THE INFLUENCE OF TANGIBLE AND INTANGIBLE RESOURCES ON THE PERFORMANCE OF PUBLIC SECONDARY SCHOOLS IN BONO DISTRICT, KENYA

BY

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OCTOBER, 2012
DECLARATION

I declare that this research is my original work and has not been whatsoever submitted for a degree in any other university.

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This research project has been submitted for examination with my approval as university supervisor.

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ABSTRACT

While many researchers have in the recent past focused attention on studies relating resources and performance in organizations, findings in this important area have remained inconclusive. This study investigated the influence of tangible and intangible resources on the performance of public secondary schools in Bondo District. Cross sectional descriptive survey design and a structured questionnaire was used in gathering data in 28 public secondary schools. Using multiple and hierarchical regression analysis the results indicated that tangible resources accounted for the highest portion of school performance. At the same time different performance dimensions were affected by specific sets of resources and the level of effect varied widely. Tangible resources that indicated strong positive effect included library and teaching and learning facilities, ICT and co-curriculum facilities. Financial resources showed positive effect on growth. Intangible resources that indicated strong positive effect on more than one performance dimension included organizational culture and structure, reputation, access to information and change readiness. More resource variables indicated positive effect on the various performance dimensions when tangible and intangible resources were combined. This implies that resources were more productive when combined which showed consistency with existing RBV empirical literature. The study also revealed disparities in resource endowment across schools at all levels with provincial and national schools that were better resourced performing better compared to district schools with low resource levels. This finding is useful to school managers and education policy makers in identifying currently productive resources and the need to optimize the use of available scarce resources to help improve performance at secondary school level.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iv</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF CRONYMS</td>
<td>xi</td>
</tr>
<tr>
<td>CHAPTER ONE: INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1. Background to the Study</td>
<td>1</td>
</tr>
<tr>
<td>1.1.1 Tangible and Intangible Resources</td>
<td>3</td>
</tr>
<tr>
<td>1.1.2 Organizational Performance</td>
<td>5</td>
</tr>
<tr>
<td>1.1.3 Public Secondary Schools in Kenya</td>
<td>6</td>
</tr>
<tr>
<td>1.1.4 Public Secondary Schools in Bondo District</td>
<td>7</td>
</tr>
<tr>
<td>1.2 The Research Problem</td>
<td>9</td>
</tr>
<tr>
<td>1.3 Research Objective</td>
<td>11</td>
</tr>
<tr>
<td>1.4 Value of the Study</td>
<td>11</td>
</tr>
<tr>
<td>CHAPTER TWO: LITERATURE REVIEW</td>
<td>13</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>13</td>
</tr>
<tr>
<td>2.2 Resource-Based Theory of the Firm</td>
<td>13</td>
</tr>
<tr>
<td>2.3 Tangible and Intangible Resources</td>
<td>15</td>
</tr>
<tr>
<td>2.4 Organizational Performance</td>
<td>19</td>
</tr>
<tr>
<td>2.5 Tangible and Intangible Resources and Organizational Performance</td>
<td>22</td>
</tr>
<tr>
<td>2.6 Conceptual Framework</td>
<td>25</td>
</tr>
</tbody>
</table>
# Chapter Three: Research Methodology

3.1 Introduction ........................................................................................................ 27

3.2 Research Design .................................................................................................. 27

3.3 Population of Study ......................................................................................... 27

3.4 Data Collection .................................................................................................. 28

3.5 Data Analysis ..................................................................................................... 28

# Chapter Four: Data Analysis, Findings and Discussions

4.1 Introduction ........................................................................................................ 30

4.2 School Organizational Bio-data ....................................................................... 30

4.3 Status of Tangible Resources and Intangible Resources ................................. 34

4.4 School Performance ......................................................................................... 38

4.5 Tangible and intangible resources ................................................................. 52

4.6 Discussion ......................................................................................................... 53

