect Effect of policy Interpretation on Project Management Practices

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.5771	0.3331	19.0181	122.0181	1	245	0.0000

Note: Predictor: Policy interpretation
n = 247, α = 0.05

The model shows the variations in project management practices that are explained by policy interpretation. With $R^2 = 0.3331$ ($p<0.001$); 33.31% of the variations in project management practices were explained by variations in policy interpretation. This implies that policy interpretation is a significant predictor of project management practices.

Table 4.17

Regression Coefficients for Indirect Effect of Policy Interpretation on Project Management Practices.

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	20.0068	1.0213	19.5899	0.0000	17.9952	22.0184
Policy interpretation	0.3549	0.0321	11.0614	0.0000	0.2917	0.4181

Note: Predictor: Policy Interpretation.
n = 247, α = 0.05

At the $X_{1a} \rightarrow M$ (the relationship between policy interpretation and project management practices) stage of the recursive model, the constant was 20.0068 and was significant ($p < 0.001$). Policy interpretation (X_{1a}) was found to be a significant predictor of project management practices (M), ($b = 0.3549$, $t = 11.0614$, $p < 0.001$). This shows that the interpretation of the school infrastructure policy made by a school determined the project management practices that the school deployed in their construction projects.

At the third stage of the analysis, the direct effect of policy interpretation on the performance of construction projects (p_{51}) and the second part of the indirect effect that policy interpretation exerts on the performance of construction projects (p_{52}) were analysed. The results are presented in Table 4.18

Table 4.18

Regression Model for Direct Effect of Policy Interpretation and Indirect Effect of Project Management Practices on Performance of Construction Projects.

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.6467	0.4183	29.7660	87.7214	2	244	0.0000

Note: Predictors: Policy interpretation, project management practices
n = 247, α = 0.05

The model summary shows the combined capacity of policy interpretation and project management practices in explaining variations in the performance of construction projects. R^2 was 0.4183 ($p < 0.001$) indicating that 41.83% of the variations in the performance of construction projects could be explained by the variations in policy interpretation alongside project management practices. Alone (total effect) policy interpretation could only explain 0.4% of the variations in the performance of construction projects with $R^2 = 0.004$ (Table 4.14); but with project management practices in the model, the two variables explain 41.83% of the variations in the performance of construction projects. This shows that the influence exerted by policy interpretation on the performance of construction projects is enhanced by project management practices.

Table 4.19

Regression Coefficients for Direct Effect of Policy Interpretation and Indirect Effect of Project Management Practices on Performance of Construction Projects

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	6.9218	2.0468	3.3817	0.0008	2.8901	10.9335
Policy interpretation	-0.3215	0.0491	-6.5419	0.0000	-0.4183	-0.2247
Project management practices	1.0535	0.0799	13.1811	0.0000	0.8961	1.2110

Note: Predictors: Policy interpretation, Project management practices
n =247, α = 0.05

At the $X_{1a} \mid M \rightarrow Y$ (the relationship between the independent variable and the dependent variable in the presence of the mediator) stage of the recursive model, policy interpretation had a significant direct effect on the performance of construction projects (Y), ($b = -0.3215$, $t = -6.5419$, $p<0.001$).

This shows that when project management practices is in the model, policy interpretation becomes a predictor of the performance of construction projects. From Table 4.17 and Table 4.19 the second and third equations for the analysis are respectively derived as:

$M = 20.0068 + 0.3549X_{1a} + e_{2.}$ $e_2 = 0.0321$

$Y = 6.9218 - 0.3215X_{1a} + 1.0535M + e_{5.}$ $e_5 = 0.129$

Where:

X_{1a} – Policy interpretation (independent variable)

M - Project management practices (mediator)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

The direct effect of policy interpretation on the performance of construction project (p_{51a}) was -0.3215 indicating that; controlling for project management practices, policy interpretation exerts a negative influence on the performance of construction projects. The indirect effect was 0.3739 *(computed as $P_{21} * P_{52}$ using the multiplication rule)* which when fully standardized was 0.4548, CI [0.3505, 0.5642], indicating that policy interpretation exerts a significant positive influence on the performance of construction projects through project management practices.

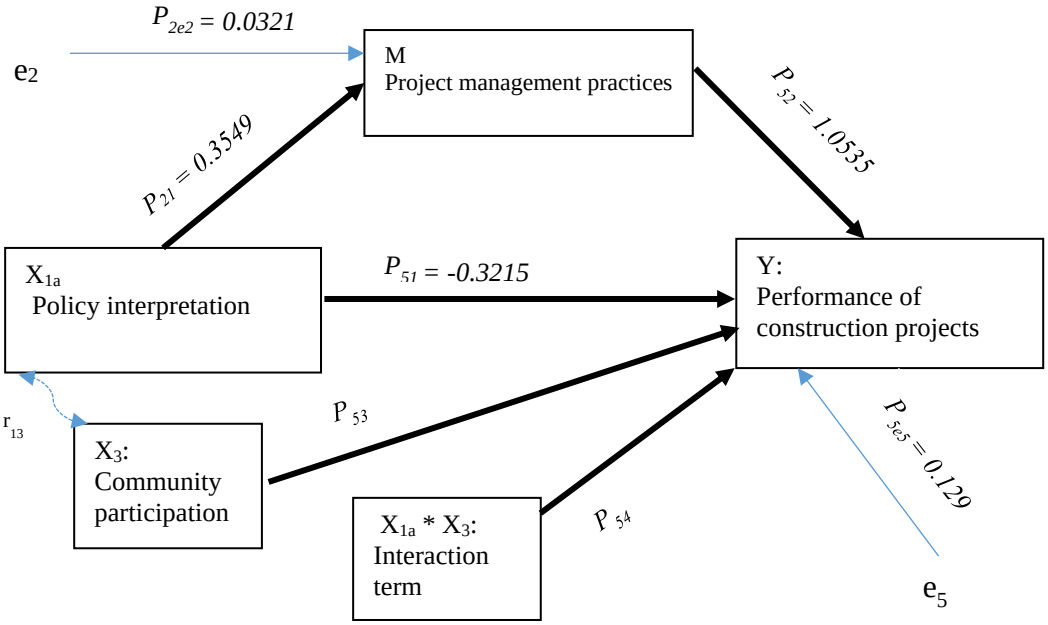

Figure 3. Path analysis model for policy interpretation.

Figure 3 shows the standardized path coefficients calculated for the influence of policy interpretation on the performance of construction projects with project management practices in the model. These findings show that a unit positive change in policy interpretation results to a 0.3549 positive change in project management practices which further results to a 1.0535 indirect positive change in the performance of construction projects. Directly, however, a unit positive change in policy interpretation results in a 0.3215 negative change in the performance of construction projects. This leads to the conclusion that although policy interpretation has no significant total effect on the performance of construction projects, it has a moderate negative direct effect on the performance of construction projects and exerts a significant indirect influence on the performance of construction projects through project management practices (mediation). This shows that interpretation of the school infrastructure policy has no significant influence on the performance of construction projects when no construction projects are being undertaken to necessitate the policy interpretation to be applied through project management practices. Policy interpretation in itself is a cognitive activity that translates its influence by determining the physical activities and practices that are undertaken. School infrastructure policy interpretation, therefore, works by influencing project management practices to bring about changes in project performance.

4.6.3 Test of Hypothesis 1.

The following hypothesis was tested:

1.H_1.

H_O: There is no significant relationship between policy interpretation (X_{1a}) and performance of construction projects (Y).

$$H_O: p_{51a} = 0$$

H_A: There is a significant relationship between policy interpretation (X_{1a}) and performance of construction projects (Y).

$$H_A: p_{51a} \neq 0$$

Since p_{51a} = -0.3215, $p < 0.0001$, **H_O** is rejected and **H_A** accepted.

This leads to the finding that policy interpretation has a significant relationship with the performance of construction projects. Thus, policy interpretation alone, without linking through project management practices negatively affects project performance (direct effect); but when project management practices linking is provided, policy interpretation positively affects the performance of construction projects (indirect effect). When project management practices are taken out of the model, policy interpretation has no significant influence on the performance of construction projects (total effect). These findings are in line with the findings of Ploom and Haldma (2013) who found that policies that were not accompanied by practice guidelines and support deterred the realization of the targeted outcomes. Another study by Marishane (2013) found that for school construction projects to perform effectively and to be financially sustainable, a state –school partnership is needed where the state and the schools work together, the state providing guidance (policy interpretation and appropriate management practices). A study by Moshi and Vavrus (2009) demonstrates how a vague school infrastructure policy can result in confusion between parents and the school, negatively affecting the performance of school projects. Adding to the evidence is Mills and Whittaker (2001) who found that when government policy is not coherent, users come up with different applications which affect the realization of performance.

4.7 Policy Governance and Performance of Construction Projects

Policy governance was conceptualized as an independent variable and measured using the following indicators: policy administration structure, school infrastructure inspections practices,

policy effectiveness, policy predictability and level of regulator independence. Data on the variable was collected using 10 five-point Likert scale items at an interval scale using questionnaires administered on headteachers on the following scale: Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. Semi-structured interviews with DEO's were also used to collect qualitative data. The data was presented in a frequency distribution. The mean, standard deviation, and composite mean were calculated. The analysis is presented in Table 4.20.

Table 4.20

Descriptive Statistics for Policy Governance

Item No.	Item Statement	SA	A	NS	D	SD	MEAN	STDV
1	The MoEHS policy administration structure is ineffective. (-)	15 (6.1%)	99 (40.1%)	125 (50.6%)	4 (1.6%)	4 (1.6%)	2.53	0.709
2	MoEHS periodically inspects schools' infrastructure facilities in my school (+)	36 (14.5%)	46 (18.6%)	55 (22.3%)	56 (22.7%)	54 (21.9%)	2.81	1.358
3	MoEHS inspects newly completed school construction projects before they are commissioned for use. (+)	7 (2.8%)	163 (66.0%)	60 (24.3%)	6 (2.4%)	11 (4.5%)	3.60	0.784
4	MoEHS does not have to approve school construction projects before their commencement (-)	5 (2.0%)	5 (2.0%)	6 (2.4%)	71 (28.8%)	160 (64.8%)	4.52	0.816
5	MoEHS implementation of the school infrastructure policy is ineffective. (-)	50 (20.2%)	58 (23.5%)	57 (23.1%)	46 (18.6%)	36 (14.6%)	2.84	1.340
6	The school infrastructure policy is stable and does not change often. (+)	85 (34.4%)	134 (54.3%)	20 (8.1%)	0 (0%)	8 (3.2%)	4.17	0.832
7	MoEHS is accountable to GoS with regard to how they implement policies (+)	35 (14.2%)	47 (19.0%)	55 (22.3%)	66 (26.7%)	44 (17.8%)	2.85	1.312
8	Infrastructure facilities inspectors from MoEHS are usually independent of undue influence. (+)	36 (14.6%)	46 (18.5%)	55 (22.3%)	56 (22.7%)	54 (21.9%)	2.81	1.358
9	Infrastructure project inspectors are usually biased. (-)	24 (9.7%)	99 (40.1%)	23 (9.3%)	52 (21.1%)	49 (19.8%)	3.01	1.342
10	It is unclear to me what the MoEHS inspectors look for when inspecting school construction projects. (-)	32 (13.0%)	51 (20.7%)	50 (20.2%)	48 (19.4%)	66 (26.7%)	3.26	1.388
	Composite mean and standard deviation						**3.24**	**1.124**

Notes: n = 247. Negative items are reverse scored.

The study sought to establish if the MoEHS policy administration structure was effective. With a mean of 2.53 and a standard deviation of 0.709, the response inclined towards an ineffective

administration structure with 114 (46.2%) respondents indicating the administrative structure was ineffective, 8 (3.2%) respondents indicating the structure was effective and 125(50.6%) taking a neutral position. The item mean and standard deviation indicate a negative influence on the performance of construction projects and less dispersion of item responses when compared with the composite mean of 3.24 and a standard deviation of 1.124 respectively. This shows that the MoEHS administration structure does not meet the expectations of school headteachers and that negatively affects the performance of construction projects.

On whether MoEHS does periodic inspections of school infrastructure facilities, respondents were split over the issue with a mean of 2.81 and a standard deviation of 1.358. The item mean was less than the composite mean of 3.24 indicating a negative influence on the performance of construction projects. The item standard deviation was greater than the composite standard deviation of 1.124 indicating the items responses were more spread out over the attitudinal scale than the variable's average spread. Of the schools surveyed, 82(33.1%) reported having had periodic inspections, with 110(44.6%) reporting no periodic inspections and, 55(22.3%) not sure. These findings point at inconsistent school inspections where some, but not all schools are inspected. This can be attributed to a lack of capacity and shortage of funds on the part of MoEHS to establish a robust inspectorate department. According to Tines (2011), shortage of funds was the main reason behind GoS's inadequate service delivery. This shows that school infrastructure policy was hardly enforced, which could negatively affect the performance of construction projects.

On whether MOEHS inspected newly completed school infrastructure facilities before they were commissioned for use, 170(68.8%) of the respondents agreed, 17(6.9%) disagreed, while 60(24.3%) were not sure. The mean was 3.6 and the standard deviation 0.784 which indicates a positive influence on the performance of construction projects and less spread of responses over the item mean when compared to the composite mean of 3.24 and standard deviation of 1.124 respectively. This finding shows that some form of inspection of newly completed projects was done before their commissioning for use. Inspections are critical in ensuring compliance with set standards. Absence of consistent inspection practices can negatively affect the performance of construction projects as schools relax adherence to the school infrastructure policy.

On whether MoEHS did not have to approve school construction projects before their commencement, 231(93.6%) respondents indicated that the approval was required before schools could mount new construction projects, 10 (4%) disagreed and 6(2.4%) were not sure. The mean was 4.52 and the standard deviation 0.816 which indicates the item had a positive influence on the performance of construction projects and the responses were less spread over the item mean as compared with the variable spread of 1.124 over the variable composite mean. This shows that the ministry exercised control over what projects can be mounted in public primary schools through the project approval process.

The study sought to know whether MoEHS implementation of the school infrastructure policy was effective. The respondents were split over the issue with 108(43.7%) of the respondents indicating that the implementation was ineffective, 82(33.2%) indicating effective implementation and, 57(23.1%) not sure. The mean was 2.84 with a standard deviation of 1.34 which when compared with the composite mean of 3.24 and standard deviation of 1.124 indicate a negative influence on the performance of construction projects and a wider spread of responses around the item mean. Ineffective implementation of the school infrastructure policy has a negative effect on the performance of construction projects.

On the stability of the school infrastructure policy, 219(88.7%) respondents reported the policy was stable, 8(3.2%) disagreed while 20(8.1%) were not sure. The mean was 4.17 and the standard deviation 0.832 which when compared with the composite mean of 3.24 and standard deviation of 1.124 is indicative of a positive influence on the performance of construction projects and less spread of responses around the item mean respectively. The findings show that Somaliland's school infrastructure policy is stable and does not experience regular changes which make it predictable. According to Tiongson (2005), predictability is a characteristic of an effective policy. A predictable school infrastructure policy creates a stable policy environment for more school projects to be mounted which can significantly increase project performance.

On whether MoEHS was accountable to GoS on how they implemented the school infrastructure policy, 110(44.5%) respondents disagreed as compared to 82(33.2%) who agreed and 55 (22.3%) who disagreed. The mean was 2.85 with a standard deviation of 1.312 which shows a negative influence on the performance of construction projects and a wide spread of responses around the

item mean when compared to the variable composite mean of 3.24 and standard deviation of 1.124 respectively. This finding indicates that the headteachers were not persuaded that MoEHS was called to account by GoS on how it implements the school infrastructure policy. This can result in schools under-implementing the school infrastructure policy the result of which is reduced performance of construction projects.

On whether MoEHS inspectors were independent of undue influence, the respondents were split over the issue with 82(33.1%) agreeing, 110(44.6%) disagreeing and 55(23.3% not sure. The mean was 2.83 and the standard deviation 1.404 which shows a negative influence on the performance of construction projects and a wider dispersion of responses around the item average when compared with the composite mean 3.24 and standard deviation 1.124. The findings show that headteachers don't believe that the MoEHS inspectors are independent and free from undue influence. This response may have been influenced by past experiences with the inspectors and tell-tales the headteachers may have heard.

The study examined if the respondents believed that project inspectors were biased. The response was: 123(49.8%) respondents indicated the inspectors were biased, 101 (40.9%) indicated that they were not, while 23(9.3%) were unsure. With a mean of 3.01 and a standard deviation of 1.342, the respondents were lukewarm as to whether the inspectors were biased or not. Compared to the composite mean 3.24 and standard deviation 1.124, the item response exerted a negative influence on the performance of construction projects and the responses were more dispersed over the item mean than the variable responses were over the composite mean. This response is in line with *item 8's* response where again the respondents were lukewarm as to whether the inspectors were independent of undue influence. Combined, these two findings show that primary school headteachers were not convinced that the inspectors work transparently and professionally.

On the issue of clarity of the inspection criteria for school construction projects, 83(33.7%) respondents indicated that the criteria were not clear as compared to 114(46.1%) who believed the criteria were clear and 50(20.2%) who were not sure. The mean was 3.26 with a standard deviation of 1.388 indicating the respondents were largely lukewarm on the issue. When compared with the mean of means 3.24 and the composite standard deviation 1.124, there was a slightly positive influence on the performance of construction projects and the item responses were more dispersed

around the item mean. This finding indicates that the inspection criteria for school construction projects have not been effectively communicated to every school.

The composite mean was 3.24 indicating that the respondents took a slightly favourable position on policy governance. The average standard deviation was 1.124 indicating the data did not have significant outliers. The findings indicated that, of the schools surveyed, the respondents felt that the policy administrative structure was ineffective, implementation of the school infrastructure policy was ineffective, the school infrastructure policy was stable, the inspection criteria for school construction projects was unclear in some schools, some school inspectors were biased, MoEHS approved school construction projects before their commencement - though not all the time and, MoEHS approved newly completed construction projects before they were commissioned for use. This adds to the body of knowledge aspects of how school infrastructure policy is administered in public primary schools in a post-conflict setting.

Although the ineffective policy administration structure and ineffective implementation of the school infrastructure policy are negative findings, they could have a positive impact on the performance of construction projects. Policies tend to be restrictive and increase the costs of mounting projects (Ngware et al., 2011) hence, their relaxed enforcement can increase the number of projects mounted. The stability of school infrastructure policy can significantly increase the performance of construction projects as a stable policy is predictable (Tiongson, 2005) and such stability allows schools to have development plans and mount long term projects. The approval by MoEHS of school projects before they are mounted is a control measure to ensure project plans comply with the school infrastructure policy requirements for physical facilities. This, if well adhered to can significantly increase project performance. The link breaks in the finding that the inspection practice is neither comprehensive nor consistent so that compliance with the approved projects by the schools is hardly verified. This can significantly reduce project performance levels in schools.

The ten responses were summed up for each school on a scale 10-50 and clustered into three groups: disagree, not sure and agree. The results are shown in Table 4.21.

Table 4.21

Respondents' Perception of Policy Governance

Response category	Frequency	Percentage	Mean	Standard Deviation
Disagree/low (10<26)	54	21.9	32.41	8.85
Not sure (26<34)	85	34.4		
Agree/high (34≤50)	108	43.7		
Total	**247**	**100.0**		

The data in Table 4.21 indicate that the respondents took a slightly favourable position on policy governance with a mean of 32.41 and standard deviation of 8.85. Of the schools surveyed 108 (43.7%) schools expressed a favourable opinion on how school infrastructure policy was administered by MoEHS, 54 (21.9%) thought that the policy administration was wanting while 85(34.4%) schools were lukewarm over the issue. These results are in line with the individual item analysis in Table 4.20 and show that more schools were satisfied with how MoEHS was administering the school infrastructure policy than those that were not. This is further confirmed by qualitative data from DEO interviews where one DEO from a rural region commented:

> *"The ministry (MoEHS) is continuously improving its policies and how it enforces them"-DEO 4*

Another DEO said:

> *"In the past, they have been all sorts of things occurring in schools since the ministry's (MoEHS) supervision of schools was very limited due to lack of resources. That situation is changing and the ministry is taking a more active role. In a decade or so, we should reach comparable levels with Djibouti and Ethiopia." - DEO 17.*

The study was designed to use a mixed approach where quantitative and qualitative data were collected. Qualitative data were obtained through semi-structured interviews and structured questions responses by respondents in the questionnaires. This section presents the qualitative data collected on policy governance.

The study found that respondents believed that the MoEHS policy administrative structure was ineffective (item 1) and MoEHS implementation of the school infrastructure policy was ineffective (item5). This shows that ineffectiveness in the implementation of the school infrastructure policy is partially caused by existing policy administration structures at the ministry which respondents indicated were ineffective. Further investigation of this revealed that the ineffective policy administration structure is caused by inadequate budgetary resources to establish and sustain the appropriate capacity (MoEHE, 2015). This inadequacy in policy implementation results in disparities in project performance. During interviews, 3 DEOs had the following to say:

> *"Administration requires money. Policy implementation and monitoring require money. And yet money is what the ministry is short off"- DEO 20*
>
> *"The ministry (of education) budget is little, the government's overall budget is small, many things are not done" – DEO 17*
>
> *"Many policies are developed and distributed to stakeholders. Implementation is largely by goodwill as there is little enforcement. Except for Hargeisa and the districts around where some enforcement of policies is done, in the rural and pastoral regions, there is little enforcement"- DEO 7.*

These findings are collaborated by Usman et al. (2014) who in a study found that policy governance affected project performance to the extent to which the policy was implemented and that when the policy was not actively enforced in construction projects, project implementers took construction short cuts and delivered poor quality projects. In another study, Serem and Ronoh (2012) found that inadequate financing and delay in disbursement of funds to schools by the government was a major impediment in FPE policy implementation at the community level. The findings explain the disparity in the performance of construction projects witnessed in the schools that were surveyed.

The study found that MoEHS rarely inspected school infrastructure facilities in primary schools (item 2). An investigation of this finding revealed that the frequency of the inspections was low; the best being visits by DEOs or REOs which were once every three months at the best in areas with fair infrastructural access. Rural schools went longer without an official from MoEHS

visiting, let alone inspecting. Inspections were found to be rare due to budgetary constraints which contributed to disparities in school's physical facilities and by extension: school performance. A DEO commented on this issue as follows:

> *"The reason we don't have frequent or scheduled school inspections is budgetary constraints. Urban schools are visited more because they are accessible. Rural schools are rarely visited" – DEO 3.*

These findings are in line with those of Ileoye (2015) who, in a study, found that school infrastructure inspection practices significantly affected the state of school infrastructures and their performance.

The study further found that MoEHS approved school construction projects before their commencement (item 4) and inspected newly completed projects before they were commissioned (item 3). However, in *item 10* of project management practices, respondents reported that completed construction projects were put into use even before they were inspected for compliance against policy standards. Further investigation revealed that regional and district MoEHS officials usually launch or inaugurate completed projects in schools for use, and such events entail touring the new facilities (informal inspection). Formal inspections (done against policy standards) by inspectorate teams would happen much later after the completed projects have already been put into use or in some cases may never happen at all. A DEO explained it this way;

> *"Because school inspections are rare, we at times inspect the newly completed facilities when we go to launch them." –DEO 13*

This shows that the practice on the ground differed significantly from the policy requirements set by MoEHS. These findings are in line with Usman et al. (2014) who in a study found that where policy enforcement was lacking or where the implementation of the policy was costly, local stakeholders developed their working mechanism alongside the policy.

The study found school infrastructure policy was stable (item 6). However, only a minority agreed that MoEHS was accountable to GoS on how they implemented policies (item 7). Further analysis revealed that the tendency by MoEHS to develop education policies, disseminate them, but leave them largely unenforced due to lack of capacity and low funding, was, in some schools interpreted as negligence and lack of accountability. However, the stability of the school infrastructure policy

was appreciated in many schools because it allowed schools to mount construction projects - some which took several years to compete - without the uncertainty that policy standards would have changed before the projects were completed. Other studies had similar findings among them Torres et al. (2008) who found that frequent policy changes resulted in low morale among the staff whose work entailed complying with the policies. McDonald et al. (2014) found that changes in school infrastructure policy have little effect on school infrastructure in the short term. A DEO commented:

> *"Some communities feel that the ministry has neglected their schools but, it's all due to the inadequacy of funds; so, the ministry cannot do all the things it is supposed to be doing". –DEO 9.*

Another DEO said:

> *"School infrastructure policy has been relatively stable, so has the community participation policy. This allows many schools to tap in" –DEO 10*

The study also found that MoEHS school inspectors were regarded as being potentially biased (item 9), not independent of undue influence (item 8) and many schools did not know the criteria used by the inspectors in inspecting school construction projects (item 10). This shows that many headteachers regard the school inspectors as not transparent and associate them with low professionalism. Previous cases of inspectors being compromised and tell-tales may have contributed to the perception that they are not independent of undue influence and are potentially biased. Inadequate training and experience of school inspectors, low pay and low field allowances (Tines, 2011) may also explain these findings. Communication challenges experienced in the countryside may have contributed to respondents being unaware of the inspection criteria. These findings are collaborated by Tines (2011) who in an impact study of CECs found that the inspectorate department at MoEHS was at the time not properly structured, nor was there role ownership of the inspectorate function at the top levels of the ministry. In a study, Limon (2016) found that regular and effective inspection of school infrastructure facilities was necessary for maintaining school infrastructure in good condition and maintaining the performance of learners. These findings were collaborated by three DEO's:

"We have had complains of bias against school inspectors. In my view, Inspectors have no reason to be biased in their work. No, they should not be biased"-DEO 11.

"School projects, especially in rural areas, may not meet the standards specified. This is because they customize the materials available and their projects often suffer underfunding. Inspectors need to be realistic of such situations" –DEO 7

"I don't think the inspection criteria is a secret. Communication system could be the main problem that hinders dissemination of the criteria for all to know."- DEO 18.

The findings show that policy governance/administration at MoEHS is negatively affected by the shortage of funding. This cause the ministry to choose what they can manage given their resource limitations and leave other roles undone. Given such a choice, policy administration activities such as inspections don't get priority and often remain undone as priority goes to direct service delivery activities such as building new schools, rehabilitating physical facilities, recruiting and paying teachers, buying textbooks and other learning materials among others, which can significantly affect the quality of the construction projects the schools deliver as school management know that inspections are rare. The stability of the school infrastructure policy allows schools to mount long-term projects without fear that changes in the policy may occur before the projects are completed which positively influences the performance of construction projects. A school inspection process that is perceived as being potentially biased, not independent of undue influence and whose inspection criteria is unknown to a significant number of the headteachers of the schools whose projects are inspected can influence the performance of construction projects negatively as well as positively.

4.7.1 Correlation Analysis of Policy Governance and Performance of Construction Projects

The Pearson's correlation coefficient between policy governance and performance of construction projects was -0.040 indicating a weak negative association (Table 4.7 and Table 4.23) that was not

significant (p = 0.536) at α = 0.01 (2- tailed test). This shows that policy governance alone has no significant influence on the performance of construction projects.

4.7.2 Path Analysis of the Relationship between Policy Governance and Performance of Construction Projects

To test the study hypothesis, the relationship between policy governance and performance of construction projects was analysed using path analysis. The data were subjected to statistical tests at 5% level of significance. Path analysis technique was used with the aid of Andrew Hayes *Process* tool model 4 to analyse the total effect, indirect effect and direct effect of policy governance on the performance of construction projects. The three-stage (three equations) analysis process (Preacher et al., 2007; Awang, 2012) was adopted.

At the first stage, the study examined the total effect of policy governance on the performance of construction projects. This is the effect that policy governance exerts on the performance of construction projects when project management practices is taken out of the model. Linear regression was used to analyse the total effect, the output of which is presented in Table 4.22 and Table 4.23.

Table 4.22

Regression Model for Total Effect of Policy Governance on Performance of Construction Projects.

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.040	0.002	-0.003	7.133	0.002	0.384	1	245	0.536

Note: n = 247, α = 0.05

Table 4.22 shows the total effect model for policy governance on the performance of construction projects when project management practices is taken out of the model. In the model, $R^2 = 0.002$, indicating that only 0.2% of the variations in the performance of construction projects are explained by the variations in policy governance. This shows that the influence exerted by policy governance on the performance of a construction project (in the absence of project management practices) is too small to bring about any meaningful change in the performance of construction

projects. It also shows that when policy governance is the only exogenous variable in the model it exerts insignificant influence on the performance of construction projects $P = 0.536$ (> 0.05).

Table 4.23

Regression Coefficients for Total Effect of Policy Governance on Performance of Construction Projects.

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for b		Correlations		
Model	b	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
Constant	30.636	1.726		17.748	0.000	27.236	34.036			
PG	-0.032	0.051	-0.040	-0.620	0.536	-0.133	0.069	-0.040	-0.040	-0.040

Note: Dependent Variable: Performance of Construction Projects.
PG-Policy Governance.
n = 247, α = 0.05.

The data in Table 4.23 give the resulting model coefficients for the total effect analysis. The constant (30.636) was significant (t = 17.748, $P<0.001$), but the *c* value was not (c = -0.032, t = -0.620, and $P = 0.536$ (> 0.05). The total effect model was derived as:

$Y = 30.636 – 0.032X_{1b} + e$; e = 0.051;

Where:

X_{1b} – Policy governance (independent variable)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

The total effect of policy governance on the performance of construction projects given by $c = -0.032$ was statistically insignificant indicating that policy governance has no significant influence on the performance of construction projects when project management practices is taken out of the model. This shows that the way school infrastructure policy is administered, though important, has little influence on the performance of construction projects when no projects are being undertaken (when project management practices is absent from the model). It is when construction projects are being undertaken, resulting to project management practices taking place, does policy governance exert its influence. This is in line with the theory of policy that regulatory policy works

through influencing practices and where there are no practices, there is nothing to be regulated and thus regulatory policies exert no influence (Brown et al., 2006; Coglianese, 2012).

At the second stage of the analysis, the study examined the first part of the indirect effect of policy governance on project management practices (P_{21} in Figure 4). The path coefficients for this analysis were computed using Andrew Hayes *Process* model 4 tool. The results are shown in Table 4.24, Table 4.25 and Figure 4.

Table 4.24

Regression Model for Indirect Effect of Policy Governance on Project Management Practices

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.4630	0.2144	22.4018	66.8655	1	245	0.0000

Note: Predictor: Policy governance
n = 247, α = 0.05

Table 4.24 show the value of $R^2 = 0.2144$, ($p<0.001$). This indicates that 21.44% of the variations in project management practices are explained by variations in policy governance. This shows that policy governance exerts a significant influence on, and is an important predictor of project management practices. This means that construction project management practices are significantly determined by school infrastructure policy governance in schools that implement the school infrastructure policy.

Table 4.25

Regression Coefficients for Indirect Effect of Policy Governance on Project Management Practices

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	21.8422	1.1454	19.0699	0.0000	19.5862	24.0983
Policy Governance	0.2788	0.0341	8.1771	0.0000	0.117	0.3460

Note: Predictor: Policy governance
n = 247, α = 0.05

The relationship between policy governance and project management practices was analysed in the second stage of the analysis ($X_{1b} \rightarrow M$). The output is presented in Table 4.25. The constant

was 21.8422 and was significant ($p<0.001$). Policy governance (X_{1b}) was found to be a significant predictor of project management practices (M), ($b = 0.2788$, $t = 8.1771$, $p < 0.001$). Comparing this with the total effect results in Table 4.23 ($c = -0.032$, $t = -0.620$, and $P = 0.536$), policy governance exerted more influence on project management practices than it did on the performance of construction projects. This shows that policy governance, whose implementation process was found to be ineffective, does not significantly determine the performance of construction projects directly but influences indirectly by influencing the project management practices that the schools apply.

At the third stage of analysis, the relationship between policy governance and performance of construction projects was analysed controlling for project management practices ($X_{1b}|M \rightarrow Y$) to determine the direct effect of policy governance on the performance of construction projects and the second part of the indirect effect of policy governance exerted through project management practices. The results are presented in Table 4.26, Table 4.27 and Figure 4.

Table 4.26

Regression Model for Direct Effect of Policy Governance and Indirect Effect of Project Management Practices on Performance of Construction Projects

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.6563	0.4308	29.1257	92.3313	2	244	0.0000

Note: Predictors: Policy governance, Project management practices
n = 247, $\alpha = 0.05$

The model summary in Table 4.26 shows the combined strength of policy governance and project management practices in explaining variations in the performance of construction projects. R^2 was 0.4308 ($p<0.001$) indicating that 43.08% of the variations in the performance of construction projects are explained by variations in policy governance and project management practices. When project management practices was left out of the model, policy governance explained only 0.2% ($R^2 = 0.002$) of the variations in the performance of construction projects (Table 4.22); but with project management practices in the model, the two variables explain 43.08% of the variations in the performance of construction projects. This shows that the influence exerted by policy governance on the performance of construction projects is enhanced by project management

practices. The effects of instituting the school infrastructure policy in schools only affect the performance of construction projects if implementing the policy requires making changes to the schools' project management practices.

Table 4.27

Regression Coefficients for Direct Effect of Policy Governance and Indirect Effect of Project Management Practices on Performance of Construction Projects

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	9.0530	2.0585	4.3979	0.0000	4.9984	13.1077
Policy Governance	-0.3074	0.0439	-7.0072	0.0000	-0.3938	-0.2210
Project management practices	0.9881	0.0728	13.5643	0.0000	0.8446	1.1316

Note: Predictors: Policy governance, Project management practices
n = 247, $\alpha = 0.05$

Table 4.27 presents the results for the direct effect and the second part of the indirect effect. The constant (9.0530) was significant ($p < 0.001$). Policy governance (X_{1b}) was found to have a significant negative direct influence on performance of construction projects (Y), ($b = -0.3074$, $t = -7.0072$, $p < 0.001$). Projects management practices had a significant positive influence on the performance of construction projects ($b = 0.9881$, $p < 0.001$) indicating that it is a significant predictor of performance of construction projects in schools.

The direct effect of policy governance on the performance of construction projects (p_{51b}) was -0.3074, ($p < 0.001$) indicating that; controlling for project management practices, policy governance exerts a negative influence on the performance of construction projects. This is in line with empirical literature that project regulatory policy restricts project management practices and increases the costs of mounting projects due to the extra costs of policy compliance (Usman et al., 2014). Besides, the costs of policy administration and governance are often passed on to policy users through such methods as inspection fees, clearance and approval certifications, among others; increasing the project costs and reducing the number of projects mounted by making it more difficult, bureaucratic and strenuous to mount projects.

The indirect effect (P_{21} *P_{52}) was 0.2755 which when fully standardized was 0.3432, CI [0.2283, 0.4645]. This shows that policy governance exerts a moderate positive influence on the performance of construction projects through project management practices. This finding is line with the theory of policy that: policy administration and enforcement practices focus on changing existing practices to bring them in line with the policy requirements to realize certain policy goals (Brown et al., 2006; Foltz,1999). Policy governance thus works through changing management practices on the ground to bring about changes in performance.

The resulting models for direct and indirect effects were:

$M = 21.8422 + 0.2788X_{1b} + e_{2.}$ $e_2 = 0.341$

$Y = 9.0530 – 0.3074X_{1b} + 0.9881M + e_5.$ $e_5 = 0.1167$

Where:

X_{1b} – Policy governance (independent variable)

M - Project management practices (mediator)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

When the standardized path coefficients are placed in the model, the results are depicted in Figure 4.

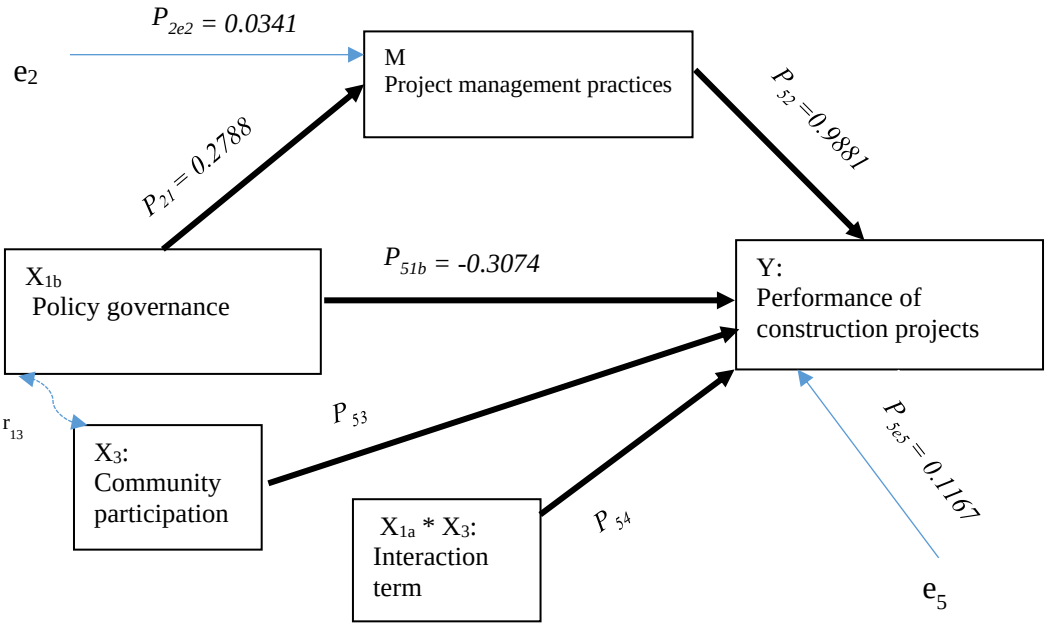

Figure 4. Path analysis model for policy governance.

In Figure 4, the standardized path coefficients for the relationship between policy governance and performance of construction projects with project management practices in the model are depicted.

4.7.3 Test of Hypothesis 2

The following hypothesis was tested.

2.H1.

H$_O$: There is no significant relationship between policy governance (X_{1b}) and performance of construction projects (Y).

$$H_O: p_{51b} = 0$$

H$_A$: There is a significant relationship between policy governance (X_{1b}) and performance of construction projects (Y).

$$H_A: p_{51b} \neq 0.$$

Since P_{51b} = -0.3074, P<0.001, we reject the null hypothesis that P_{51b} is not significant and accept the alternative hypothesis that policy governance has a significant relationship with performance of construction projects

The findings indicate that policy governance has both a direct effect (- 0.3074 and an indirect effect (0.3423 on the performance of construction projects. The total effect (-0.0320) of policy

governance on the performance of construction projects was not significant (p = 0.536). The findings further show that a unit positive change in policy governance results in a 0.2788 positive change in project management practices which further results in a 0.9881 indirect change in the performance of construction projects. Also, a unit positive change in policy governance results in a 0.3074 negative direct change in the performance of construction projects, controlling for M. These findings lead to the conclusion that policy governance exerts a moderate negative influence on the performance of construction projects directly when project management practices is in the model but exert a significant positive influence on the performance of construction projects indirectly through project management practices. The findings are in line with the findings presented in Table 4.20 which show that policy governance has been a major challenge to MoEHS, with the school infrastructure policy not being actively enforced because the policy administration structure and the implementation of the school infrastructure policy are ineffective *(items 1 and 5, Table 4.20)*. The findings support the proposition made by Tiongson (2005) that policy works by influencing practices. A study by Usman et al. (2014) found that policy governance affected project performance to the extent to which the policy was being implemented and that policy compliance has costs which increase the project's total costs hence reducing project performance in the short term and even medium term. This explains the negative direct influence of policy governance on the performance of construction projects. Further, when a policy is developed and policy users are not sensitized on the policy and how to apply it, a lull results where some users try to adopt the policy, others resist it while others take a wait-and-see stance. This was the case with the MoEHS school infrastructure policy as schools were not sensitized on it due to a shortage of funds resulting to a situation where headteachers were not conversant with the content of the policy *(findings on items 4 and 6 of Table 4.12)*. This conclusion supports the findings of Moshi and Vavrus (2009) and McDonald et al. (2014).

4.8 School Infrastructure Policy Implementation and Performance of Construction Projects

School infrastructure policy implementation was a composite variable operationalized as policy interpretation and policy governance. The study sought to examine the influence of school infrastructure policy implementation on the performance of construction projects. The average mean and standard deviation of school infrastructure policy implementation was 3.1545 and

1.09735 respectively. The total effect, direct effect and indirect effects were computed using path analysis technique in a three-stage analysis.

4.8.1 Path Analysis of the Relationship between School Infrastructure Policy Implementation and Performance of Construction Projects

The first stage of the analysis examined the total effect of school infrastructure policy implementation on the performance of construction projects. Multiple regression analysis was done with policy interpretation and policy governance as the predictors and, the performance of construction projects as the outcome variable. The results are presented in Table 4.28 and Table 4.29.

Table 4.28

Regression Model for Total Effect of School Infrastructure Policy Implementation on Performance of Construction Projects.