# Chapter Five: Summary, Conclusion and Recommendations

5.1 Introduction ....................................................................................................... 58

5.2 Summary of Findings ...................................................................................... 58

5.3 Conclusion ........................................................................................................ 60

5.4 Recommendations for Policy and Practice ...................................................... 63

5.5 Limitations of the Study .................................................................................. 65

5.6 Suggestions for Further Research ................................................................. 66

REFERENCES ........................................................................................................ 68

APPENDICES ........................................................................................................ 71

Appendix I: Questionnaire ................................................................................... 71

Appendix II: List of Public Secondary Schools in Bond District ...................... 77
Appendix III: Letter of Authorization from the University of Nairobi……... 78
Appendix IV: Letter of Introduction ............................................................... 79
Appendix v: Regression analysis Results on Tangible and Intangible Resources and Each performance Dimension....................................................... 80
LIST OF FIGURES

Figure 2.1: Conceptual Model .................................................................26
Figure 4.1: Growth trend in Students Enrolment in the Period 2009-2011 ................................39
Figure 4.2: KCSE Performance Trend in Bondo District for the Period 2009-2011 ..........41
LIST OF TABLES

Table 4.1: Age of Schools ................................................................. 31
Table 4.2: School classification ......................................................... 32
Table 4.3: Status of Students Enrolment per School Category .......... 32
Table 4.4: Education Qualification of Teachers .................................. 33
Table 4.5: Status of Tangible Resources .......................................... 34
Table 4.6: Status of Intangible Resources ........................................ 36
Table 4.7: Growth Trend in Student Enrolment per School Category .... 39
Table 4.8: Regression Results on Tangible resources and KCSE School Mean Score .. 42
Table 4.9: Tangible Resources and School Targets ......................... 43
Table 4.10: Tangible Resource and School Competitiveness ............. 44
Table 4.11: Tangible Resources and Growth in Enrolment and physical infrastructure .. 46
Table 4.12: Resources and Achievement in Co-curriculum Activities .. 46
Table 4.13: Intangible Resources and KCSE Mean Score .................... 47
Table 4.14: Intangible Resources and Targets .................................. 47
Table 4.15: Intangible Resources and Competitiveness .................... 48
Table 4.16: Intangible Resources and Growth in Enrolment and Infrastructure ... 49
Table 4.17: Intangible Resources and achievement in Curriculum Activities .... 50
ACRONYMS AND ABBREVIATIONS

R.B.T: Resource Based Theory of the Firm

R.B.V: Resource Based View

D.Q.A.S.O: District Quality Assurance and Standards Officer (Bondo District)

P.Q.A.S.O: Provincial Quality Assurance and Standards Officer (Nyanza Province)

K.E.M.I: Kenya Education Management Institute

K.C.S.E: Kenya Certificate of Secondary Education

M.O.E Ministry of Education

S.P.S.S: Statistical Package for Social Sciences
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The ultimate objective of strategic management is to enable an organization choose and implement a strategy that generates a competitive advantage in the environment in which it operates (Barney (2007). However, a competitive advantage that leads to superior performance is not an easy concept to define since different contextual factors directly or indirectly affect the competitive strength of individual organizations. Competitive advantage according to Barney (2007) is the ability of an organization to produce and market products or services that are superior to those of competing firms in the same industry, based on price and none price qualities. A firm has competitive advantage when it is able to create more economic value than competing firms in the same industry (Barney, 2007). He has argued that the main source of competitive advantage may be firm assets that are tangible and intangible and how they are used to serve the needs of customers.