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.089	0.008	0.000	7.12457	0.008	0.983	2	244	0.376

Note: Predictors: Policy interpretation and policy governance. n = 247, α = 0.05

Table 4.28 shows the multiple regression model for school infrastructure policy implementation (policy interpretation and policy governance) on the performance of construction projects. The value of R^2 was 0.008 indicating that school infrastructure policy implementation accounts for only 0.8% of the variations in the performance of construction projects. This shows that school infrastructure policy implementation on its own is not a significant predictor of performance of construction projects. This is in line with policy theory that regulatory policies seek to change performance realizations by changing operational practices in use (Haddad and Demsky, 1995; OECD, 2013). School infrastructure policy implementation, therefore, does not have a significant total effect on the performance of construction projects without project management practices intervening in the relationship. This shows that schools that implement school infrastructure policy but do not mount construction projects that comply with the infrastructure policy do not realize significant changes in the performance of their construction projects.

Table 4.29

Regression Coefficients for Total Effect of School Infrastructure Policy Implementation on Performance of Construction projects.

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for b		Correlations		
Model	b	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
Constant	29.201	2.068		14.123	0.000	25.128	33.274			
PI	0.069	0.055	0.084	1.257	0.210	-0.039	0.178	0.064	0.080	0.080
PG	-0.053	0.054	-0.066	-0.984	0.326	-0.160	0.053	-0.040	-0.063	-0.063

Note: Dependent Variable: Performance of Construction Projects,
PI: policy interpretation. PG: policy governance. n = 247, $\alpha = 0.05$

Table 4.29 shows the coefficients for the multiple regression of school infrastructure policy implementation and performance of construction projects. The constant (29.201) was significant (P<0.001). The *c* value for policy interpretation was 0.069 indicating a low positive influence that was statistically insignificant (p = 0.210). The *c* value for policy governance was -0.053 indicating a small negative influence that was not significant (p = 0326). The resulting total effect model is depicted as follows:

$Y = 29.201 + 0.069X_{1a} – 0.053\ X_{1b} + e;\ e = 0.109$

Where:

X_{1a} – Policy interpretation (independent variable)

X_{1b} – Policy governance (independent variable)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

This shows that policy governance exerts a negative influence while policy interpretation exerts a positive influence on the performance of construction projects. Both influences are however not significant. This indicates that when no school projects are being undertaken and therefore project management practices is not in the model, implementing the school infrastructure policy yields no change in project performance. The direct influence of school infrastructure policy on the performance of construction projects was insignificant indicating the little association that exists between the two variables when there is no intervening variable. This finding supports the policy theory that regulatory policy does not directly influence performance but rather works through

changing management practices which in turn result in changes in performance (Tiongson, 2005; Coglianese, 2012)

At the second stage of the analysis, the study examined the first part of the indirect effect of school infrastructure policy implementation on project management practices (P_{21} in Figure 5). The path coefficients for this analysis were computed using Andrew Hayes *Process* model 4 tool. The results are shown in Table 4.30, Table 4.31and Figure 5.

Table 4.30

Regression Model for Indirect Effect of School Infrastructure Policy Implementation on Project Management Practices

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.7127	0.5079	14.0318	252.8938	1	245	0.0000

Note: Predictor: School infrastructure policy implementation (PI and PG)
n = 247, α = 0.05

The model presented in Table 4.30 shows that school infrastructure policy implementation (policy interpretation and policy governance together) explains 50.79% of the variations in project management practices (R^2 = 0.5079, p<0.001). This shows that school infrastructure policy implementation is a significant predictor of project management practices. These results are in line with the policy theory that policy exerts its influence through changing existing practices. The school infrastructure policy instituted in schools set regulations governing school infrastructure and infrastructure projects in schools thereby setting restrictions on practices including project management practices.

Table 4.31

Regression Coefficients for Indirect Effect of School Infrastructure Policy Implementation on Project Management Practices

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	14.8435	1.0361	14.3262	0.0000	12.8027	16.8844
SIPI	0.4976	0.0313	15.9026	0.0000	0.4359	0.5592

Note: Predictor: SIPI - School infrastructure policy implementation (PI and PG)
n = 247, α = 0.05

The relationship between school infrastructure policy implementation and performance of construction projects was analysed ($X_1 \rightarrow M$) to help determine the indirect influence of school infrastructure policy implementation on the performance of construction projects. The results are shown in Table 4.31. School infrastructure policy implementation (X_1) was found to significantly predict project management practices (M), ($b = 0.4976$, $t = 15.9026$, $p < 0.001$). This shows that school infrastructure policy implementation is an important determinant of the project management practices that headteachers use in school construction projects. The school infrastructure policy sets requirements and standards to be adhered to by schools when undertaking infrastructure projects. To comply with the policy, standards and requirements set, schools adjust their project management practices.

At the third stage of the analysis, the study examined the direct effect of school infrastructure policy implementation on performance of construction projects (P_{51} in Figure 5) and the second part of the indirect effect of project management practices on performance of construction projects (P_{52} in Figure 5). The path coefficients for this analysis were computed using Andrew Hayes *Process* model 4 tool. The results are shown in Table 4.32, Table 4.33 and Figure 5.

Table 4.32

Regression Model for Direct Effect of School Infrastructure Policy Implementation and Indirect Effect of Project Management Practices on Performance of Construction Projects

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.7883	0.6214	19.3727	200.2354	2	244	0.0000

Note: Predictors: School infrastructure policy implementation (PI and PG), Project management practices
n = 247, α = 0.05

The model summary shows the combined capability of school infrastructure policy implementation (PI and PG) and project management practices to explain changes that occur in the performance of construction projects. R^2 was 0.6214 ($p<0.001$) indicating that jointly, school infrastructure policy implementation and project management practices account for 62.14% of the variations in the performance of construction projects. Alone, however, school infrastructure policy implementation could only explain 0.8% of the variations in the performance of

construction projects with R^2 = 0.008 (Table 4.28). With project management practices in the model, the two variables explain 62.14% of the variations in the performance of construction projects. This shows that the influence exerted by school infrastructure policy implementation on the performance of construction projects is enhanced by project management practices.

Table 4.33

Regression Coefficients for Direct Effect of School Infrastructure Policy Implementation and Indirect Effect of Project Management Practices on Performance of Construction Projects

					Confidence interval	
Model	**Coefficient.**	**se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	6.9082	1.6504	4.1859	0.0000	3.6574	10.1590
SIPI	-0.7350	0.0524	-14.0236	0.0000	-0.8382	-0.6317
PMP	1.5020	0.751	20.0089	0.0000	1.3542	1.6499

Note: Predictors: SIPI - School infrastructure policy implementation (PI and PG), PMP - project management practices. n = 247. α = 0.05.

The relationship between the independent variable and the dependent variable in the presence of the mediator ($X_1 \mid M \rightarrow Y$) was analysed. The results are shown in Table 4.33. The constant (6.9082) was significant ($p<0.001$). School infrastructure policy implementation was found to significantly predict performance of construction projects (Y), ($b = -0.7350$, $t = -14.0236$, $p < 0.001$). The direct effect of the influence of school infrastructure policy implementation on performance of construction projects (p_{51}) was -0.7350 ($p < 0.001$) indicating that; controlling for project management practices, school infrastructure policy implementation exerts a significant negative influence on the performance of construction projects. This finding is in line with policy theory and empirical studies' findings that regulatory policies are restrictive and bring about compliance costs (Folz, 1999; Usman et al., 2014). The school infrastructure policy aims to ensure quality school infrastructure facilities and sets standards and requirements for schools to follow which the schools perceive as restrictions and extra cost drivers. School infrastructure policy increases the costs of implementing school projects which negatively affects project performance by increasing the duration of the project cycle, determining minimum sizes of certain projects, increasing project costs by introducing licenses, approvals and inspections whose costs are often passed on to the policy user. The study found that despite a majority of the schools finding the

school infrastructure policy easy to apply, they did not comply with all its policy requirements *(findings on items 10 and 5 of Table 4.12)*

The indirect effect (P_{21} *P_{52}) was 0.7474 and was significant, CI (0.6036, 0.9045). The fully standardized indirect effect was 0.8008 and significant CI (0.6411, 0.9779), indicating that school infrastructure policy implementation exerts a significant positive influence on the performance of construction projects through project management practices. This shows that school infrastructure policy implementation influences the performance of construction projects significantly when the policy targets to change project management practices. The resulting models were:

$M = 14.8435 + 0.4976X_1 + e_2$. $e_2 = 0.0313$

$Y = 6.9082 – 0.7350X_1 + 1.5020 M + e_5$. $e_5 = 0.1275$

Where:

X_1 – School infrastructure policy implementation (PI and PG) (independent variable)

M - Project management practices (mediator)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

The standardized path coefficients were represented in the path model diagram in Figure 5.

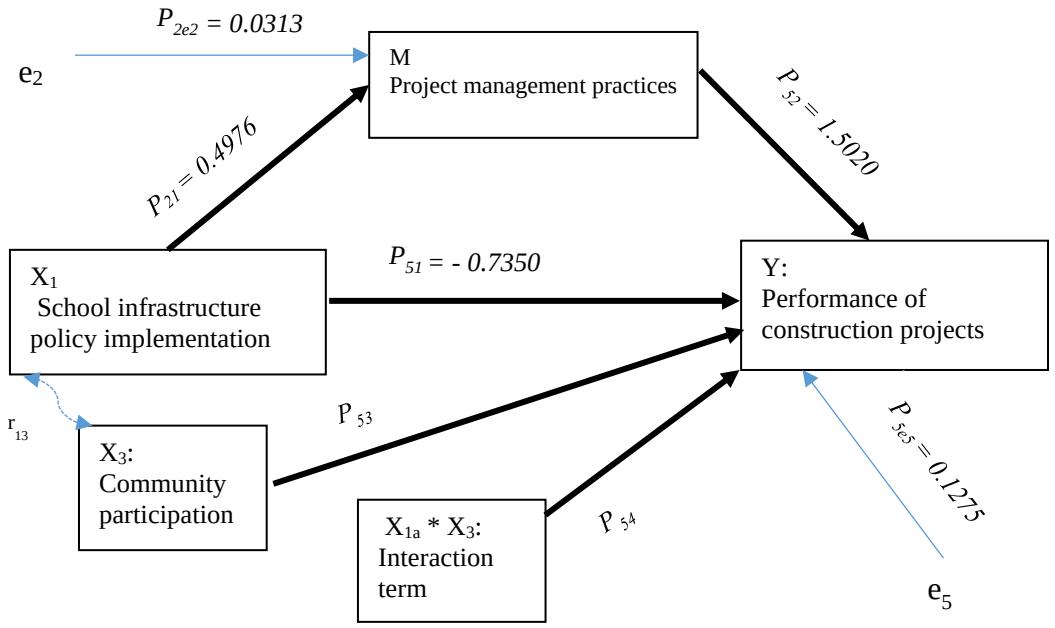

Figure 5. Path analysis model for school infrastructure policy implementation.

In Figure 5, the standardized path coefficients for the direct and indirect effects of school infrastructure policy implementation on the performance of construction projects are shown.

4.8.2 Test of Hypothesis 3

The following hypothesis was tested at 5% level of significance:

3.H_1.

H_O: There is no significant relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_O: p_{51} = 0$$

H_A: There is a significant relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_A: p_{51} \neq 0$$

When project management practices is taken out of the model the *b* values for Policy interpretation (0.069, p=0.210) and policy Governance (-0.053, p=0326) are both insignificant which would lead to acceptance of the null hypothesis since school infrastructure policy implementation is found to have an insignificant total effect on the performance of construction projects. In this study, however, project management practices is a part of the conceptual model, and therefore the direct effect is used to test **3.H_1** instead of the total effect. With p_{51} = -0.7350, p<0.001 (direct effect), the null hypothesis is rejected and the alternative hypothesis accepted that school infrastructure policy implementation has a significant relationship with performance of construction projects.

School infrastructure policy implementation has both a significant direct effect of - 0.7350 and a significant indirect effect of 0.7474 (which when standardized is 0.8008) on the performance of construction projects. The total effect was not significant. The findings can be interpreted to mean: a unit positive change in school infrastructure policy implementation results to a 0.4976 positive change in project management practices which translates into a 1.5020 change in performance of construction projects indirectly. Also, a unit positive change in school infrastructure policy implementation results in a 0.7350 negative change in the performance of construction projects directly and a 0.7474 positive change in performance of construction projects indirectly. These findings show that school infrastructure policy implementation has a significant direct negative

linear relationship with performance of construction projects when project management practices is in the model. Also, school infrastructure policy implementation exerts a significant positive indirect influence on the performance of construction projects through project management practices.

The negative direct effect that school infrastructure policy implementation has on the performance of construction projects can be attributed to the fact that regulatory policies set boundaries on practices, make requirements and demand compliance (Haddad and Demsky, 1995; Tiongson, 2005). Also complying with the policy increases project costs (Usman et al., 2014) making policies unattractive to project implementers who often respond by reducing project engagements resulting to reduction in project performance in the medium term especially in cases where the costs of compliance with the policy cannot be passed on to the consumer. This finding corroborates the findings of other empirical studies. In South Africa, Marishane (2013) found that when an FPE policy was introduced, it relieved parents the burden of paying fees but the result was a reduction in the number of school infrastructure projects the schools mounted and completed. Usman et al. (2014) found that a regulatory policy instituted to regulate construction projects resulted in a decrease in construction projects undertaken and completed due to new costs to contractors of complying with the policy. The study further found that complying with infrastructure policy often means an increase in the project costs, which results to a reduction in the number of projects undertaken and negatively affects ongoing projects that have to comply with new requirements in the introduced policy. Other studies with similar findings include McDonald et al. (2014) and Kuzich et al. (2014).

4.9 School Infrastructure Policy Implementation, Project Management Practices and Performance of Construction Projects

Project management practices was perceived as mediating the relationship between school infrastructure policy implementation and performance of construction projects and was indicated by stakeholder involvement in project identification, stakeholder participation in design and planning, project financing sources and, close-out practices after completion. It was measured using 10 Likert-type items on the following scale: Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. Data was collected from

headteachers and DEOs in the sampled districts. Questionnaires and semi-structured interviews were used. Responses for the individual items were analysed into a frequency distribution and the mean, standard deviation and composite mean calculated. The results are shown in Table 4.34.

Table 4.34

Descriptive Statistics for Project Management Practices

Item No.	Item Statement	SA	A	NS	D	SD	MEAN	STDV
1	Most of the projects we undertake are identified by our stakeholders (+)	0 (0%)	0 (0%)	2 (0.8%)	119 (48.2%)	126 (51.0%)	1.50	0.517
2	We do not consult with stakeholders when selecting projects (-)	7 (2.8%)	161 (65.2%)	0 (0%)	78 (31.6%)	1 (0.4%)	2.62	0.976
3	We do not engage experts to design the projects (-)	7 (2.8%)	169 (68.5%)	0 (0%)	70 (28.3%)	1 (0.4%)	2.55	0.948
4	We always involve our stakeholders in project planning (+)	57 (23.1%)	123 (49.8%)	13 (5.3%)	9 (3.6%)	45 (18.2%)	3.56	1.372
5	We engage the community to finance school construction projects (+)	75 (30.3%)	115 (46.6%)	37 (15.0%)	20 (8.1%)	0 (0%)	3.99	0.883
6	MoEHS has financed most of the school construction projects in my school in the last five years. (+)	0 (0%)	0 (0%)	7 (2.8%)	119 (48.2%)	121 (49.0%)	1.54	0.554
7	As the Headteacher, I oversee all project implementation activities for school construction projects in the school (+)	75 (30.3%)	135 (54.7%)	37 (15.0%)	0 (0%)	0 (0%)	4.15	0.657
8	We do not engage external parties to implement school construction projects in the school (-)	6 (2.4%)	4 (1.6%)	50 (20.2%)	73 (29.6%)	114 (46.2%)	4.15	0.963
9	As the Headteacher, I ensure that the worksite has been fully cleaned up before accepting the project as completed (+)	102 (41.3%)	115 (46.6%)	28 (11.3%)	2 (0.8%)	0 (0%)	4.28	0.693
10	School construction projects completed are not inspected against the school infrastructure policy requirements for compliance before being accepted (-)	10 (4.1%)	166 (67.2%)	0 (0%)	70 (28.3%)	1 (0.4%)	2.54	0.961
	Composite mean and standard deviation						**3.09**	**0.852**

Notes: n = 247. Negative items are reverse scored.

The study sought to know whether primary schools involved stakeholders in identifying projects in the schools. The respondents agreed 245(99.2%) that stakeholders were not involved in project identification in the schools surveyed with only 2(0.8%) respondents not sure. No respondent indicated that stakeholders were involved in project identification. With a mean of 1.50 and a standard deviation of 0.517, the item exerted a negative influence on the performance of

construction projects and its responses were less spread around the item mean as compared to the variable composite mean 3.09 and standard deviation 0.852 respectively. This shows that in most schools (99.2%) the community and other stakeholders were not involved in the early stages of the project cycle but were enjoined in later stages (item 4).

On whether stakeholders were consulted during project selection, 168 (68.0%) respondents indicated that there was no consultation with only 79 (32%) indicating that there was stakeholder consultation when selecting projects. No respondent took a lukewarm position. The mean was 2.62 with a standard deviation of 0.976 implying the item exerted a negative influence on the performance of construction projects and, had a wider spread of responses as compared to the variable composite mean 3.09 and standard deviation 0.852 respectively. This finding reinforces the finding in *item 1* that in many public primary schools, stakeholders and the community are not involved in project inception practices but are brought on board in later stages of the project cycle.

On the engagement of experts in designing projects in the schools, 176 (71.3%) respondents indicated that experts were not engaged in project designing in the schools while 71(28.7%) respondents reported having involved experts in designing their projects. No respondent gave a lukewarm response. The mean was 2.55 and the standard deviation 0.976, which show that the item had a negative influence on the performance of construction projects and, a wider dispersion of responses around its mean as compared to the composite mean 3.09 and standard deviation 0.852 respectively. The lack of engagement of experts in project design can largely be attributed to resource constraints witnessed across public schools in all the regions surveyed.

The study examined whether schools involved stakeholders in project planning. Most schools, 180(72.9%), reported involving stakeholders in project planning, 54 (21.8%) schools reported non-involvement while 13(5.3%) schools were indifferent. With a mean of 3.56 and a standard deviation of 1.372, the item exerted a positive influence on the performance of construction projects and had a wider spread of responses when compared with the composite mean 3.09 and standard deviation 0.852. This shows that project planning was the project cycle entry point for stakeholders and the community participants in school construction projects.

As to whether the schools were engaging the community to finance school construction projects, 190(76.9%) respondents agreed, indicating they involved the community in the financing of school

projects, 20 (8.1%) schools reported non-involvement while 37 (15.0%) were lukewarm. The mean was 3.99 with a standard deviation of 0.883 which when compared with the composite mean 3.09 and standard deviation 0.852 respectively, indicate the item had a positive influence on the performance of construction projects and its responses were more spread over the item mean respectively. This shows that schools turn to the community to finance school construction projects.

As to whether MoEHS was financing most of the school construction projects, the mean was 1.54 with a standard deviation of 0.554 which when compared with the composite mean 3.09 and standard deviation 0.852, indicates a significant negative influence on the performance of construction projects and compact responses for the item which were narrowly spread around the item mean. Almost all respondents 240 (97.2%) disagreed indicating that MoEHS had not financed most of the school construction projects in the previous five years. No respondent agreed and only 7(2.8%) took a lukewarm position on the item. This finding, when combined with the finding on item 5, show that when schools receive no funding from the government for construction and development, they turn to the community to mobilize funds. Failure by MoEHS to finance school development is largely due to low budgetary allocations at the national level (MoEHE, 2015; MoEHS, 2017).

The study examined whether headteachers were the ones overseeing project implementation of construction projects in their schools. With a mean of 4.15 and a standard deviation of 0.657, the headteachers were in agreement that they oversee construction project implementation in their schools. When compared with the composite mean 3.09 and standard deviation 0.852, the item exerted a positive influence on the performance of construction projects and its responses were less spread around the item mean. The finding indicates that most, 210 (85.0%) headteachers, took charge of overseeing construction projects implemented in their schools. Only 37 (15%) headteachers took a lukewarm position and none disagreed with the statement. This finding can be attributed to a shortage of funds and low development projects' financing by MoEHS in the schools, the result of which is that most schools are unable to afford the services of a project manager and the headteacher steps in to fill the gap. The finding is in line with the finding on *item*

3 that most schools do not engage experts in project design because they cannot afford their services.

As to whether the schools engaged external parties to implement school construction projects, most of the schools, 187 (75.8%), indicated engaging external parties, 10(4%) did not engage external parties while 50(20.2%) were not sure. This shows that many schools lack the capacity to implement their construction projects internally and engage contractors and labour from the community to do the work. The mean was 4.15 and the standard deviation 0.963, which shows that the item exerted a positive influence on the performance of construction projects and its responses were slightly more spread over the item mean as compared with the composite mean 3.09 and standard deviation 0.852 respectively.