Organizations possess unique combination of tangible and intangible resources and also vary in how they use them in pursuing their strategic objectives. However it is not clear whether such differences could be used to explain why some organizations consistently perform better than others in the same industry, since certain firms with similar resources combinations also register varying levels of performance. According to Johnson, Scholes and Whittington (2008), success lies on the ability of an organization to identify its resources that match the needs of customers.
Organizations possess a wide range of tangible and intangible resources that may have direct or indirect impact on their performance. However, achieving and sustaining superior performance may not be an easy task since organizations operate in different context and what works well for one may not work the same way for another. Some researchers have argued that organizations’ performance depends on the amount and quality of resources they possess, which must reach threshold level, and how effectively resources are utilized to provide services of value to customers (Johnson et al, 2008). According to Barney (2007), organizations gain sustainable competitive advantage through possession of specific resources that are superior to those of their rivals, which must be of value to customers, possessed by only a small number of firms, not easy to imitate and none substitutable. A sustainable competitive advantage can lead to superior performance in the long run. However, the challenge is how to identify specific resources that are relevant to strategic objectives and the extent to which resources can translate into superior performance in organizations, especially under deprived conditions.

Public secondary schools in Bondo possess a variety of tangible and intangible resources that they use in pursuing their target goals and for implementing school policies and programs. The main objective of every school is to achieve quality performance and efficient service delivery in order to win the support of their stakeholders. In the context of public secondary schools however, there is so far no comprehensive empirical knowledge about what kinds of resources are more important than others. At the same time it remains unclear whether the various resource categories really contribute to school
performance and the extent to which existing differences in resource levels can be used to explain performance differences in public secondary schools in Bondo district.

The most appropriate strategic management model that can enable managers of public secondary schools in Bondo to identify and develop critical resources and capabilities that impact on performance and thus form the basis for sustainable superior performance and continuous improvement is the Resource-Based View of the firm, (Barney, 2007), which focuses on internal resources possessed by organizations that are tangible and intangible as the basis for value creating strategies that lead to superior performance.

1.1.1 Tangible and Intangible Resources

The concept of tangible and intangible resources is derived from the resource-based theory of the firm, which viewed organizations as bundles of productive resources that are tangible and intangible and capabilities which they could use to generate competitive advantage and superior performance (Penrose, 1959). Based on this views strategic management researchers have developed the Resource-Based View of strategy which focuses on internal resources possessed by organizations as the basis for developing value creating strategies that lead to competitive advantage and superior performance (Barney, 2007). RBV developed due to the need to explain why some organizations consistently performed better than others in the same industry (Barney, 2007). Some advocates of RBV model, have argued that organizations are heterogeneous and cannot be considered identical in terms of strategically relevant resources (Penrose, 1959) and that such resources are immobile as they cannot easily be moved across organizations and therefore can lay the basis for superior performance if the differences persist for a long period.
Collis and Montgomery (1995) have argued that no two organizations have the same assets, skills, organizational culture, or same combination of resources in the same competitive environment at any one point in time to be able to perform their activities perfectly in the same manner. To other scholars, not all resources can lead to superior performance, Barney (2007), argues that advantage lies in selected resources that are superior to those of competitors which are valuable, rare, difficult to copy and non substitutable. To some recent scholars, mere possession of superior resources does not automatically translate into superior outcome if they are not put into productive use. Johnson, Scholes and Whittington (2008) have argued that what an organization does, how it employs and deploys resources matters as much as the kind of resources it has in command. RBV recognizes the role of firm based tangible and intangible resources as sources of competitive advantage and superior performance in organizations.

Tangible resources comprise of physical assets such as infrastructure, human resources in terms of total workforce, financial resources and formal organizational structures (Grant, 2002). These are easily imitated by competing firms and can only enable a firm achieve average outcome that amounts to competitive parity at threshold level or temporary advantage at superior level (Barney 2007), may also include knowledge, talents, trust, effective leadership, organizational routines and the capacity to innovate (Hall, 1991). It is intangible resources possessed by an organization that is difficult to copy due to their complex and ambiguous nature and therefore may form the basis for sustainable superior performance (Barney, 2007, Grant, 2002). The argument is that organizations with superior resources or that can identify and effectively manage specific resources which are relevant to strategic objectives based on their mission and vision can outperform
others in the same industry whose resources are either not well matched with strategic objectives or ill-managed.