On project clean-up, 217 (87.9%) headteachers indicated that they ensure the worksite is cleaned up before accepting the project as completed, 2(0.8%) disagreed while 28(46.6%) were not sure. The mean was 4.28 and the standard deviation 0.693 indicating a positive influence on the performance of construction projects and compact responses with little spread around the item mean when compared with the composite mean 3.09 and standard deviation 0.852 respectively. The respondents agreed that the headteachers ensure the site clean-up has been done before the project is declared complete.

On whether the completed construction facilities underwent inspection against the requirements of the school infrastructure policy before being accepted, 176(71.3%) schools indicated that their construction projects were accepted before undergoing inspections for compliance with the school infrastructure policy, 71(28.7%) disagreed and none took a lukewarm position. The item mean was 2.54 with a standard deviation of 0.961 indicating a negative influence on the performance of construction projects and a wider spread of responses around the item mean when compared with the composite mean 3.09 and standard deviation 0.852 respectively. This finding shows that newly completed projects were not inspected against requirements before being commissioned for use. The finding is in line with the findings on *item 3 of policy governance (section 4.7)* that schools inspections for newly completed construction projects were informal and not done by the inspectorate department against the requirements of the school infrastructure policy, but rather by officials who came to launch or inaugurate the completed facilities.

The composite mean was 3.09 and the composite standard deviation 0.852 which indicates a lukewarm position. The positive responses were slightly more than the negative responses but overall, the respondents were indifferent on project management practices in schools. The findings show that school infrastructure construction projects are identified and selected largely without stakeholder involvement and experts were largely not involved in project design. Schools participate stakeholders in project planning, participate the community in project financing and engage external parties in the implementation of school construction projects. These findings contradict MoEHS policy expectations of extensive community participation in school development at the primary school level (MoEHS, 2017; Tines, 2011). The findings further indicate that completed construction projects are put into use before they are inspected for compliance against the school infrastructure policy, headteachers oversee project implementation and ensure project clean-up is done. The findings also indicate that MoEHS had not financed most of the construction projects undertaken in public primary schools for five years before this study which is in line with the ministry's assertions (MoEHS, 2017).

These findings are supported by data collected through interviews with DEOs. One DEO commented:

> *"Due to a shortage of funds at the government level, communities have to finance school building until when the government will have more resources to fulfil that role"-DEO 17*

Another observed:

> *"The demand for school facilities is so high in some areas that facilities under construction are put into use even before they are completed"-DEO 6*

Another DEO discoursed:

> *"In some schools, especially in rural areas, the headteacher is the only employee employed by the ministry, sometimes a handful more teachers. The headteacher has to double into many roles including that of the project manager"-DEO 7*

These findings show the active role that headteachers in Somaliland have to play for school construction projects to become a reality which includes project identification, selection, design and planning, resource mobilization, overseeing the implementation and ensuring site clean-up. When this finding is combined with the finding that most headteachers have not had any form of project management training (section 4.3.1; *item 4*) it leads to the inference that project management practices in public primary schools in Somaliland are largely undertaken by headteachers who have not been trained in the management of projects. These can significantly affect the performance of construction projects and offers insight on some of the findings on the performance of construction projects (section 4.5) among them: the high number of schools that had received negative project inspection reports from MoEHS and why completed construction projects had significant variances from their initial plans *(items 9 and 3 of performance of construction projects).*

The five-point Likert scale data were further grouped into 3 clusters: disagree, not sure and agree. The results are shown in Table 4.35.

Table 4.35

Respondents' Perception of Project Management Practices

Response category	Frequency	Percentage	Mean	Standard Deviation
Disagree/low (10<26)	40	16.2	30.88	5.33
Not sure (26<34)	133	53.8		
Agree/high (34≤50)	74	30.0		
Total	**247**	**100.0**		

Of the 247 schools, 74(30%) of the respondents believed the project management practices in their schools were adequate to give good construction projects performance results as compared to 40(16.2%) who believed the opposite and, 133(53.8%) who were not sure. With an overall mean of 30.88 and a standard deviation of 5.33, it can be inferred that the respondents took a lukewarm position on the project management practices used in construction projects in primary schools. However more schools 74(30%) were confident their project management practices were good as compared to those who were not: 40(16.2%).

The findings were cross-referenced using data collected from interviews and secondary sources. The study found that most of the construction projects undertaken in the schools were identified by the school management and not the stakeholders (item 1) and that stakeholders were not consulted when selecting projects (item 2). This, however, was not the practice in all schools as some schools reported stakeholder consultation in project selection. Many schools, however, did not engage experts in designing school construction projects (item 3). One DEO in an interview commented:

> *"The education sector strategic plan, infrastructure policy and other policies stipulate the physical facilities that schools should have. Analysing the gap between what the school has and what is required is how schools identify the construction projects. Selecting the one (project) to undertake is a matter of where the need bites most and the funds available. There is no much need to involve the stakeholders or the community in this." - DEO 2*

Another DEO was recorded saying:

> *"Most of the construction projects in schools are fairly simple such as classrooms, toilets, gates, fences…..We hardly have storey buildings- mainly ground floor structures……. Constructors and the headteacher agree on measurements before construction begins"- DEO 19*

These findings are corroborated by Mills and Whittaker (2001) who in their study found that differences in management practices manifested where institutions were left to determine how best to apply the policy. This is the case in Somaliland as MoEHS short of funds to finance schools, leave them to determine how best to apply ministry policies given the resources they have.

Many schools however involved stakeholders in project planning activities (item 4) and engaged the community to finance school construction projects (item 5). Since construction projects often cost significant sums of money to undertake – which most public schools are short off - most headteachers found it prudent to involve the community in project planning so as to enlist their support for the project which would be vital later on when it comes to project financing. One headteacher commented:

> *"We bring the community on board when planning projects so that together we can explore different options of realizing the projects, more so, so that they can help in mobilizing funds, labour, materials and such other resources from the community for the project"- Headteacher Sheekh district.*

Studies with similar findings include Kambuga (2013) and Liu and Wilkinson (2014) who in their studies found community participation in planning and financing of school construction projects a common project management practice when schools were looking at tapping into community resources.

The study found that MoEHS did not finance most school construction projects (item 6) and that many completed construction projects were accepted and put into use before they were inspected against MoEHS school infrastructure quality standards (item 10). This, the study found, was due to budgetary constraints that MoEHS have had to bear with for years. Being short of funds to pay salaries and employ teachers (Tines, 2011), the ministry could not manage to spare much funds for infrastructure development in schools or monitoring and evaluation of school activities and projects. Tines (2011) in a CEC impact study in Somaliland and Puntland further found that in many regions, DEOs could only visit schools once in three months at the best. Since physical facilities are in high demand in most schools, the schools do not wait until the next visit by MoEHS inspectorate officers whose occurrence is uncertain; to accept the completed projects so they can start using them. These findings are collaborated further by the following comments made by DEOs in interviews:

> *"The government of Somaliland operates a very small budget compared to other governments around the world…….without international recognition as a country we can't borrow or enjoy government-to-government aid. The ministry hardly has any money for schools' development"- DEO 5.*

> *"We cannot with our current budget put much emphasis on inspections, service delivery takes priority"- DEO 7*

The study found that in most schools, headteachers oversaw all project implementation activities for construction projects in their schools (item 7) and they also ensured that construction project

worksites were cleaned up before declaring the project as completed (item 9). The study found that these tendencies by the headteachers could be attributed to a shortage of funds to hire engineers to supervise the constructions and use of voluntary labour from the community. Lack of ministry financial support left schools to use localized strategies to realize their construction projects. Marishane (2013) observed that sustainable funding of school construction projects requires putting in place state-school partnership. This partnership, in reality, is largely not there in Somaliland schools due to a shortage of government funds. A headteacher and DEO commented:

> *"I oversee the constructions in my school, we don't have construction engineers in our rural area and I don't think we can afford to one"- Headteacher Alla Baday district.*

> *"Clearing the construction site in some schools is done by the pupils. This helps save on costs and also reduces the burden on the parents since they will now not be asked to pay the money the school could have used to clear the site. It is for the same reason that our communities volunteer labour in school projects: to reduce the financial burden on themselves" - DEO 13.*

The study found that most schools engage external parties to implement school construction projects (Item 8). This was collaborated by interview data:

> *"We engage community members and businesses to implement school construction projects. It is the only way. We don't have the capacity within the schools to do it" – DEO 16*

These findings show that project management practices vary from school to school and are localized as MoEHS is not hands-on on its policies largely due to budgetary constraints. It was further found that project management practices were significantly influenced by the availability of project financing or lack of it which influenced which projects were mounted, the number of projects undertaken and how they were implemented and eventually the projects' performance realized.

The data were subjected to inferential analysis to test the hypothesis. Path analysis technique was used with the help of Hayes *Process*, model 4 for mediation analysis. The analysis investigated the direct, indirect and total effects.

4.9.1 Correlation Analysis of Project Management Practices and Performance of Construction Projects

Project management practices had a significant positive correlation with the performance of construction projects ($r = 0.562$, $p<0.001$, $\alpha = 0.05$) indicating that it is an important predictor of performance of construction projects (Table 4.7).

4.9.2 Path Analysis of the Relationship between School Infrastructure Policy Implementation and Performance of Construction Projects with Project Management Practices Mediating

The results of the total effect analysis are shown in Table 4.28 and Table 4.29. Results for the first part of the indirect effect are shown in Table 4.30 and Table 4.31 while results for the direct effect and the second part of the indirect effect are in Table 4.32 and Table 4.33 (section 4.8). The first model for total effect show that school infrastructure policy implementation was not a significant predictor of performance of construction projects when project management practices was absent from the model ($R^2 = 0.008$, $p < 0.001$; *c* value for policy interpretation = 0.069, $p = 0.210$; and c value for policy governance = -0.053, $p = 0.326$). The second model on the first part of the indirect effect ($X_1 \rightarrow M$) showed that school infrastructure policy implementation was an important predictor of project management practices ($R^2 = 0.5079$, $p < 0.001$; $b = 0.4976$, $p < 0.001$).

The third model on the direct effect and the second part of the indirect effect of school infrastructure policy implementation on performance of construction projects controlling for the mediator ($X_1 \mid M \rightarrow Y$), showed that school infrastructure policy implementation was an important predictor of performance of construction projects with a direct effect of $b = -0.7350$, $p<0.001$). Project management practices was found to be an important predictor of performance of construction projects, $b = 1.5020$, $p<0.001$. The combined explanatory power of both school infrastructure policy implementation and project management practices was 62.14% of the variations in the performance of construction projects ($R^2 = 0.6214$, $p<0.001$).

The resulting total effect model and mediation models were:

Total effect model:

$Y = 29.201 + 0.069X_{1a} – 0.053\ X_{1b} + e$; e = 0.109

Mediation models:

$M = 14.8435+ 0.4976X_{1} + e_{2.}$ $e_2 = 0.0313$

$Y= 6.9082 – 0.7350X_1 + 1.5020\ M + e_{5.}$ $e_5 = 0.1275$

Where:

X_{1a} – Policy interpretation (independent variable)

X_{1b} –Policy governance (independent variable)

X_1 – School infrastructure policy implementation (PI and PG) (independent variable)

M - Project management practices (mediator)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

This section focuses on the indirect effect which is used to test for mediation. The indirect effect of school infrastructure policy implementation on project management practices (p_{21}) was 0.4976, t = 15.9026, P < 0.001; $R^2 = 0.5079$, (p < 0.001) (Table 4.31 and Table 4.30 respectively). The indirect effect of project management practices on performance of construction projects (p_{52}) was 1.5020, t = 20.0089, p < 0.001; $R^2 = 0.6214$ (Table 4.33 and Table 4.32 respectively). Using the multiplication rule the complete indirect effect was computed as, $p_{21}* p_{52} = 0.7474$, CI [0.6036, 0.9045]; which when fully standardized was 0.8008, CI [0.6411, 0.9779] indicating that School infrastructure policy implementation exerts a significant positive influence of performance of construction projects through project management practices.

The standardized path coefficients are shown in the path model in Figure 6.

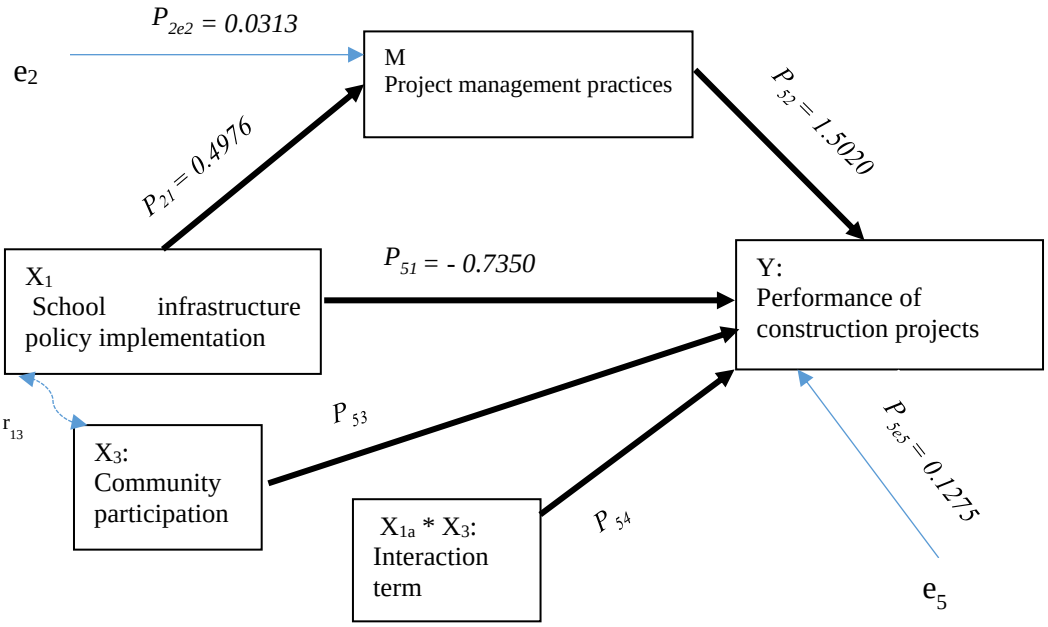

Figure 6. Path analysis model for project management practices mediation.

4.9.3 Test of Hypothesis 4

The following hypothesis was tested at $\alpha = 0.05$.

4.H_1.

H_O: Project management practices (M) does not mediate the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_O: p_{52} * p_{21} = 0$$

H_A Project management practices (M) significantly mediates the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_A: p_{52} * p_{21} \neq 0.$$

Since $p_{52} * p_{21}$ unstandardized coefficient = 0.7474, CI [0.6411, 0.9779] and standardized coefficient = 0.8008, CI [0.6411, 0.9779], **H_O** was rejected and **H_A** accepted. Project management practices was found to positively mediate the relationship between school infrastructure policy implementation and performance of construction projects.

Further analysis was done to determine the type of mediation. The direct effect was tested for significance using the following hypothesis:

$$H_O: p_{51} = 0 \qquad H_A: p_{51} \neq 0$$

With P_{51} = -0.7350, P<0.001, H_O was rejected and H_A accepted. The direct effect was determined to be significant. This led to the conclusion that the type of mediation provided by project management practices on the relationship between school infrastructure policy implementation and performance of construction projects was partial positive mediation.

The absence of a significant total effect of school infrastructure policy implementation on performance of construction projects (*c* for policy interpretation = 0.069, p = 0.210; and *c* for policy governance = -0.053, p = 0.326) and the presence of a significant indirect effect of school infrastructure policy implementation on performance of construction projects through project management practices ($p_{52} * p_{21}$ = 0.8008, CI [0.6411, 0.9779]; R^2 = 0.6214, p < 0.001) shows that the influence of school infrastructure policy implementation on performance of construction projects emerges when project management practices is mediating. This shows that school infrastructure policy implementation exerts its influence through project practices to influence project performance. Project management practices then become an important mediating variable in the model that helps understand how policy influences performance.

The findings support the theory that policy initiatives work through influencing and changing management practices to realize their intended goals and therefore their impact is only to the extent of their implementation (Coglianese, 2012; Tiongson, 2005). These findings corroborate the findings of other studies that policy works through changing management practices to influence performance. In his study, Folz (1999) found that different cities adopted different policies leading to different practices and eventually differences in performance. Liu and Wilkinson (2014) found that PPP policies worked through specifying the management practices that were required to yield the targeted PPP results. Keat and Lin (2018) found that talent development practices mediated the relationship between knowledge management and organizational performance. Liang et al. (2017) reported similar mediation findings by human resource management practices on the relationship between strategic flexibility and firm performance.

4.10 Community Participation and Performance of Construction Projects

In the study, community participation was conceptualized as a moderating variable indicated by diversity of projects participated in, community's perceived level of project ownership, CEC representativeness of the community, community satisfaction with the participation process and

diversity of community groups participated. Data was collected from headteachers and DEOs using questionnaires and semi-structured interviews respectively. Ten, 5-point Likert scale items were used to measure community participation in the questionnaire where: Strongly Agree (SA) = 5, Agree (A) = 4, Not sure (NS) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. A structured question was also used to examine the community participation methods used in construction projects. The data were tabulated into frequency distributions, the mean and standard deviation were calculated. The results are shown in Table 4.36.

Table 4.36

Descriptive Statistics for Community Participation

Item No.	Item Statement	SA	A	NS	D	SD	MEAN	STDV
1	Community members spend insignificant time on school construction projects related activities (-)	0 (0%)	18 (7.3%)	0 (0%)	186 (75.3%)	43 (17.4%)	4.03	0.683
2	In my school, we participate the community in all school construction projects (+)	46 (18.6%)	196 (79.4%)	4 (1.6%)	1 (0.4%)	0 (0%)	4.16	0.440
3	The community perceives full ownership of the school's completed construction projects (+)	65 (26.3%)	164 (66.4%)	0 (0%)	18 (7.3%)	0 (0%)	4.12	0.737
4	CEC members involved in school construction projects are representative of the community (+)	77 (31.2%)	56 (22.7%)	27 (10.9%)	31 (12.5%)	56 (22.7%)	3.27	1.563
5	Community members are dissatisfied with the school's participation process (-)	0 (0%)	18 (7.3%)	0 (0%)	186 (75.3%)	43 (17.4%)	4.03	0.683
6	The school has not realized its goals in community participation (-)	0 (0%)	15 (6.0%)	3 (1.2%)	176 (71.3%)	53 (21.5%)	4.08	0.682
7	All community subgroups in the local area are represented in the CEC (+)	0 (0%)	43 (17.4%)	0 (0%)	186 (75.3%)	18 (7.3%)	2.28	0.834
8	Community members are participated in school construction projects in more ways than just the CEC (+)	43 (17.4%)	201 (81.4%)	3 (1.2%)	0 (0%)	0 (0%)	4.16	0.401
9	Community participants in school construction projects are not participated in all project activities (-)	12 (4.9%)	205 (83.0%)	0 (0%)	30 (12.1%)	0 (0%)	2.19	0.706
10	Community representatives are not involved in project decision making (-)	3 (1.2%)	0 (0%)	30 (12.1%)	72 (29.2%)	142 (57.5%)	4.42	0.796
	Composite mean and standard deviation						**3.67**	**0.753**

Notes: n = 247. Negative items are reverse scored.

The study sought to establish the value placed on the time that community members spent in school construction projects. Majority of the respondents, 229(92.7%), indicated that community members spent significant time on school construction projects, 18(7.3%) disagreed and no respondent took a lukewarm position on the item. With a mean of 4.03 and a standard deviation of 0.683, the item exerted a positive influence on the performance of construction projects and its responses were less spread around the item mean when compared with the composite mean 3.67 and standard deviation 0.753 respectively. This shows that community members spend significant time on school construction projects related activities, and the schools recognize it.

On whether the schools participated the community in all construction projects in the schools, 242(98.0%) of the respondents indicated that the community participation was in all school construction projects, 1(0.4%) respondent disagreed while 4(1.6%) were not sure. The mean was 4.16 with a standard deviation of 0.44 indicating a positive influence on the performance of construction projects and compact responses with little dispersion when compared with the composite mean 3.67 and composite standard deviation 0.753 respectively. This finding shows that community participation was wide and covered all construction projects in the school. This is in line with Tines (2011) who found that community participation in primary schools in Somaliland extended to school operations and management.

On the level of ownership perceived by the community on the completed schools' construction projects, the respondents were in agreement, 229(92.7%), that the community perceived full ownership of the schools' completed construction projects. No respondent took a lukewarm position on the item with 18(7.3%) disagreeing. The mean was 4.12 and the standard deviation 0.737 indicating a positive influence on the performance of construction projects and dispersion in item responses nearly similar to the variable's average dispersion when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. This shows that local communities perceived school development and school construction projects as the development of their community and perceived ownership.