1.1.2 Organizational Performance

Organizational performance refers to the actual output or result attained by an organization as measured against intended goals and objectives. Organizational performance is judged by its ability to meet set targets. According to Barney (2007) organizational performance can be viewed in terms of the outcome achieved when an organization successfully formulates and implements a value creating strategy which enable customers receive a service or product of value greater than what they are willing to pay for. Some performance indicators that have been used by many organizations to measure performance include growth in market share, profitability, quality product or service, innovation (Porter, 1985), effectiveness in meeting set objectives, efficiency in terms of cost reduction (Johnson et al, 2008).

In recent years organizations are increasingly using balanced scorecard proposed by Kaplan and Norton (2001), which measure both financial and non financial outcomes in terms of return on investment, performance improvement, financial results, market share, competition, customer service, process improvement, employee innovation, among others. This has been viewed by many scholars as a more comprehensive way of measuring performance in organizations in the increasingly competitive environment. Since organizations operate in different contexts, methods used to measure performance also vary from one organization to another. For public secondary schools performance is
determined by quality service, ability to compete, growth in enrolment and infrastructure, ability to meet target objectives and value added outcome.

1.1.3 Public Secondary Schools in Kenya

Educational institutions in Kenya fall under Public sector organizations that are directly under the control of the government through the Ministry of Education. Public secondary schools in Kenya are categorized into district, provincial and national levels, forming the basis of resource allocation. Planning and acquisition of resources is determined more by political legislation than market conditions. Since there are marked differences in resource endowment across public secondary schools in Kenya their success depends largely on the ability of their managers to identify specific resources that impact on performance and how effectively they deploy and manage scarce resources available to them to be able to deliver acceptable performance standards that meet expectations of their stakeholders. School stakeholders include the government, parents, donors providing school funds, and the society served by school leavers. Because stakeholders provide resources, they have interest in how those resources are utilized. (Kenya Education Management Institute (KEMI), 2011).

For public secondary schools competitive advantage means providing better quality teaching and learning services that lead to higher outcome than competing schools thus attracting support and more funding from government and other stakeholders. The success of secondary schools depends on how effectively they utilize resources at their disposal (KEMI, 2011). The growing concern among secondary school managers and planners is how to identify specific resources that are currently critical to students’
performance and the best way to allocate and productively use available scarce resources to achieve quality performance.

The introduction of free primary education in 2003 and free secondary education in 2008 in Kenya has led to increasing demand for opportunities in secondary schools resulting in ever rising enrolment that has put pressure on available financial and physical resources. However the status of resources has remained almost the same with minimal effort directed towards expanding the capacity of schools to cope with the rising numbers. Given the high competition for national resources, the Kenya government has invested limited amount of resources on education and as well restricted employment of teachers to serve in public schools. Unfortunately, the shortage of critical resources has tended to undermine the quality performance in secondary schools in the country (KEMI, 2011).

1.1.4 Public Secondary Schools in Bondo District

Bondo District is found in Siaya County of Nyanza region in Kenya, with 29 public secondary schools classified as national, provincial and district levels, comprising of mixed and single gender. According to a report by Bondo District Quality Assurance and Standards Officer (DQASO) in January 2011, secondary schools in Bondo currently had an enrolment of 9,322 students which is an increase of 1,602 students compared with 7720 in 2010. A total of 1495 candidates were presented for Kenya Certificate of Secondary Examinations in the year 2010 compared to 1421 in 2009 out of which 273 qualified to join public universities through Joint Admissions Board, representing 18% compared to 220 in 2009 (DQASO Bondo, 2011). Even though there was a slight
improvement, this percentage was still low which call for combined effort from all stakeholders if quality performance is to be realized in national examinations.