As to how representative of the community the CEC members who participated in school construction projects were, 133(53.9%) respondents indicated that the CEC members were representative of the community, 87(35.2%) disagreed while 27(10.9%) were not sure. The mean

was 3.27 with a standard deviation of 1.563 indicating a negative influence on the performance of construction projects and item responses that were twice spread over the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. This shows that CEC members were largely perceived as being representative of the communities they come from. This perception of representativeness is critical when the CEC members are mobilizing funds and support for school projects from the community as it often determines the support the community is willing to give to the schools.

The study sought to establish if community members were dissatisfied with the school's participation process. Of the 247 headteachers, 229(92.7%) reported that their community members were satisfied with the school's community participation process, 18(7.3%) disagreed with no respondent taking a lukewarm position. With a mean 4.03 and a standard deviation of 0.683, the item exerted a positive influence on the performance of construction projects and had responses that were moderately spread around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. Overall, community members were satisfied with the community participation processes used in the schools. MoEHS specifies the formal community participation process in public primary schools as CECs, however, schools sometimes tend to supplement this method with other methods depending on the needs and challenges they are facing *(finding on item 8)*. This shows that although the CEC community participation method is appreciated by the community it is inadequate for the headteachers and so they seek other methods to supplement it.

On whether the schools had realized their goals in community participation, most schools, 229(92.8%), indicated having realized their community participation goals, 15(6%) had not achieved while 3(1.2%) were not sure. The mean was 4.08 and the standard deviation of 0.682 indicating the item had a positive influence on the performance of construction projects and had a lesser dispersion of responses around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. This shows that schools were reaping from their community participation efforts.

On whether all local community sub-groups were represented in the school's CEC, 204(82.6%) schools had not managed to include all local community subgroups in the school CEC while

43(17.4%) schools indicated they had managed. No school took a lukewarm position. The mean was 2.28 with a standard deviation of 0.834 indicating a negative influence on the performance of construction projects and a slightly wider dispersion of item responses around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. Putting this response together with the response for *item 4* in Table 4.36, it can be inferred that although most schools had not included all the local community subgroups in the CEC membership, this was not perceived on the part of the CEC as lack of representativeness. The complexity of representing all community subgroups in the CEC emanates from the complex clan, sub-clans and family system that exists in Somalia regions.

On whether the community participated in school construction projects in more ways other than just the CEC, almost all schools, 244(98.8%) responded affirmatively indicating that community participation was much bigger and wider and the CEC process was just one of the ways the schools participated the community in school construction projects. Only 3(1.2%) respondents took a neutral position on the item. The mean was 4.16 and the standard deviation 0.401 showing a positive influence on the performance of construction projects and compact item responses with a lesser spread around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. The finding indicates that headteachers seek and utilize other methods of community participation in addition to the MoEHS instituted method of CECs.

The study sought to establish if the community participants participated in all construction project activities. Most schools, 217(87.9%) reported not participating them in all the project activities with 30(12.1%) indicating the participation of community participants in all project activities. No respondent took a lukewarm position. With a mean of 2.19 and a standard deviation of 0.706, the item exerted a negative influence on the performance of construction projects and the item responses were moderately spread around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. When this finding was combined with the finding on *item 2* (Table 4.36) it was inferred that schools participated in the community in all construction projects but not in all the activities in each project. This finding is in line with the finding on *item 4 of project management practices* (Table 4.34) that the project cycle entry stage for community participants in school construction project was the planning stage and, community

participants did not participate at the project identification and selection stages (*item 1 and 2* of *project management practices* – Table 4.34).

On whether community representatives were involved in project decision making, most schools, 214(86.7%), reported involving community representatives in project decision making, 3(1.2%) did not, while 30(12.1%) were not sure. The mean was 4.42 and the standard deviation 0.796 indicating a positive influence on the performance of construction projects and a moderate dispersion of responses around the item mean when compared to the composite mean 3.67 and composite standard deviation 0.753 respectively. This shows that the schools involved the community - through their CEC representatives - in project decision making.

The composite mean was 3.67 with a standard deviation of 0.753. This indicates that overall, the respondents believed that community participation in their schools was high. The findings show that community members spent significant time in school construction-related activities, the communities were participated in construction projects and project decision making - though not in all project activities, the community perceived full ownership of completed school construction projects, community members were satisfied with the schools' participation process, most schools had realized their community participation goals, the CEC process was just one of the numerous ways the schools participated the community in school construction projects and although not all community clans were represented in the CECs, CECs were still considered representative of the community. These findings add to the knowledge of community participation, the CEC community participation process as practised in Somaliland and its achievements.

These findings agree with comments made by some DEOs during interviews and also with data collected from secondary sources:

> *"Without the community taking up rehabilitation and reconstruction of schools, we could not have realized the progress we have made in education since the end of the war" – DEO 16.*
>
> *"In this region, we lost everything to the war. But community participation has helped restore primary school education" –DEO 3*

> *"Without community participation, education cannot be promoted; The CEC is a potential community power that can play an important role in educational development; MoE has recognized that they do not have the human resource capacity to lead the education sector; MoE has understood the importance of CECs and school management (in Somaliland)"- (Tines, 2011, p. 123)*

These findings show the critical role that community participation has played in primary schools' construction projects whether new constructions or rehabilitation projects. The high community participation (mean=3.67) is indicative of a positive influence on the performance of construction projects. However, this may not be the outcome as high community participation brings with it certain encumbrances among them: delays in decision making, delays in project commencement, diverse interests requiring compromising, slow progress and costs of participation. The final result may be no or negative impact on the performance of construction projects.

Community participation five-point Likert scale data were grouped into 3 clusters: disagree, not sure and agree. Table 4.37 shows the results.

Table 4.37

Respondents' Perception of Community Participation

Response category	Frequency	Percentage	Mean	Standard Deviation
Disagree/low (10<26)	0	0	36.74	4.00
Not sure (26<34)	53	21.5		
Agree/high (34≤50)	194	78.5		
Total	**247**	**100.0**		

The data presented in Table 4.37 shows that 194 (78.5%) of the schools reported high community participation in school construction projects. No school reported low community participation while 53(21.7%) schools were not sure whether their community participation experience could be categorized as low or as high. With a mean of 36.74, the respondents were, overall, persuaded that community participation was high in school construction projects. The standard deviation (4.00) show that the responses were narrowly spread around the mean and there were no outliers in the data indicating the respondents agreed that community participation in public primary

schools was high. This shows that schools highly depended on the community when undertaking school construction projects. Headteachers sought community involvement and support in school projects since MoEHS was largely unable to support development in schools. Community participation in primary schools is, therefore, a fill-gap measure rather than an enhancement measure and may not necessarily yield a significant increase in the performance of construction projects.

The study sought to establish the ways through which communities participated in school construction projects. Respondents were given six choices to choose from with space provided to indicate any other ways not included in the main choices. Respondents were asked to select all the choices that applied to them. The results are shown in Table 4.38.

Table 4.38

Methods of Community Participation in School Construction Projects

Method	Frequency	Percentage
Fundraising	220	89.07
Donating community land	67	27.13
Volunteering labour	221	89.47
Participating in decision making such as project committees	226	91.5
Donating building materials	111	44.94
Donating infrastructure facilities such as classrooms	3	1.21
Other	32	12.96

The results presented in Table 4.38 shows participation in decision-making processes, volunteering labour and fundraising as the leading methods of participating communities in school construction projects with 226, 221 and 220 schools using the methods out of 247 schools surveyed, respectively. Donating complete infrastructure facilities was the least used method with only 3 schools reporting having used it. Other methods of community participation in schools included: assisting the school in project fundraising, especially from donors and NGOs, mobilizing community support and goodwill for school construction projects and donating furniture and installations needed to make the completed construction projects operational. These findings collaborate other studies, among them. Swift-Morgan (2006) in a study found that community participation in school construction projects in southern Ethiopia was in the areas of planning,

resource mobilization, volunteering labour and, project monitoring and evaluation. In a study done in Okigwe, Nigeria, Emenola and Ibekwe (2013) reported that community participation in school development entailed financial donations, payment of school fees such as development fee; donation of land, facilities, furniture and equipment to schools. Such participation can have a positive influence on the performance of construction projects in schools by reducing the project costs – due to donated materials and labour and, enhance project realization through fundraising for the projects. On the downside, community participation efforts may mismatch the project requirements and thus result in no impact on construction project performance in schools.

Qualitative data was collected through semi-structured interviews with DEOs. These data were used to validate the quantitative data.

The study found that community members devote significant time on school construction projects activities (item 1). This finding was reiterated by comments made by a DEO and a headteacher:

> *".. Being a CEC member requires sharing your time with the school and being available when needed" - DEO 12*

> *"... Some CEC members are very devoted, they participate in many school activities and projects and come here several times a week." - Headteacher, Alla Baday district*

These findings are in line with MoEHS (2017) education sector strategic plan which requires an increase in CEC meetings and expansion of their roles in primary schools. The amount of time the community representatives spent on CEC work, CEC training and, frequency of meetings is akin to the level of their participation in school projects. This is also indicative of the contributions in ideas, skills and other aspects that the community representatives bring and, the level of ownership they perceive in the school and the schools' construction projects.

The study found that schools participated the community in all manner of school construction projects (item 2) and even non-construction projects. Such broad participation increases the contributions that the community can make in the school and increases the partnership between the school and the community (Thomas et al, 2010). One DEO made the following comment.

> *"The policy we have and the direction the ministry has taken will have community members being engaged in almost all school management and project activities in the schools in the future"- DEO 6*

This finding is in line with the findings of a study by Swift-Morgan (2006) which found that the Ethiopian school community participation policy aimed to achieve community participation in all aspects of the school. These findings are similar to Tines (2011) who, in a study found that in Puntland, CECs were involved in the entire spectrum of school management including hiring teachers and paying their salaries while in Somaliland, CECs were involved in physical facilities establishment, rehabilitation, development and implementation of school improvement plans.

The study found that most communities perceived full community ownership of completed school construction projects (item 3). This shows that the community felt a sense of ownership of the school construction projects they had realized in their local community and were proud of their achievements. In an interview one DEO noted.

> *"The schools are for the community and it is important that the community feel a sense of ownership, otherwise they will not contribute to local schools' construction. They give to the schools and they get back better education facilities for their children"- DEO 4*

A study by Swift-Morgan (2006) had similar findings that the policy of community participation in Ethiopia was geared towards eventual local ownership of the schools by the local communities.

The study found that community participants taking part in school construction projects on behalf of the community were representative of the community they were from (item 4). This is necessary for the participation process to be perceived as inclusive and genuine. One DEO commented:

> *".. When we started, membership of the CEC was voluntary. Today we try as much as possible to ensure the committee membership represents all sections of our community and is gender-balanced" – DEO 11*

These findings are in line with a study by Tines (2011) who found that CECs in Somaliland were becoming more representative of the local communities than before.

The study found that community members were satisfied in the schools' participation processes (item 5). Satisfaction in the process is crucial for the community to continue participating in and supporting the process. The study further found that where the community was dissatisfied with the participation process, it mainly had to do with how the CEC members were selected and a common remedy was to dissolve the CEC and reconstitute it afresh with more community participation and involvement. One headteacher commented.

> *"Our first and second CECs were dissolved due to community complaints that the committees did not represent them. Now we have a CEC membership that is accepted by the community". – Headteacher Sheekh district.*

Yetunde et al. (2014) had similar findings that both parents and pupils in his study had a positive attitude on parents' participation in school projects and that such participation built a stronger bond and increased connections between the school and the stakeholders. Another study by Kumar (2015) emphasized ensuring mutual benefits in community participation in school projects if the process is to be satisfying and sustainable.

Most schools surveyed reported having realized their goals in community participation (item 6). This is important for the participation process to continue and to be effective. Both the school and society need to realize their participation objectives. One headteacher's comment read:

> *"We started by asking the community to help in rehabilitating physical facilities damaged during the war, then in electing a fence, constructing latrines and now we are putting up new classrooms. The community has been of much help" –Headteacher Mandheera district.*

A DEO was recorded saying:

> *" the (CEC) process is not just (about) the community developing the school but also the community developing because, with more education facilities, access to education is increased, community members are empowered and, the livelihood of the next generation is transformed" - DEO 19.*

A study by Rao and Ibáñez (2003) contradicts these findings noting that community-driven development failed to empower the poor, the schools and the community in Jamaica since the participatory process, although representative, saw more influential people pushing their agendas at the expense of the less influential and therefore capturing development projects to their favour and at the expense of the other groups.

The study found that not all community subgroups in the local areas were represented in the CECs (item 7). In his impact evaluation study of CEC's in Puntland and Somaliland Tines (2011) arrived at similar findings noting that although deliberate efforts had been put in place by MoEHS to ensure gender balance and representation of clans and sub-clans in the CECs, CECs were still not 100% representative of gender and ethnic clans in their local communities. Factors that impede representativeness include illiteracy among the adult population, unwillingness to participate by some potential CEC recruits, local politics among others. A headteacher and a rural area DEO commented:

> *"The community sub-clans and family groups are in some areas more than the CEC membership positions recommended by Hargeisa. We are unable to include all of them"- Headteacher, Burco district.*

> *"Operational challenges on the ground prevent the schools from having all sub-clans and family lines in the local community represented in the CEC. In this district, for example, we have three nomadic clans. They can't attend a meeting in school when it is called because they have moved east or south in search for pastures and the headteacher has no means of contacting them. In such cases, availability becomes more important than representativeness when constituting CEC membership" – DEO 15.*

This finding is in line with Swift-Morgan (2006) who in a study found that policies for community participation did not yield equal engagement and often, women and the poor were left out of the participation process.

The study established that CECs were not the only method of community participation in primary schools in Somaliland (item 8). Whereas the CEC mechanism was the formal participation method

which had the full support of MoEHS and its development partners, other participation methods existed and different schools explored different methods of participating their communities in school projects among them: fundraising, engaging volunteer labour from the community, employing locals; seeking cash donations, book donations, land and building materials donations. A DEO was recorded saying:

> *"CEC is our main community participation method, but it cannot achieve everything. When schools are mobilizing for resources such as funds, we have to get to the community members directly and try to reach many of them"- DEO 18*

In a study, Swift-Morgan (2006) found that community participation in Ethiopian schools ranged from therapy to partnership in the Arnstein's ladder. Tines (2011) found that CECs in Somaliland had significant shortcomings and had not in numerous cases significantly played out their envisioned roles. In such cases, schools could only seek additional methods of participating the community.

The study found that community participants in school construction projects did not participate in all construction projects activities (item 9). Community participants did not participate in project identification and selection stages but were participated in project financing and project implementation. A rural area DEO explained this:

> *"The participation process is time-consuming and also, at times, consume the resources that are already scarce at the schools. We involve the community as much as possible, but where there is no time, or the headteacher can get it done alone, we would rather that. It's faster and saves resources." – DEO 14*

A headteacher commented:

> *"Community members are not always fully knowledgeable of the needs and challenges the school faces. They are often not familiar with all ministry regulations and policies, so some things I do alone"- Headteacher Kalabaydh district.*

These findings are similar to those of a study done in Portugal by Veloso et al. (2013) who found that although there was one national policy for community participation in school management, projects and operations, only 66% of the schools reported having involved the community in the management of school projects, the rest had not. This departure from community participation policy in some areas can be attributed to local dynamics such as community politics, the leadership style of the headteacher, community sense of ownership of the schools and local culture, among others. Emenalo and Ibekwe (2013) found that in Okigwe, Imo State, Nigeria community participation in school development was a cherished age-old practice. This can however not be said of all regions and areas in Somaliland.

The study established that community participants were involved in project decision making (item 10). Decision making is the placation level of participation in Arnstein's ladder and represents a genuine participation process. Tines (2011) in his impact study on CECs in Somaliland, Puntland and south/central Somalia reported findings that point at significant disparities about how high on Arnstein's ladder of participation the CEC system had reached. In Puntland, the findings indicated that CECs were almost attaining the level of *citizen power but* in Somaliland, the achievement appeared to be approaching the *partnership* level on Arnstein's ladder.

A headteacher commented as follows:

> *"At the beginning, we would only call community members to assist the school when there was a problem or a crisis. Now we participate them in planning and decision making and they assist in running the school." – Headteacher Qoryale district.*

These findings show that not only is community participation in school construction projects born of national policy, but it is also both essential and critical for primary schools to undertake and realize vital construction projects to rehabilitate and build physical facilities necessary for their core role of offering education services. Community participation in Somaliland's primary schools was found to be widespread and to have a perceived positive contribution to the performance of construction projects in that it fills the gaps that MoEHS have left in schools. With the high demand for education causing strain on existing school infrastructure facilities, community participation is used to develop schools as the national government, short of funds is unable to finance school

development in most schools. This can be construed to result to better performance of construction projects in schools but the reality is that without community participation many schools would have no construction projects at all as government capitation is little and hard to come by. Community participation in schools largely plays the role of facilitating schools to mount development and construction projects in the first place.

4.10.1 Correlation Analysis of Community Participation and Performance of Construction Projects

The Pearson correlation coefficient between community participation and performance of construction projects r = -0.105, p = 0.1 was not significant at $\alpha = 0.01$ (2-tailed test) (Table 4.7 and Table 4.40). This shows a weak negative association between community participation and performance of construction projects indicating that increasing the level of community participation in construction projects results in a slight reduction in their performance. With the r coefficient not significant, community participation is not an important predictor of performance of construction projects.

4.10.2 Regression Analysis of Community Participation and Performance of Construction Projects

Linear regression analysis was done to determine the influence of community participation on the performance of construction projects. The results are shown in Table 4.39 and Table 4.40.

Table 4.39

Regression Model for Total Effect of Community Participation on Performance of Construction Projects

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.105	0.011	0.007	7.0992	0.011	2.726	1	245	0.100

Note: Predictor: Community participation
n = 247, $\alpha = 0.05$

The data presented in Table 4.39 shows the regression model for community participation on the performance of construction projects. The value of R^2 was 0.011 meaning, community

participation explains up to 1.1% of the variations in the performance of construction projects. This shows that community participation on its own is not an important predictor of performance of construction projects. This is in line with earlier study findings that community participation in primary schools in Somaliland is a fill-gap measure to fill the funding deficiency left by MoEHS in the schools due to its persistent inability to finance and provide for the schools especially in the area of school development. Schools' participate the community in more aspects than just construction projects. According to Tines (2011), community participation in primary schools in Somaliland includes school operations, mobilizing enrolment, mobilizing resources, conflict resolution, paying teachers among others. It follows that community participation in schools does not translate into community participation in construction projects, which in turn does not translate into community participation at all stages of the project cycle. The findings on project management practices (Table 4.34; *items 1, 2 and 4*) show that most schools did not participate the community in project identification and project selection processes and that the community participation process started at the project planning stage. Therefore, although community participation in public primary schools in Somaliland is a widespread and entrenched practice, participation in construction projects is just a portion of it, hence the insignificant relationship between community participation and performance of construction projects.

Table 4.40

Regression Coefficients for Total Effect of Community Participation on Performance of Construction projects.

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for b		Correlations		
Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
Constant	36.464	4.179		8.725	0.000	28.232	44.696			
CP	-0.187	0.133	-0.105	-1.651	0.100	-0.410	0.036	-0.105	-0.105	-0.105

Note: Dependent Variable: Performance of Construction Projects.
CP: Community participation
n = 247, α = 0.05

The data presented in Table 4.40 shows the coefficients for the regression model for community participation on the performance of construction projects. The constant (36.464) was significant

(P < 0.001). The *c* value was -0.187 indicating a low negative influence that was statistically insignificant (p = 0.100). This shows a weak negative relationship between community participation and performance of construction projects and indicates that community participation is not an important determinant of the performance of construction projects. Community participation in public schools in Somaliland is an education policy initiative and requirement. The policy specifies CECs as the mode of community participation. It can, however, be debated whether the participation is results-oriented in all schools or whether it is for compliance only in some schools. The resulting total effect model is depicted as follows:

$Y = 36.464 – 0.187\ X_3 + e_5$. $e_5 = 0.133$,

Where:

X_3 – Community participation (independent variable)

Y - Performance of construction projects (dependent variable)

e- The disturbance term

4.10.3 Test of Hypothesis 5

The following hypothesis was tested:

5.H_1

H_O: There is no significant relationship between community participation (X_3) and the performance of construction projects (Y).

$$H_O: c = 0$$

H_A: There is a significant relationship between community participation (X_3) and the performance of construction projects (Y).

$$H_A: c \neq 0$$

The results: c = -0.187, p = 0.1, CI [-0.41, 0.036] require acceptance of the null hypothesis and leads to the conclusion that community participation has no significant relationship with the performance of construction projects. This is supported by the low value of R^2 for the model, of 0.011. This shows that community participation - although emphasized in public primary schools – is not a key determinant of the performance of construction projects in the schools.