Schools in Bondo compete for scarce resources from government, donors and school fees from parent as main sources of funding, and therefore can only attract quality students and support from their stakeholders if they meet acceptable performance standards. However, most secondary schools in Bondo have registered varying levels of performance over the past five years with many schools recording fluctuating performance while some few have consistently indicated an upward trend. Since there are marked differences in resource endowment across the schools in terms of quality, quantity and how they are used, it is not clear whether there is any link between resources and performance in secondary schools in Bondo.

According to a report made by Provincial Quality Assurance and Standards officer, Nyanza Province on an assessment made in a sample of eight secondary schools in Bondo district in January 2011, most schools operated below minimum staffing requirements and had a record of fluctuating performance. It was observed that quality grades produced by most schools except some few were very low and that there was a mismatch between rate of growth in enrolment and available resources in some schools visited. In the report the Provincial Quality Assurance and Standards Officer, Nyanza Province concluded that there was need to establish how best the managers of secondary schools in Bondo could manage scarce resources available to at least add value or make a difference in performance as compared with the past record. Recognizing that schools broadly and consistently differ in resource endowment and performance levels, secondary
school managers are faced with the challenge of how to make optimal use of the available scarce resources to improve the performance at Secondary School level

1.2 The Research Problem

While there is a general belief among strategic management researchers that internal resources possessed by organizations may determine the choice they make in competing within their environment and the level of performance, the extent to which resources can translate into superior performance in specific organizations remain controversial and less understood, especially when resources are scarce. Some scholars have reported close links between tangible and intangible resources and performance in organizations (Barney, 2007, Grant, 2002). Others have argued that it is the possession of specific resources that are superior to those of competing firms and how they are integrated and utilized that can lead to superior outcome (Barney, 2007). Since organizations vary so much in amount and quality of strategically relevant resources and how they utilize them, it is not clear whether possession of superior resources or how effectively they are utilized that can lead to superior performance.

Public secondary schools in Bondo district can only attract quality students and support from their stakeholders if they meet acceptable standards of performance. The need to demonstrate value for money by matching resource with the realized outcome is increasingly becoming important as a sign of well managed resources. Public secondary schools in Bond district are believed to have wide range of tangible and intangible resources such as teaching and learning materials, qualified staff, school funds and infrastructure that could be used to improve performance. However, Schools vary
significantly in resource endowment in terms of quality, quantity and how they are utilized, yet they are expected to compete on equal footing with other schools in terms of quality performance. Despite operating under similar deprived conditions, public secondary schools in Bondo have registered varying levels of performance over the past five years with most schools having fluctuating performance while some few have shown marked progress. Public secondary school managers face difficulties in making meaningful decisions on which specific resources to prioritize and how best they can utilize available scarce resources to help improve performance. However, the extent to which resources can translate to school performance at secondary school level remains obscure and less understood.

Some researchers have reported close links between tangible and intangible resources and performance in organizations. However, their findings have tended to focus more on business organizations while research relating resources and performance in educational organizations at local level appear to be scarce and less comprehensive. Liu, Timothy and Gao (2010) reviewed RBV approaches used in banking industry and recommended further research to clearly define the role of tangible and intangible resources in industries where sustainability of competitive advantage is rare.

Tuan and Takayashi (2009) studied the link between resources, organizational capabilities and performance of Vietnam’s supporting industries, and reported positive links between groups of resources, capabilities and performance. Gruber, Heinmann, Bretel and Hangeling (2010) examined configuration of resources, capabilities and performance in technology ventures and recommended further research on the contribution of tangible and intangible resources on performance of organizations.
operating in specific industries. As much as a number of studies exist in documented literature that relate firm level resources with performance in organizations, no study has been done at the moment on the influence of tangible and intangible resources on the performance of public secondary schools in the context of Bondo district in Kenya. This creates the need for a research study that will answer the question: what is the influence of tangible and intangible resources on the performance of public secondary schools in Bondo District-Kenya?

1.3 Research Objective

The objective of this study was to establish the influence of tangible and intangible resources on the performance of public secondary schools in Bondo district in Kenya.