In the context of the study, community participation is a policy-driven intervention, whose extent of realization is dependent on the extent of the policy's implementation. Since MoEHS require community participation in school infrastructure projects, it follows thus that some primary schools participated the community in school construction projects (and by extension other school infrastructure projects) to satisfy the requirement, not necessarily for the benefits that can be gained out of such participation. Also, although most primary schools reported high levels of community participation, it does not follow that participation was high in construction projects as there are various other activities that communities are participated in, in schools such as non-construction projects, school administration, conflict resolution, school planning, resource mobilization, paying workers' salaries and enrolment mobilization among others. These findings are in line with the findings of Veloso et al. (2013) who found that of all the schools that participated the community in school activities, only 66% had participated the community in the management of school projects. Further evidence is provided by Swift-Morgan (2006) who found that even when a clear community participation policy is instituted it does not result into equal participation for all community groups in all areas as the implementers of the participation process on the ground have different participation styles. Other studies with similar findings include Thomas et al. (2010), Kimani and Kombo (2011) and, Kambuga (2013).

4.11 School Infrastructure Policy Implementation, Community Participation and Performance of Construction Projects

The study investigated how community participation moderated the relationship between school infrastructure policy implementation and performance of construction projects. Path analysis was used with the aid of Hayes *Process* tool model 1. The results are shown in Table 4.41 and Table 4.42.

Table 4.41

Moderation Model for Community Participation on the Relationship between School Infrastructure Policy Implementation and Performance of Construction Projects

Model	R	R Square	Std. Error of the Estimate	F	df1	df2	p
1	0.1669	0.0279	49.9471	2.3223	1	243	0.0757

Note: Predictor: School infrastructure policy implementation
n = 247, $\alpha = 0.05$

The data presented in Table 4.41 shows the statistics of the variations in the performance of construction projects that were explained by variations in the predictor and moderator. The value of R^2 was 0.0279 indicating that 2.79% of the variations in the performance of construction projects could be explained jointly by school infrastructure policy implementation and community participation. The value of R^2 was not significant (p = 0.0757) indicating that, together school infrastructure policy implementation and community participation are not significant predictors of performance of construction projects.

Table 4.42

Regression Coefficients for Community Participation Moderation of the Relationship between School Infrastructure Policy Implementation and Performance of Construction Projects

					Confidence Interval	
Model	**Coefficient.**	**Se**	**t value**	**P (sig)**	**LLCI**	**ULCI**
Constant	-0.6690	18.6017	-0.0360	0.9713	-37.3102	35.9722
School infrastructure policy implementation	1.1558	0.5638	2.0502	0.0414	0.0453	2.2663
Community participation	0.8070	0.5043	1.6001	0.1109	-0.1864	1.8004
Interaction Term	-0.0309	0.0152	-2.0270	0.0438	-0.0609	-0.0009

Note: Independent variable: School infrastructure policy implementation
n = 247, α = 0.05

Table 4.42 presents the coefficients for the moderation model. The constant was -0.669 and was not significant (p = 0.9713). Controlling for community participation ($X_1 \mid X_3 \rightarrow Y$), school infrastructure policy implementation exerts a significant positive influence on the performance of construction projects (b =1.1558, p = 0.0414). The path coefficient for school infrastructure policy implementation in the model, p_{51} = 1.1558. Controlling for school infrastructure policy implementation ($X_3 \mid X_1 \rightarrow Y$), community participation exerts a direct positive effect (b = 0.8070) on the performance of construction projects, but this effect is not statistically significant [t = 1.6001, *P* = 0.1109). The path coefficient for the direct effect of community participation on the performance of construction projects, p_{53} = 0.8070.

The coefficient for the interaction term (X_1*X_3) was -0.0309 and was significant (p = 0.0438). This indicates that community participation moderates the relationship between school infrastructure policy implementation and performance of construction projects.

The resulting model was:

$Y = - 0.0669 + 1.1558X_1 + 0.8070 X_3 - 0.0309X_1*X_3 + e_{5,}$ $e_5 = 1.0833$

Where:

X_1 – School infrastructure policy implementation (independent variable)

X_3 – Community participation (moderator)

Y - Performance of construction projects (dependent variable)

X_1*X_3 -Interaction term

e- The disturbance term

The model shows that a linear relationship exists among the variables in the moderation model. School infrastructure policy implementation and community participation are positively related to the performance of construction projects while the interaction term is negatively related to the performance of construction projects. The model constant was not significant [a = -0.6690, t = 0.0360, p = 0.9713, CI (-37.3102, 35.9722)]. The relationship between school infrastructure policy implementation and performance of construction projects, controlled for community participation ($X_1 \mid X_3 \rightarrow Y$) was significant [b = 1.1558, t = 2.0502, p = 0.0414, CI (0.0453, 2.2663)] showing that school infrastructure policy predicts the performance of construction projects when the community participate in the construction projects. The relationship between community participation and performance of construction projects controlled for school infrastructure policy implementation ($X_3 \mid X_1 \rightarrow Y$), was however not significant [b=0.8070, t = 1.6001, P = 0.1109, CI (- 0.1864 1.8004)], showing that community participation does not exert a significant direct effect on the performance of construction projects when school infrastructure policy is being implemented. This is confirmed by the value of R^2 of 0.0279, which shows only an insignificant 2.8% of variations in the performance of construction projects are explained by the combination of community participation and school infrastructure policy implementation. The interaction term exerted a negative direct influence on the performance of construction projects [b = -0.0309, t = -2.0270, p = 0.438, CI (-0.0609, -0.009)] indicating that performance of construction projects

reduces when the community participate in construction projects in schools that implement the school infrastructure policy.

The path coefficients are shown in Figure 7.

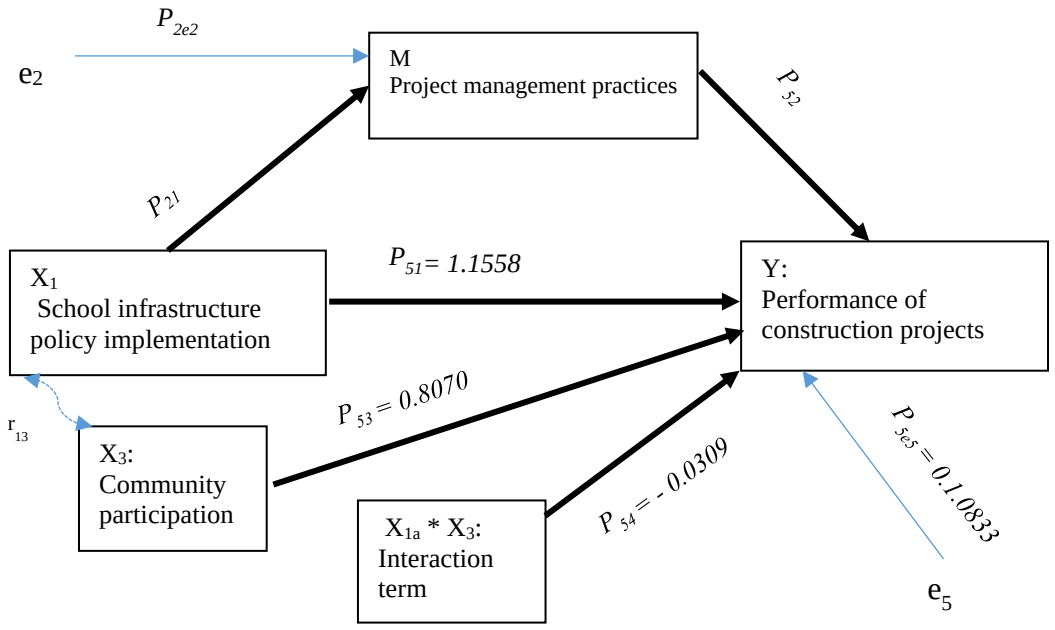

Figure 7. Path analysis model for community participation.

In Figure 7, the path coefficients for the paths in the model that are associated with the moderation of community participation on the relationship between school infrastructure policy implementation and performance of construction projects are shown.

4.11.1 Test of Hypothesis 6

The following hypothesis was tested at $\alpha = 0.05$:

6.H_1.

H_O: Community participation (X_3) does not moderate the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_O: p_{54} = 0; p_{53} \neq 0$$

H_A: Community participation (X_3) significantly moderates the relationship between school infrastructure policy implementation (X_1) and the performance of construction projects (Y).

$$H_A: p_{54} \neq 0; p_{53} = 0$$

Moderation occurs when $X_1 * X_3 \rightarrow Y$ effect is significant but the $X_3 \mid X_1 \rightarrow Y$ effect is not (Awang, 2012). The path coefficient p_{54} = -0.0309 was significant (P = 0.0438), but the path coefficient p_{53} = 0.8070 was not significant (p = 0.1109). The null hypothesis is rejected and the alternative hypothesis accepted. This shows that a low negative moderation is exerted by community participation on the relationship between school infrastructure policy implementation and performance of construction projects.

The study further investigated the extent of the moderation by testing the path coefficient p_{51} for $X_1 \mid X_3 \rightarrow Y$ path. The following hypothesis was tested.

H_O: X_3 completely moderates the relationship between X_1 and Y

$$H_O: p_{51} = 0$$

H_A: X_3 partially moderates the relationship between X_1 and Y*:*

$$H_A: p_{51} \neq 0$$

With p_{51} = 1.1558 (t = 2.0502, P = 0.0414) the null hypothesis is rejected and the alternative hypothesis accepted. The moderation exerted by community participation on the relationship between school infrastructure policy implementation and performance of construction projects is partial. The significance of the path coefficients for the three paths are summarized as follows:

Path $X_1 \mid X_3 \rightarrow Y$	p_{51}	significant
Path $X_3 \mid X_1 \rightarrow Y$	p_{53}	not significant
Path $X_1 * X_3 \rightarrow Y$	p_{54}	significant

The partial moderation exerted by community participation on the relationship between school infrastructure policy implementation and performance of construction projects is significantly low and negative (p_{54} = -0.0309) showing that the influence of school infrastructure policy implementation on performance of construction projects reduces slightly when the community participate in construction projects.

This can be attributed to some elements of the context. Community participation in Somaliland's public primary schools is a national policy initiative, so schools participate the community to comply with the policy as much as to tap into the community's social capital. Community participation processes require time investment and as a result, increase the overall project duration by slowing down project processes and decision making due to the time required for consultations. The result may be: fewer projects mounted, delayed completion of projects, diverse interests leading to dissatisfactions in the projects among others; hence the slight negative moderation effect. Studies that have established the moderating role of community participation on relationships between policy and performance include UNDP (2007), Veloso et al (2013), Emenalo and Ibekwe (2013), Lim et al. (2017) and Lelegwe et al. (2018) among others.

To understand the low negative partial moderation exerted by community participation on the relationship between school infrastructure policy implementation and performance of construction projects, further analysis of the moderation was done using the *Johnson-Neyman* technique. Twenty-two regressions of X_1 on Y were done at 22 different values of the moderator from the minimum value (27) to the maximum value (48). Part of the output is shown in Table 4.43 with the complete results in Appendix V.

Table 4.43

Conditional Effect of Focal Predictor at Moderator Values - Johnson-Neyman Method

					Confidence Interval	
Values of community participation	**Effect**	**se**	**t**	**p**	**LLCI**	**ULCI**
27.0000	0.3221	0.1607	2.0050	0.0461	0.0057	0.6386
28.0500	0.2897	0.1459	1.9855	0.0482	0.0023	0.5771
28.6848	0.2701	0.1371	1.9698	0.0500	0.0000	0.5402
29.1000	0.2573	0.1314	1.9573	0.0515	-0.0016	0.5162
30.1500	0.2249	0.1174	1.9156	0.0566	-0.0064	0.4561
31.2000	0.1924	0.1039	1.8524	0.0652	-0.0122	0.3971
32.2500	0.1600	0.0912	1.7547	0.0806	-0.0196	0.3396

Note: Focal Predictor – School Infrastructure Policy Implementation. Moderator – Community Participation
n = 247, $\alpha = 0.05$. The table shows the conditional effect of X_1 on Y for 7 lowest values of the moderator. Results for 15 other values of the moderator higher than 32.2500 were all insignificant (Appendix V)

The results of the Johnson-Neyman analysis show the relationship that exists between school infrastructure policy implementation (X_1) and the performance of construction projects (Y) for different values of the moderator ($X_1 \mid X_3 \rightarrow Y$). The minimum value for community participation in the Likert scale data was 27 and the maximum value was 48 on a scale of 10 →50. For values of community participation ≥29.1000 and running up to 48.000, the relationship between X_1 and Y was not significant. However, for low values of community participation (27.000→28.6848), the relationship between X_1 and Y was significant. This shows that, in this moderation model, the relationship between school infrastructure policy implementation and performance of construction projects controlling for community participation ($X_1 \mid X_3 \rightarrow Y$) is significant at low levels of community participation and insignificant at moderate and high levels of community participation. The partial moderation effect of community participation on the $X_1 \rightarrow Y$ relationship therefore only exists at lower values of the moderator. At moderate and higher values of the moderator, the $X_1 \rightarrow Y$ relationship disappears resulting in complete moderation.

This shows that schools that reported low levels of community participation also realized a positive influence of school infrastructure policy implementation on performance of construction projects, while schools that reported moderate and high levels of community participation did not. These findings are in line with the theory that participation doesn't only bring positive influences to projects but negative influences as well. The more the participants brought on board a process, and the more their participation, the more diverse the interests, the more the disagreements, conflicts and time taken to complete projects. This shows that higher levels of community participation can be counterproductive to the goals of the participation process, the goals of the policy and the goals of the school. These findings are consistent with the findings of other studies among them Rao and Ibáñez (2003) and Kambuga (2013).

In this chapter data collected on five observed variables: policy interpretation, policy governance, project management practices, community participation and performance of construction projects was presented. Descriptive analysis, inferential analysis and tests of hypothesis were done to establish and test six conceptualized relationships among the variables. The study determined that policy interpretation, policy governance, and school infrastructure policy implementation, each had an insignificant total effect on the performance of construction projects but a significant direct

effect through project management practices. Community participation, however, did not have a significant direct influence on the performance of construction projects. Project management practices was found to partially mediate the relationship between school infrastructure policy implementation and performance of construction projects. Low community participation was found to partially moderate the relationship between school infrastructure policy implementation and performance of construction projects while moderate and high community participation were found to fully moderate that relationship.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the study's summary of findings, conclusions, recommendations, suggestions for further research and contribution to the body of knowledge are presented

5.2 Summary of Findings

This section presents a summary of findings based on the following thematic areas.

5.2.1 Policy Interpretation and Performance of Construction Projects

The study sought to establish the influence of policy interpretation on the performance of construction projects. The findings indicate that school infrastructure policy exists in different policy documents and some of the policy users had not accessed the entire policy. The findings also show that the policy is relatively well understood, it has no significant unambiguity issues, is regarded by respondents as easy to apply, headteachers are conversant with it and have a positive perception of it. The study also found that public primary schools largely failed to fully comply with the requirements of the school infrastructure policy and, headteachers had not been trained on the school infrastructure policy despite being numerously trained on community participation.

The study aimed to answer the research question: how does policy interpretation influence performance of construction projects? Policy interpretation had a composite mean and standard deviation of 3.069 and 1.0707 respectively as compared to performance of construction projects' composite mean of 2.96 and composite standard deviation of 0.983. Policy interpretation had a weak positive statistically insignificant correlation with the performance of construction projects ($r = 0.64$, $p = 0.319$, $\alpha = 0.01$). This indicates that it is not a significant predictor of the performance of construction projects when no other variable is in the model. Policy interpretation did not have a significant total effect on performance of construction projects ($c = 0.052$, $t = 0.999$, $P = 0.319$, $R^2 = 0.004$, $\alpha = 0.05$). This shows that the influence exerted by policy interpretation is too small to bring any meaningful change in the performance of construction projects when project management practices is taken out of the model. Policy interpretation had a significant negative direct effect ($b = -0.3215$, $t = -6.5419$, $R^2 = 0.4183$, $p < 0.001$, $\alpha = 0.05$) on performance of construction projects indicating that when project management practices play an intervening role

in the model, policy interpretation exerts a direct negative influence on performance of construction projects. Further, policy interpretation had a significant positive standardized indirect effect (0.4548, CI [0.3505, 0.5642], $\alpha = 0.05$) on the performance of construction projects exerted through project management practices. This indicates that when project management practices play an intervening role in the model, the influence of policy interpretation on the performance of construction projects is significantly enhanced. Hypothesis testing resulted in the acceptance of the alternative hypothesis that policy interpretation has a significant relationship with performance of construction projects.

5.2.2 Policy Governance and Performance of Construction Projects

The second objective of the study was to determine the influence of policy governance on the performance of construction projects. The study found that the existing policy administrative structure was ineffective, implementation of the school infrastructure policy was ineffective, the school infrastructure policy was stable and the inspection criteria for school construction projects was unclear to some headteachers. Further, the respondents considered some school inspectors to be biased in the way they undertook inspections of school construction projects. MoEHS approved school construction projects before their commencement - but not always and, MoEHS officers approved newly completed construction projects before they were commissioned for use - but not all the time. It was also found that policy governance was largely suppressed by the shortage of budgetary allocation at the MoEHS level and, MoEHS was not actively enforcing the school infrastructure policy.

The study sought to answer the research question: how does policy governance influence the performance of construction projects? Policy governance had a composite mean and standard deviation of 3.24 and 1.124 as compared to performance of construction projects' composite mean of 2.96 and composite standard deviation of 0.983. The Pearson's correlation coefficient between policy governance and performance of construction projects was $r = -0.040$ indicating a weak insignificant ($p = 0.536$, $\alpha = 0.01$) negative association which show that policy governance is not an important predictor of performance of construction projects when there are no other variables in the model. The total effect of policy governance on the performance of construction projects ($c = -0.032$, $t = -0.620$, $R^2 = 0.002$, $P = 0.536$, $\alpha = 0.01$) was negative and insignificant indicating that

policy governance alone has no significant influence on the performance of construction projects when project management practices is not in the model. Policy governance exerted a moderate negative significant influence (b = -0.3074, t = -7.0072, R^2 = 0.4308, p< 0.001, α = 0.05) on the performance of construction projects directly, and a moderate significant indirect positive influence [0.3432, CI (0.2283, 0.4645), α = 0.05] on the performance of construction projects through project management practices which shows that the relationship between policy governance and performance of construction projects emerges when project management practices play an intervening role in the model. Hypothesis testing resulted in the acceptance of the alternative hypothesis that policy governance had a significant relationship with performance of construction projects.

5.2.3 School Infrastructure Policy Implementation and Performance of Construction Projects

The third objective of the study was to examine the influence of school infrastructure policy implementation on the performance of construction projects. The study established that headteachers had a positive perspective and attitude on the school infrastructure policy, and embraced the policy as good for the schools. The study sought to answer the research question: how does school infrastructure policy implementation influence the performance of construction projects? School infrastructure policy implementation had a composite mean and standard deviation of 3.1545 and 1.09735 while performance of construction projects had 2.96 and 0.983 respectively. The total effect of the school infrastructure policy implementation was insignificant [R^2 = 0.008; C_a = 0.069, p = 0.210; C_b = 0.053, p=0326; α = 0.05] indicating that school infrastructure policy implementation on its own, is not a significant predictor of performance of construction projects when project management practices is not included in the model. School infrastructure policy implementation exerted a significant negative direct effect (b = - 0.7350, t = - 14.0236, p< 0.001; R^2 = 0.6214, p<0.001, α = 0.05) on performance of construction projects controlling for project management practices. This indicates that school infrastructure policy implementation negatively influences the performance of construction projects directly when project management practices is present in the model. School infrastructure policy implementation exerted a significant positive standardized indirect effect on the performance of construction projects [0.8008 (CI (0.6411, 0.9779), α = 0.05] indicating that the influence of school

infrastructure policy implementation on performance of construction projects was significantly enhanced when project management practices was included in the model. In hypothesis testing, the alternative hypothesis was accepted: School infrastructure policy implementation has a significant relationship with performance of construction projects.

5.2.4 School Infrastructure Policy Implementation, Project Management Practices and Performance of Construction Projects

The fourth objective of the study was to establish the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects. The study established that school construction projects were identified and selected by headteachers largely without involving school stakeholders and that the schools often did not involve experts in project design. However, they involved stakeholders in project planning, involved the community in project financing and, engaged external parties in project implementation. The study also found that completed construction projects were put into use before they were inspected for compliance against the school infrastructure policy standards and headteachers oversaw project implementation and ensured project clean-up was done. The findings also indicated that MoEHS had not financed most of the construction projects undertaken in public primary schools. Project management practices were found to vary from school to school and were influenced by the availability and sufficiency of project funds, as well as the extent of implementation of the school infrastructure policy in the school.