1.4 Value of the Study

Findings of this study are expected to enhance the understanding of policy makers in the Ministry of Education concerning the role of tangible and intangible resources on secondary school performance and the need to serve schools with specific resources that are currently most crucial to performance. Education planners are sensitized on critical resources that were currently lacking in some secondary schools and feel motivated to address existing gaps in resource deployment distribution in Bondo and Kenya in general. The findings are highly applicable to education planners in formulating policies that enhance equity in resource allocation and utilization to help address disparity in resource endowment across public secondary schools in Bondo and the entire Kenya as a country.
The findings of this study provides useful information for school managers in identifying critical resources that have direct impact on school performance and the best way to manage them as a way of improving performance in national examinations. Besides, the understanding of managers of public secondary schools is enhanced on the need to effectively utilize available scarce resources to help improve performance since mere possession of sources is reported to be inadequate. School that are currently performing poorly are encouraged to improve performance by focusing more on acquisition and effective use of resources found to be crucial to school performance. Schools that have inadequate resources are also sensitized by these findings on the need to match resources strengths with target objectives to be able to achieve better performance. The study is also important as it lays emphasis on the need to monitor future trends so as to update strategically relevant resources to cope with changes if superior outcome is to be achieved and sustained.

The study contributes to existing literature by making use of the Resource-Based View of strategy as a new perspective in analyzing the contribution of tangible and intangible resources on performance, at secondary school level. The study also adds to knowledge in the field of education by emphasizing the need to exploit both tangible and intangible resources to achieve the best performance and that possession of superior resources does not necessarily guarantee quality outcome without the understanding of how to utilize resources to add value through quality service delivery. It is hoped that this is the very first research study of the kind to utilize RBV Theoretical model in examining the influence of tangible and intangible resources on the performance of public secondary schools in Bondo District.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on the Resource Based Theory, RBV of strategy, tangible and intangible resources and organizational performance. It also explores earlier studies relating tangible and intangible resources and performance in organizations to help bring out clearly the conceptual framework for the study. Theoretical and empirical evidence are there after derived from the reviewed literature in to provide support for the knowledge gap addressed by this study.

2.2 Resource-Based Theory of the Firm

In the recent years, strategic management researchers are increasingly focusing on internal resources and capabilities possessed by organizations as the basis for developing strategies that lead to competitive advantage and superior performance. This is built upon the Resources-Base Theory of the Firm which viewed organizations as bundles of productive resources that are tangible and intangible and capabilities which they could use to generate competitive advantage and superior performance (Penrose, 1959, Barney, 2007). Building on these concepts strategic management researchers have developed the Resource-based view model which focuses on internal resources possessed by organizations as building blocks for value creating strategies that generate competitive advantage and above average performance. RBV holds the view that heterogeneity in the level of either tangible or intangible resources across organizations will result in different
levels of performance because some firms possess superior resources than their rivals in the same industry.

RBV theory views organizations as bundles of resources and capabilities of different combinations that can be exploited to gain competitive advantage and higher than average performance (Grant, 2002, Penrose, 1995). Each organization exercises control over its own resources and that valuable resource cannot easily be moved across organizations. As such the few organizations possessing such resources may enjoy competitive advantage over their rivals for a considerably long period if such differences persist. This implies that every organization integrates and utilizes its internal resources and capabilities in different ways from competitors in the same industry in order to take advantage of their potential to achieve competitive advantage and superior performance (Tuan and Takayashi, 2009, Gruber et al, 2010).

Many scholars have emphasized effective use of selected strategically relevant resources as the basis for attainment of superior performance (Barney, 2007, Grant, 2002). Barney (2007) has argued that advantage creating resources are those that are valuable to customers by exploiting opportunities pursued and neutralizing weaknesses and threats, rare and difficult to access by rival organizations, inimitable or difficult to copy for advantage to last, and exploitable by the organization for it to translate to superior outcome. To some recent researchers, mere possession of superior resources does not guarantee attainment superior performance, what matters is how the resources are integrated and utilized (Johnsons et al, 2008, Tuan et al, 2009). Where organizations in the same industry have similar resources but differing performance levels, the reason could be that they vary in the extent to which they utilize their resources. Since some
organizations may possess similar resources, it is the capabilities that enable them to optimize the use of these resources to generate more value that translate into superior performance.