The study sought to answer the research question: what is the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects? School infrastructure policy implementation had a composite mean and standard deviation of 3.1545 and 1.09735, project management practices, 3.09 and 0.852 and performance of construction projects 2.96 and 0.983 respectively. Project management practices had a significant positive correlation with the performance of construction projects ($r = 0.562$, $p<0.001$, $\alpha = 0.05$) indicating that it is an important predictor of performance of construction projects. School infrastructure policy implementation exerted a significant indirect positive effect [0.8008, CI (0.6411, 0.9779), $\alpha = 0.05$] on the performance of construction projects through project management practices indicating that project management practices mediated the

relationship between the two variables. Hypothesis testing resulted in the acceptance of the alternative hypothesis that project management practices significantly mediate the relationship between school infrastructure policy implementation and performance of construction projects. The mediation was determined to be partial and positive.

5.2.5 Community Participation and Performance of Construction Projects

The fifth objective of the study was to determine whether community participation influences the performance of construction projects. The findings show that community representatives spent significant time in school construction projects related activities, the communities were participated in construction projects implementation and project decision making but not in all project activities, communities perceived full ownership of completed school construction projects, community members were satisfied with the schools' participation processes, most schools had realized their community participation goals, the CEC process was just one of the numerous ways the schools participated in the community in school construction projects and, although not all community sub-clans were represented in the CECs, CECs were still considered representative of the community. The findings indicated that overall, the respondents perceived the community participation process in their schools as effective. Fundraising, volunteering labour and participating in decision making through CECs and project committees were the main approaches used by schools to participate the community in construction projects.

The study sought to answer the research question: how does community participation influence the performance of construction projects? Community participation had a composite mean and standard deviation of 3.67 and 0.753 while performance of construction projects had 2.96 and 0.983 respectively. Community participation had an insignificant negative correlation with the performance of construction projects ($r = -0.105$, $p = 0.1$, $\alpha = 0.01$) indicating that it was not an important predictor of performance of construction projects. The total effect of community participation on performance of construction projects was negative and insignificant [$c = -0.187$, $t = -1.651$, $p = 0.100$, $R^2 = 0.011$, $\alpha = 0.05$] indicating weak negative relationship between community participation and performance of construction. Hypothesis testing led to the acceptance of the null hypothesis that community participation had no significant relationship with the performance of construction projects.

5.2.6 School Infrastructure Policy Implementation, Community Participation and Performance of Construction Projects

In the sixth objective, the study sought to establish whether community participation has a moderating influence on the relationship between school infrastructure policy implementation and performance of construction projects. The findings show that a linear relationship existed among the three variables: school infrastructure policy implementation, community participation, and performance of construction projects.

The study sought to answer the research question: what is the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects? School infrastructure policy implementation had a composite mean and standard deviation of 3.1545 and 1.09735, community participation 3.67 and 0.753, while performance of construction projects had 2.96 and 0.983 respectively. School infrastructure policy implementation when controlled for community participation significantly influenced the performance of construction projects positively [b = 1.1558, t = 2.0502, p = 0.0414, CI (0.0453, 2.2663)] indicating that school infrastructure policy determines the performance of construction projects when the community participate in the construction projects. Community participation, when controlled for school infrastructure policy implementation, had an insignificant influence on the performance of construction projects [b = 0.8070, t = 1.6001, P = 0.1109, CI (-0.1864 1.8004)], showing that community participation does not exert a significant effect on the performance of construction projects when school infrastructure policy is being implemented. The interaction term exerted a negative influence on the performance of construction projects [b = -0.0309, t = -2.0270, p = 0.438, CI (-0.0609, -0.009)] indicating that performance of construction projects reduces when the community participate in construction projects in schools that implement the school infrastructure policy. R^2 was 0.0279 (p = 0.0757) indicating that together, school infrastructure policy implementation and community participation are not important predictors of performance of construction projects. Hypothesis testing resulted in accepting the alternative hypothesis that community participation moderated the relationship between school infrastructure policy implementation and performance of construction projects. The nature of the moderation was determined to be low negative partial moderation at low values of community participation and full moderation at moderate and high values of community participation.

Community participation, therefore, exerted its influence on the performance of construction projects by moderating the influence of school infrastructure policy implementation on the performance of construction projects.

5.3 Conclusions

The study examined how a school infrastructure policy that promotes community participation influenced the performance of construction projects. Data were collected on five variables. Six variable relationships were investigated. The study came to the following conclusions.

On objective 1, the study's conclusions were as follows. Not all schools had the entire school infrastructure policy, but the parts they had were well understood and there were no significant issues of ambiguity in the policy. Headteachers had a positive attitude towards the policy. Policy interpretation was not a significant predictor of performance of construction projects without an intervening variable in the model owing to the weak positive correlation and the low insignificant total effect. Policy interpretation exerts a moderate significant direct negative influence and a significant positive indirect influence on the performance of construction projects through project management practices. Thus, the influence of policy interpretation on the performance of construction projects is enhanced by project management practices. Policy interpretation, manifest its influence on the performance of construction projects by affecting project management practices used in the projects.

On objective 2, the study came to the following conclusions. School infrastructure policy was stable, not actively enforced and had an ineffective policy administration structure. The school inspection criteria were unclear and the inspection process was negatively perceived in schools. Policy governance has an insignificant correlation with, and an insignificant total effect on the performance of construction projects and; was not a significant predictor of performance of construction projects in a model with only these two variables. When controlled for project management practices, policy governance exerted a moderate negative influence on the performance of construction projects directly and a significant positive influence indirectly through project management practices.

On objective 3, the study concluded thus. Headteachers had a positive perspective and attitude on the school infrastructure policy and embraced the policy as good for the schools. School

infrastructure policy implementation had no significant total effect on the performance of construction projects and was therefore not a significant predictor when project management practices was absent from the model. Controlling for project management practices, school infrastructure policy implementation exerts a significant direct negative influence on the performance of construction projects. Also, school infrastructure policy implementation exerts a significant positive indirect influence on the performance of construction projects through project management practices, indicating that the influence of school infrastructure policy implementation on performance of construction projects is significantly enhanced when project management practices is included in the model. School infrastructure policy, like other regulatory policies, tend to be restrictive and, compliance increases the cost of construction projects hence its implementation has a low negative influence on the performance of construction projects. It was inferred that when policy implementation or enforcement is increased project performance reduces. Low school funding by MoEHS is a key inhibitor to school infrastructure policy implementation.

On objective 4, the study's conclusions were as follows. Project management practices vary from school to school and are customized to local needs as MoEHS is not hands-on on its policies' implementation largely due to budgetary constraints. Project management practices are significantly influenced by the availability of project financing or lack of it. Stakeholder involvement in the project cycle was largely restricted to planning, financing and implementation stages with the community being brought on board at financing and implementation stages. Project management practices is an important predictor of performance of construction projects owing to the positive correlation it has with the performance of construction projects. School infrastructure policy works through influencing and changing project management practices to realize its intended goals and therefore its impact is only to the extent of its implementation. School infrastructure policy implementation has a significant indirect positive influence on the performance of construction projects through project management practices. Project management practices exert a partial positive mediation on the relationship between school infrastructure policy implementation and performance of construction projects.

On objective 5, the study came to the following conclusions. Community participation in school construction projects is born of national policy and is both essential and critical for primary schools to undertake and realize vital construction projects. Since community participation is a policy-driven intervention, its extent of realization is dependent on the extent of the policy's implementation. Community participation in primary schools is a fill-gap measure of deficiencies left by the government's low and inadequate capitation to schools. Community participation in Somaliland's public primary schools is widespread and manifests mainly through CECs' but schools use other methods too. Some primary schools participated the community in school construction projects and other school activities to satisfy the requirements of the school infrastructure policy, not necessarily for the benefits they expected out of such participation. Not all primary schools that have community participation participate the community in school construction projects. Community participation was negatively correlated with the performance of construction projects. Community participation had no significant influence on the performance of construction projects but rather exerted its influence by moderating the relationship between school infrastructure policy implementation and performance of construction projects. Community participation of Somaliland communities in school construction projects is mainly through fundraising, volunteering labour and participating in decision making.

The study concluded as follows on Objective 6. Community participation has a significant low and negative partial moderation effect on the relationship between school infrastructure policy implementation and performance of construction projects and a linear model exist among the three variables. The negative moderation was due to the downside of participating the community in school projects. The partial moderation effect of community participation on the relationship between school infrastructure policy implementation and performance of construction projects only exists at lower values of the moderator. At higher values of the moderator, the relationship wanes resulting in complete moderation. Schools that reported low levels of community participation also realized a positive influence of school infrastructure policy implementation on performance of construction projects, while schools that reported moderate and high levels of community participation did not. High levels of community participation can be counterproductive to the goals of the participation process, the goals of the policy and the goals of the school.

Overall, the performance of construction projects in public primary schools was satisfactory. Completed construction projects significantly realized their set standards, attained functionality and the project outcomes were accepted by teachers and schools' administration.

5.4 Recommendations

From the study findings and conclusions, the following recommendations are made to policymakers, users of the school infrastructure policy and schools implementing construction projects:

1. To ensure the school infrastructure policy is better communicated to the schools and, to reduce differences in policy interpretation; it is recommended that the current school infrastructure policy that is spread over different documents be put together into one policy document, made accessible and available to the schools and ministry officials.
2. For better implementation of the school infrastructure policy and the realization of policy and school goals, school management should be sensitized and or trained on the policy.
3. Since the MoEHS policy administration structure was found to be ineffective for school infrastructure policy implementation, there is a need for MoEHS to review its policy administration structure with a view of making it effective to realize significant policy implementation and, to meet the objectives the policy aims to achieve.
4. There is a need to ensure the school inspection criteria is available at the school level and the school administration is sensitized of its provisions. This would increase policy compliance and also help the school administration prepare better for school inspection visits.
5. There is a potential problem that completed construction facility projects that do not meet the set minimum standards exist in schools, are in use, and have not been inspected to expose the deficiencies. MoEHS should schedule school inspections and inspect more consistently in all regions and districts to avoid such outcomes.
6. Since school infrastructure policy does not have a significant influence on the performance of construction projects in schools but rather exerts its positive influence through project management practices; policymakers, when revising the policy, should consider creating a strong link between policy substance and schools' project management practices.

7. School funding remains a key inhibitor to the implementation of school infrastructure policy. MoEHS need to come up with innovative ways to increase school funding over time if it is to realize its goals in the school infrastructure policy.
8. At the school level, stakeholder involvement in the project cycle is largely restricted to planning, financing and implementation stages, with the community being brought on board at financing and implementation stages. There is a need to involve the stakeholders throughout the project cycle to increase projects' performance.
9. Since project management practices provide a key mediating link between school infrastructure policy and performance of construction projects; and, headteachers - most of whom are not trained in project management skills – who oversee project implementation in their schools; it would be useful to the realization of policy objectives for headteachers to be equipped with basic project management skills.
10. Since community participation alone is not an important determinant of the performance of construction projects in schools, MoEHS need to consider other approaches to schools' development such as PPP among others.
11. Since high levels of community participation can be counterproductive to the goals of the participation process, the goals of the policy and the goals of the school; headteachers need to be sensitized on the importance of low to moderate meaningful community participation so that they don't go overboard in community participation activities and eventually reduce project performance in their schools.

5.5 Suggestions for Further Research

The study makes the following recommendations for further research:

1 In the study findings, it emerged that policy interpretations varied between urban schools and rural schools. Since this study had not purposed to examine urban-rural variations in policy interpretation there is need for further research to demystify why the variation existed.

2 Existing administration structures were found to influence the effectiveness of school infrastructure policy implementation. Further research can be conducted to establish what aspects of the administration structures affect policy implementation by policy users and policy enforcement by the regulator.

3 The study depended on existing literature that showed policy interpretation and policy governance as the operationalization of policy. Further studies can focus on establishing whether other sub-variables of policy exist, such as policy dissemination, policy formulation process and, policy participation that were noted in this study.

4 Even with one policy in place, project management practices varied from one school to another because the policy scantly specified the management practices required. Further studies can focus on establishing which is the better policy practice: to specify the practices in the policy or to leave the policy users to determine the best practices in their case which the study established leads to practice disparities.

5 Further research is needed to elaborate the finding that low levels of community participation attain partial moderation of the relationship between school infrastructure policy implementation and performance of construction projects, while high levels of community participation attain full moderation. It would be meaningful to find out whether this finding replicates in other sectors, with other policies and with other communities.

6 The study focused on public primary schools, other studies can focus on private primary schools or both public and private schools.

5.6 Contributions to the Body of Knowledge

The study examined the influence of School infrastructure policy implementation, community participation and project management practices on performance of construction projects in public primary schools in Somaliland. From the literature reviewed, the study identified certain knowledge gaps that it sought to fill. This section presents the contributions of this study to the body of knowledge in Table 5.1.

Table 5.1

Contributions to the Body of Knowledge

No.	Objective	Contributions to the Body of Knowledge
1.	To establish the influence of policy interpretation on the performance of construction projects.	Policy existence form, access to the policy, policy sensitization and user-friendly policy presentation are key determinants of the policy interpretation that result. School infrastructure policy interpretation variations are more in rural schools than in urban schools in Somaliland.
2.	To determine the influence of policy governance on the performance of construction projects.	School infrastructure policy governance exerts a positive influence on the performance of construction projects indirectly through project management practices.
3.	To examine the influence of school infrastructure policy implementation on the performance of construction projects.	School infrastructure policy implementation exerts a positive indirect effect on the performance of construction projects and a negative direct effect through project management practices.
4.	To establish the mediating influence of project management practices on the relationship between school infrastructure policy implementation and performance of construction projects.	Project management practices partially and positively mediate the relationship between school infrastructure policy implementation and performance of construction projects.
5.	To determine the influence of community participation on the	Community participation of poor households and nomadic communities has unique challenges such us sudden migrations and moral support rather than

No.	Objective	Contributions to the Body of Knowledge
	performance of construction projects.	material support for projects that require customized participation rather than policy specified participation.
6.	To establish the moderating influence of community participation on the relationship between school infrastructure policy implementation and performance of construction projects.	High levels of community participation negatively moderate the relationship between school infrastructure policy implementation and performance of construction projects resulting in lower performance of construction projects. Low levels of community participation have a positive influence on the relationship between school infrastructure policy implementation and performance of construction projects resulting in increased performance of construction projects.

These contributions to the body of knowledge will be of use to policymakers, policy users, researchers, MoEHS of Somaliland and other Education units and officials dealing with school infrastructure policies and school development projects.

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APPENDICES

Appendix I: Letter of Transmittal to School Headteachers

25th August 2018

The Headteacher,
…….. School,
…….. District,

Dear Headteacher,

REF: REQUEST TO PARTICIPATE IN A SURVEY

I am a PhD candidate at the University of Nairobi in Kenya undertaking a research study on "School infrastructure policy implementation, project management practices, community participation and performance of construction projects" as partial fulfilment for the requirements of the award of the degree of Doctor of Philosophy in Project Planning and Management. The study is being conducted in primary schools in Somaliland.

I write to request your kind assistance in participating in the survey by way of filling the attached questionnaire to the best of your knowledge. Your identity will be held in confidence and not disclosed at all. All information you provide will be accurately reported and used for report writing only and at no time will it be attributed to you. The questionnaire will take approximately twenty-five to thirty minutes to fill. Kindly answer as completely as possible.

Thank you.

Stephen Kamau
PhD Candidate
School of Open and Distance Learning
University of Nairobi

Appendix II: Questionnaire for School Headteachers

QUESTIONNAIRE FOR SCHOOL HEADTEACHERS

The questionnaire seeks to get feedback from you regarding your experience with school construction projects in your current school. Kindly respond to all the items as accurately as possible. The data collected is for academic purpose and will be treated confidentially and at no time will your identity be revealed or the data you provide in the questionnaire attributed to you. Feel free to seek clarifications, consult documents or other staff as necessary while filling the questionnaire. Please give honest responses and actual data. Your responses will be highly appreciated.

Policy - Refers to school infrastructure policy
CEC - Community Education Committee
MoEHS - Ministry of Education and Higher Studies

SECTION A: GENERAL INFORMATION

Name of School _____ District _____ Region _____

1. Gender *[Please tick one (√)]* Male [ ] Female [ ]

2. What is your highest level of education? *[Please tick one (√)]*

High School	Certificate	Diploma	Bachelor's Degree	Master's Degree

Other *(specify)* .....

3. For how long have you been the Headteacher in this School? *[Please tick one (√)]*

Less than 1 year	1 to 2 years	3 to 4 years	5 years	More than 5 years

4. Have you been trained in project management? *[Please tick one (√)].*
YES [ ] NO [ ]

5. Has your school undertaken construction projects in the last five years? *[Please tick one (√)]*
YES [ ] NO [ ]

6. Rate the adequacy of the following infrastructure facilities in your school using the following scale:

More than Enough (ME)	Adequate (A)	Inadequate (IA)	Very inadequate (VI)	Not Available (NA)

[Please tick only one option against each item as appropriate]

S.No	Infrastructure facility	ME	A	IA	VI	NA
6.1	Classrooms					
6.2	Storages					
6.3	Sanitation facilities					
6.4	Toilets					
6.5	Fence					
6.6	Offices					
6.7	Sports facilities					
6.8	Furniture					

SECTION B: SCHOOL INFRASTRUCTURE POLICY IMPLEMENTATION

This section seeks information about policy interpretation and policy governance aspects of the school infrastructure policy set out by the government to regulate school construction projects.

Kindly rate the following statements by indicating the extent to which you agree or disagree with them using the following scale.

Strongly Agree (SA)	Agree (A)	Not sure (NS)	Disagree (D)	Strongly Disagree (SD)

[Please tick only one option as appropriate against each item]

7.0 Policy Interpretation

S.No	Statements	SA	A	NS	D	SD
7.1	In as far as I know, there are no policy interpretation guidelines for the MoEHS school infrastructure policy					
7.2	I don't have the entire policy as it exists in different policy documents some of which I don't have a copy					
7.3	Of the primary Headteachers I know, most of them believe the school infrastructure policy is good for the school					
7.4	I have been trained /educated/sensitized on the school infrastructure policy					
7.5	My school complies with all the requirements of the school infrastructure policy					

S.No	Statements	SA	A	NS	D	SD
7.6	I am conversant with the content of the school infrastructure policy					
7.7	I know of some existing disputes /litigations/adjudications regarding the school infrastructure policy					
7.8	There are some clauses in the policy that have more than one interpretation					
7.9	There are some aspects of school construction projects that are not covered in the infrastructure policy					
7.10	I find the school infrastructure policy easy to apply					

7.11. Please make your comments on policy interpretation:

_____

_____

_____

_____

8.0 Policy Governance

8.1	The MoEHS policy administration structure is ineffective.					
8.2	MoEHS periodically inspects schools' infrastructure facilities in my school					
8.3	MoEHS inspects newly completed school construction projects before they are commissioned for use.					
8.4	MoEHS does not have to approve school construction projects before their commencement					
8.5	MoEHS implementation of the school infrastructure policy is ineffective.					
8.6	The school infrastructure policy is stable and does not change often.					
8.7	MoEHS is accountable to GoS with regard to how they implement policies					
8.8	Infrastructure facilities inspectors from MoEHS are usually independent of undue influence.					
8.9	Infrastructure project inspectors are usually biased.					
8.10	It is unclear to me what the MoEHS inspectors look for when inspecting school construction projects.					

8.11. Please make your comments on policy governance:

_____

_____

_____

_____

SECTION C: PROJECT MANAGEMENT PRACTICES

This section seeks information about the project management practices in the school for school construction projects. Kindly rate the following statements by indicating the extent to which you agree or disagree with them using the following scale:

Strongly Agree (SA)	Agree (A)	Not sure (NS)	Disagree (D)	Strongly Disagree (SD)

9.0 Project Management Practices

[Please tick only one option as appropriate against each item]

S.No	Statements	SA	A	NS	D	SD
9.1	Most of the projects we undertake are identified by our stakeholders					
9.2	We do not consult with all stakeholders when selecting projects					
9.3	We do not engage experts to design the projects					
9.4	We always involve our stakeholders in project planning					
9.5	We engage the community to finance school construction projects.					
9.6	MoEHS has financed most of the school construction projects in my school in the last five years.					
9.7	As the Headteacher, I oversee all project implementation activities for school construction projects in the school.					
9.8	We do not engage external parties to implement school construction projects in the school.					
9.9	As the Headteacher, I ensure that the worksite has been fully cleaned up before accepting the project as completed.					
9.10	School construction projects completed are not inspected against the school infrastructure policy requirements for compliance before being accepted.					

9.11. Please make your comments on project management practices in your school:

_____

_____

_____

SECTION D: COMMUNITY PARTICIPATION

This section seeks information about community participation in your school construction projects. Kindly rate the following statements by indicating the extent to which you agree or disagree with them using the following scale:

Strongly Agree (SA)	Agree (A)	Not sure (NS)	Disagree (D)	Strongly Disagree (SD)

10. Community Participation

[Please tick only one option as appropriate against each item]

S. No	Statements	SA	A	NS	D	SD
10.1	Community members spend insignificant time on school construction projects related activities					
10.2	In my school, we participate the community in all school construction projects					
10.3	The community perceives full ownership of the school's completed construction projects					
10.4	CEC members involved in school construction projects are representative of the community					
10.5	Community members are dissatisfied with the school's participation process					
10.6	The school has not realized its goals in community participation					
10.7	All community subgroups in the local area are represented in the CEC					
10.8	Community members are participated in school construction projects in more ways than just the CEC					
10.9	Community participants in school construction projects are not participated in all project activities					
10.10	Community representatives are not involved in project decision making					

10.11. Please make your comments on community participation in your schools' construction projects:

_____

_____

_____

10.12. In which ways does your community participate in school construction projects *(tick the choices that apply in your case).*

	Fundraising
	Donating community land
	Volunteering labour
	Participating in decision making such as project committees
	Donating building materials
	Donating infrastructure facilities such as classrooms, desks…

Others *(specify)*_____

_____

SECTION E: PERFORMANCE OF CONSTRUCTION PROJECTS

This section seeks information about the performance of construction projects in the school in the **last five years.** Kindly rate the following statements by indicating the extent to which you agree or disagree with them using the following scale:

Strongly Agree (SA)	Agree (A)	Not sure (NS)	Disagree (D)	Strongly Disagree (SD)

11.0 Performance of Construction Projects

[Please tick only one option as appropriate against each item]

S. No	Statements	SA	A	NS	D	SD
11.1	All of the school construction projects completed in my school have realized their planned standards					

S. No	Statements	SA	A	NS	D	SD
11.2	The school construction projects completed in my school have realized their planned deliverables					
11.3	Most of the construction projects in the school are completed with minimal variance from the initial plan					
11.4	All completed infrastructural projects have attained the intended functionality.					
11.5	In some cases, teachers were not satisfied with the projects' outcome					
11.6	School management has expressed satisfaction with the project outcome of construction projects in the school					
11.7	There have been some cases where the project design team has expressed dissatisfaction with the project outcome of some school construction projects					
11.8	There have been some cases where contractors have expressed dissatisfaction with the project outcome of the school construction projects they were implementing					
11.9	Some school construction projects undertaken by the school have received negative MoEHS inspection reports					
11.10	We have not had cases where projects being implemented were discontinued for failure to comply with standards					

11.11. Please make your comments on the performance of construction projects in your school:

_____

_____

_____

THANK YOU

Appendix III: Pilot testing feedback form – Headteachers' Questionnaire.

HEADTEACHERS' PILOT STUDY FEEDBACK FORM

Dear _____

Thank you for accepting to participate in this piloting study, the purpose of which is to collect feedback on the attached questionnaire. The feedback collected will be used to improve the questionnaire before the main study.

Kindly provide your feedback in the matrix below.

Question	Clarity of the question *(please tick one)*		Respondent's ability to understand. *(please tick one)*		Question's appeal to respondents *(please tick one)*		Suggest improvements to the question here
	Clear	Ambiguous	Question understood	Question not understood	Question is acceptable	Question is offensive	
1							
2							
3							
4							
5							
6.1							
6.2							
6.3							
6.4							
6.5							
6.6							
6.7							
6.8							
7.1							
7.2							
7.3							
7.4							
7.5							
7.6							
7.7							

Question	Clarity of the question *(please tick one)*		Respondent's ability to understand. *(please tick one)*		Question's appeal to respondents *(please tick one)*		Suggest improvements to the question here
	Clear	Ambiguous	Question understood	Question not understood	Question is acceptable	Question is offensive	
7.8							
7.9							
7.10							
7.11							
8.1							
8.2							
8.3							
8.4							
8.5							
8.6							
8.7							
8.8							
8.9							
8.10							
8.11							
9.1							
9.2							
9.3							
9.4							
9.5							
9.6							
9.7							
9.8							
9.9							
9.10							
9.11							
10.1							
10.2							
10.3							
10.4							
10.5							

Question	Clarity of the question *(please tick one)*		Respondent's ability to understand. *(please tick one)*		Question's appeal to respondents *(please tick one)*		Suggest improvements to the question here
	Clear	Ambiguous	Question understood	Question not understood	Question is acceptable	Question is offensive	
10.6							
10.7							
10.8							
10.9							
10.10							
10.11							
10.12							
11.1							
11.2							
11.3							
11.4							
11.5							
11.6							
11.7							
11.8							
11.9							
11.10							
11.11							

THANK YOU

Appendix IV: Interview Guide

Interview Guide for District Education Officers

The purpose of the interview is to collect information regarding the performance of construction projects.

1. Preliminaries

Will entail greetings, introductions, establishing rapport, explanation of the purpose of the interview and assurance of confidentiality.

Note: follow up questions are in brackets

2. General information

a) Name of the district.
b) Names of Interviewee (DEO).
c) Gender
d) Date and time of interview.
e) Location of the interview.

3. Experience as a DEO

a) How long have you worked as the DEO in this district?
b) How long have you worked as a DEO in total?

4. Policy Interpretation

a) Do all headteachers have access to the school infrastructure policy? (If not, what proportion has and why do some not have?)
b) Are you aware of any policy interpretation ambiguity of the school infrastructure policy? (If yes, which sections?)
c) Are there aspects of the school construction projects that are not covered in the school infrastructure policy? (If yes, which ones)

5. Policy Governance

a) To what extent is the school infrastructure policy administration effective? (What affects its effectiveness?)
b) Are MoEHS school inspectors independent? (To what extent?)
c) Is MoEHS transparent on how they administer school infrastructure policy? (To what extent?)
d) To what extent can the school infrastructure policy be considered stable? (Does it change often?)

6. School infrastructure policy implementation

a) What results does the school infrastructure policy aim to achieve in primary schools?
b) To what extent have those results been realized?

c) To what extent do schools adhere to the school infrastructure policy? (Why is that the case?)
d) Does the school infrastructure policy affect the project performance of construction projects in schools? (To what extent?)
e) Does the school infrastructure policy affect project management practices of construction projects in schools? (To what extent?)

7. Project management practices

a) Do Headteachers have the freedom to choose the project management practices they use in construction projects in the schools?
b) Are the Headteachers trained in project management skills? (What is the role of the ministry in ensuring headteachers have skills to manage the projects?)
c) To what extent does project management practices in school construction projects affect project performance?
d) Has MoEHS been financing school construction projects in primary schools in your district? (If yes, to what extent? If no, Why?)

8. Community participation

a) Does MoEHS encourage schools to participate in their communities in construction projects? (If yes, how does MoEHS achieve this?)
b) What is the extent of community participation in school construction projects in primary schools in your district?
c) Does community participation in school construction projects affect the project management practices of the school? (If yes, to what extent?)
d) Does community participation in school construction projects affect the project performance realized? (If yes, to what extent?)

9. Performance of construction projects

a) How does your district compare with other districts in terms of performance of construction projects? (Why?)
b) How would you rate the sufficiency of education infrastructure provision in primary schools in your district vis-a-vis their needs?
c) Of the school construction projects that primary schools in your district have started in the last 5 years, what percentage was completed? (Why is that the case?)
d) To what extent are you satisfied with the quality of school construction projects that have been completed by primary schools in your district?

10. Any other comment you would like to make?

11. Ending

Thank the interviewee for the information and their time. Assure them the information will be treated with confidentiality and anonymity.

Appendix V: Conditional Effect of Focal Predictor at Moderator Values - Johnson-Neyman Technique

Values of community participation	Effect	se	t	p	Confidence Interval	
					LLCI	ULCI
27.0000	0.3221	0.1607	2.0050	0.0461	0.0057	0.6386
28.0500	0.2897	0.1459	1.9855	0.0482	0.0023	0.5771
28.6848	0.2701	0.1371	1.9698	0.0500	0.0000	0.5402
29.1000	0.2573	0.1314	1.9573	0.0515	-0.0016	0.5162
30.1500	0.2249	0.1174	1.9156	0.0566	-0.0064	0.4561
31.2000	0.1924	0.1039	1.8524	0.0652	-0.0122	0.3971
32.2500	0.1600	0.0912	1.7547	0.0806	-0.0196	0.3396
33.3000	0.1276	0.0797	1.6009	0.1107	-0.0294	0.2846
34.3500	0.0952	0.0700	1.3595	0.1752	-0.0427	0.2331
35.4000	0.0627	0.0629	0.9972	0.3197	-0.0612	0.1867
36.4500	0.0303	0.0594	0.5104	0.6103	-0.0867	0.1474
37.5000	-0.0021	0.0601	-0.0348	0.9723	-0.1205	0.1163
38.5500	-0.0345	0.0649	-0.5320	0.5952	-0.1623	0.0933
39.6000	-0.0669	0.0729	-0.9181	0.3595	-0.2105	0.0767
40.6500	-0.0994	0.0833	-1.1933	0.2339	-0.2634	0.0647
41.7000	-0.1318	0.0952	-1.3843	0.1675	-0.3193	0.0557
42.7500	-0.1642	0.1082	-1.5178	0.1304	-0.3773	0.0489
43.8000	-0.1966	0.1219	-1.6131	0.1080	-0.4367	0.0435
44.8500	-0.2290	0.1361	-1.6830	0.0937	-0.4971	0.0390
45.9000	-0.2615	0.1507	-1.7355	0.0839	-0.5582	0.0353
46.9500	-0.2939	0.1655	-1.7759	0.0770	-0.6198	0.0321
48.0000	-0.3263	0.1805	-1.8077	0.0719	-0.6819	0.0293

Note: $n = 247$, $\alpha = 0.05$. The table shows the conditional effect of X_1 on Y

Appendix VI: Somaliland Primary Schools by Ownership and Locality

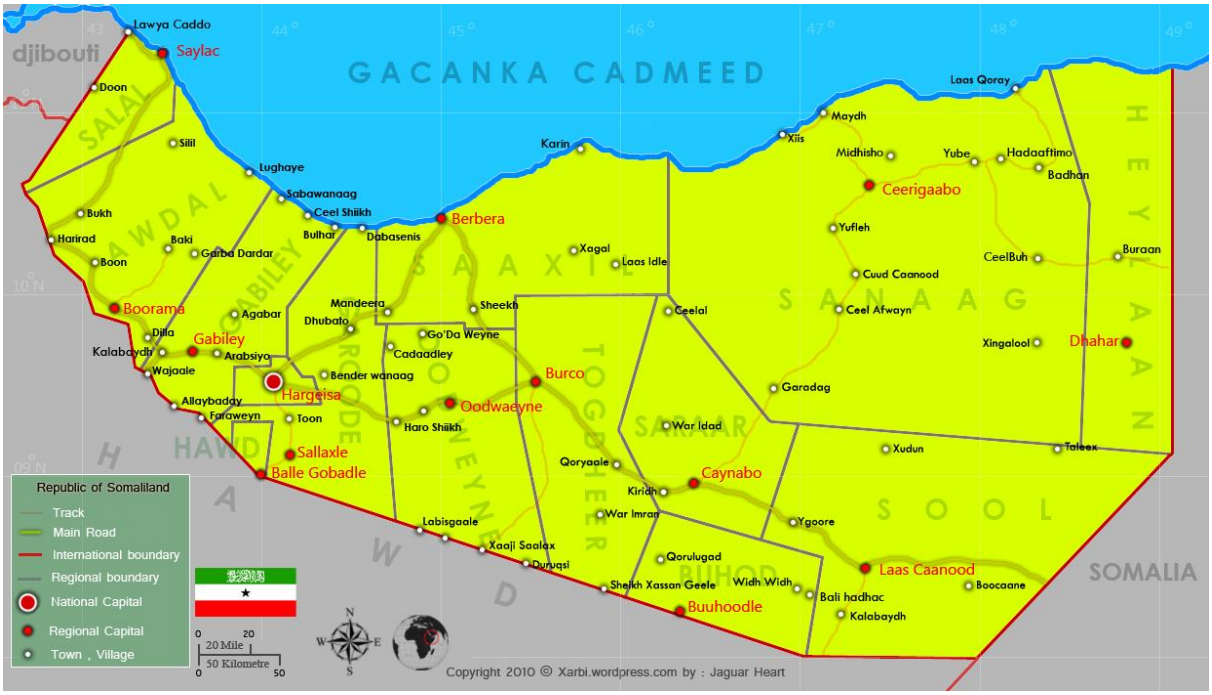
Region	**District**	**School by Management /Ownership/**			**Schools by Locality**	
		Total Schools	**Gov't Managed**	**Non gov't**	**Rural**	**Urban**
Awdal	Baki	18	18	-	14	4
	Borama	44	26	18	20	24
	Dilla	13	13	-	10	3
	Lughaya	18	16	2	12	6
	Magaalo Cad	6	6	-	5	1
	Qulujeed	10	10	-	9	1
	Awdal sub-Total	**109**	**89**	**20**	**70**	**39**
Badhan	Badhan	25	21	4	12	13
	Ceelayo	3	3	-		3
	Dhahar	6	6	-	3	3
	Laasqoray	7	7	-	5	2
	Xiin Galool	6	6	-	1	5
	Badhan Sub-Total	**47**	**43**	**4**	**21**	**26**
Buhodle	Buuhoodle	26	17	9	13	13
	Qorulugud	8	8	-	7	1
	Widhwidh	15	13	2	13	2
	Xamar Lagu Xidh	1	1	-	1	-
	Buhodle Sub-Total	**50**	**39**	**11**	**34**	**16**
Gabiley	Agabar	3	3	-	2	1
	Alla Baday	13	13	-	11	2
	Arabsiiyo	10	10	-	5	5
	Gabilay	34	32	2	26	8
	Geed Balaadh	4	4	-	4	-
	Wajaale	9	9	-	6	3
	Gabiley Sub-Total	**73**	**71**	**2**	**54**	**19**
Hawd	Bali Cabane	3	3	-	2	1
	Baligubadle	5	5	-	2	3
	Saylo Bari	7	7	-	7	-
	Hawd Sub-Total	**15**	**15**	**-**	**11**	**4**
Maroodi-Jeex	Cadaadlay	5	5	-	4	1
	Daara-Saalam	32	32	-	30	2
	Faroweyne	23	22	1	20	3

Region	District	School by Management /Ownership/			Schools by Locality	
		Total Schools	**Gov't Managed**	**Non gov't**	**Rural**	**Urban**
	Hargeisa	100	48	52	10	90
	Laasgeel	13	13	-	12	1
	Sabowanaag	11	11	-	11	-
	Salaxaley	25	25	-	21	4
	Maroodi-Jeex Sub-Total	**209**	**156**	**53**	**108**	**101**
Odwayne	Haaji Saalax	3	3	-		3
	Haro Shiekh	7	7	-		7
	Oodweyne	15	15	-	9	6
	Raydabka Khaaatumo	7	7	-	3	4
	Odwayne Sub-Total	**32**	**32**	**-**	**12**	**20**
Sahil	Berbera	11	11	-	2	9
	Bulaxaar	5	5	-	3	2
	Goda Weyn	5	5	-	1	4
	Laas Ciidle	9	9	-	9	-
	Laaso Dacawo	3	3	-	1	2
	Mandheera	14	14	-	8	6
	Sheekh	30	30	-	19	11
	Xagal	7	7	-	6	1
	Sahil Sub-Total	**84**	**84**	**-**	**49**	**35**
Salal	Boon	13	13	-	10	3
	Garbodadar	2	2	-	1	1
	Saylac	6	6	-	1	5
	Xarrirad	5	5	-	3	2
	Salal Sub-Total	**26**	**26**	**-**	**15**	**11**
Sanaag	Ceel-Afweyn	28	28	-	19	9
	Ceerigaabo	67	63	4	51	16
	Dararweyne	4	4	-	1	3
	Fiqifuliye	4	4	-	4	-
	Gar Adag	11	10	1	3	8
	Goof	9	9	-	8	1
	Huluul	4	4	-	2	2
	Laasa-Surad	5	5	-	5	-
	Maydh	7	7	-	6	1

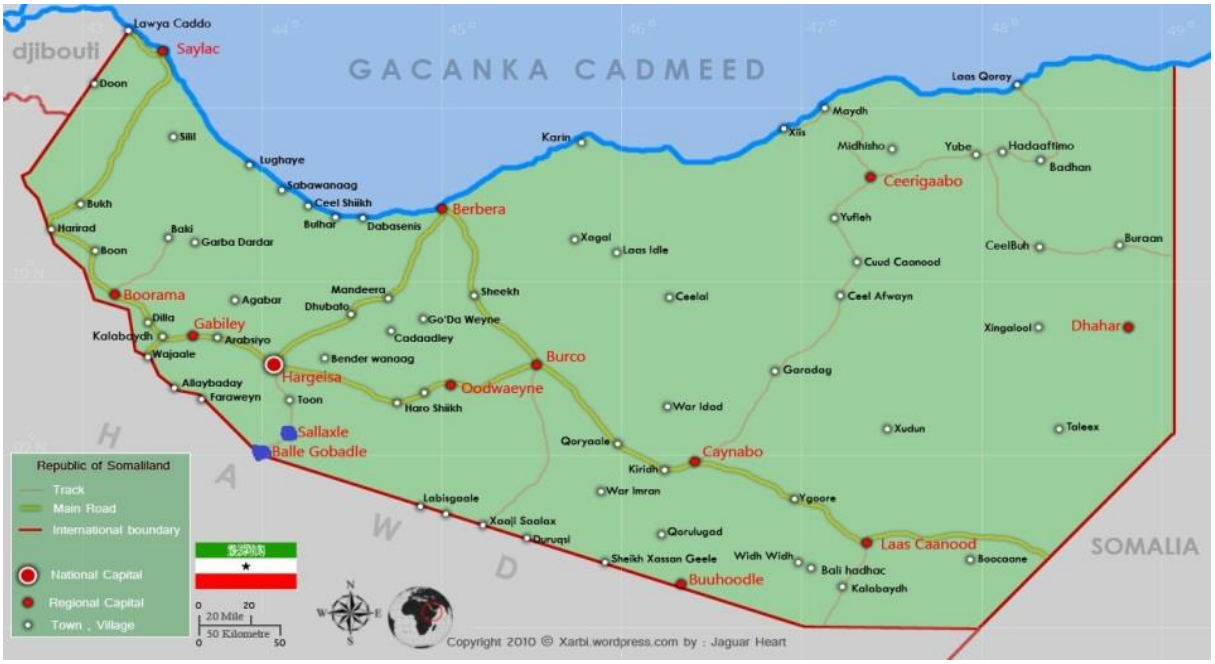
Region	District	School by Management /Ownership/			Schools by Locality	
		Total Schools	Gov't Managed	Non gov't	Rural	Urban
	Xiis	9	9	-	9	-
	Yube	13	13	-	9	4
	Yufle	10	10	-	10	-
	Sanaag Sub-Total	**171**	**166**	**5**	**127**	**44**
Saraar	Caynabo	12	12	-	2	10
	Ceelal	4	4	-	1	3
	Dhanaano	4	4	-	1	3
	Oog	5	5	-	2	3
	War Idaad	5	5	-	1	4
	Saraar Sub-Total	**30**	**30**	**-**	**7**	**23**
Sool	Boocane	6	6	-	5	1
	Dharkayngeeyo	3	3	-	2	1
	Kalabaydh	11	11	-	10	1
	Las-Anod	32	24	8	6	26
	Taleex	10	10	-	5	5
	Xudun	6	6	-	5	1
	Yagoori	13	12	1	9	4
	Sool Sub-Total	**81**	**72**	**9**	**42**	**39**
Togdheer	Burco	69	51	18	22	47
	Doqoshay	6	6	-	6	-
	Duruqsi	9	9	-	7	2
	Kalbare	1	1	-	1	-
	Qoryale	10	10	-	7	3
	Qoyta	3	3	-	2	1
	Riyoxidho	1	1	-	1	-
	Sh. Xasangeele	5	5	-	5	-
	Waraabeeye	4	4	-	3	1
	War-Cimraan	7	7	-	6	1
	Togdheer Sub-Total	**115**	**97**	**18**	**60**	**55**
	Grand Total	**1,042**	**920**	**122**	**610**	**432**

Source: MoEHE (2015), pp 77-79

Appendix VII: Maps of Somaliland



Somaliland map (2010). Source: https://xarbi.wordpress.com/category/maps/ (Retrieved: 2018)



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