Proponents of the Resource Based View strongly believe that internal resources possessed by organizations could be the key to successful strategies that generate competitive advantage and superior performance (Pearce and Robinson, 2010). Others have argued that organizations should select strategies that enable them best exploit their resource strengths relative to opportunities in the external environment (Prahalad and Hamel 1995). They added that being strategic means creating a chasm between ambition and resources, since an organization with relatively small amount of resources but with big ambitions can produce greater output for its smaller inputs through effective management. For many managers, the concept of strategy implies pursuing opportunities that fit the company’s resources. On this basis organizations with meager resources can optimize their use and achieve value added outcome through a good fit between available resources and strategic objectives. Most researchers have recognized the role of firm based tangible and intangible resources as sources of competitive advantage and superior performance in organizations.

2.3 Tangible and Intangible Resources

According to Grant (2002) resources are the basic and primary inputs into organizational processes used to develop products or services of value to customers. Barney (2007) defines resources as including all assets, capabilities, competencies, organizational processes, firm attributes, and knowledge, among other attributes that are controlled by
an organization that it uses to conceive of and implement strategies aimed at enhancing its efficiency and effectiveness in a competitive environment. Pearce and Robinson (2010) have defined resources as organizational assets that form the basic building blocks for organizational performance. According to proponents of RBV, resources by themselves confer no value to organizations; it is only when they are put into productive use that value follows (Barney, 2007). Most of the researchers have grouped firm resources into tangible and intangible assets.

According to Grant (2002) resources can be categorized into tangible (physical and financial) and intangible human and organizational resources. Tangible resources are physical assets of an organization such as plant, equipments, infrastructure, finances, formal organizational structures (formal planning and reporting system), total workforce and their level of productivity (Johnson et al, 2008). These are easily imitated by competing firms and can only enable a firm achieve average outcome that amounts to competitive parity at threshold level or temporary advantage at superior level (Barney, 2007). To add value physical resources must be reconfigured to develop capabilities and that organizations require specific type of physical resources to develop strategies that enable them achieve their target goals. Organizations that are well endowed with quality physical resources and have the knowledge to exploit their potential will most likely perform better than others in the same industry. Physical resources vary widely across organizations in terms of quality, quantity and how they are utilized and therefore may form the basis for superior outcome if such differences are durable and difficult to replicate. However it remains uncertain which specific physical resources are critical to
performance and the extent to which possession of substantial amount of physical resources can translate into superior performance.

Financial resources comprise of all of the monetary resources controlled by an organization such as loans, grants cash balances, debtors, retained earnings, ability to generate internal funds and so on. According to Twan et al (2009) financial resources are in most cases limited and might be expensive and difficult to acquire. Besides, appropriate management of financial resources might be a great challenge to many organizations. Access to reliable sources of funding and ability to generate acceptable returns on invested money will determine ability of an organization to attract more funding from its stakeholders and could form the basis for strategies that lead to superior performance (Barney, 2007). Johnson et al (2008) argue that finance and the manner in which it is managed can be a key determinant of strategic success in organizations. The key issue is the need to deliver best value services to stakeholders that match resources invested for the same purpose. However it is uncertain whether access to substantial amount of financial resources or the level of management of funds through effective cost controls that translates to superior outcome.

Intangible resources are non physical assets of an organization that are difficult to measure due to their ambiguous and complex nature. They include access to information, reputation and knowledge (Johnson et al, 2008), leadership and management competence, quality of workers, experience, customer orientation, knowledge sharing and the capacity to innovate (Grant, 2002). According to Barney (2007), intangible resources comprise of human capital and organizational capital. Human capital includes skills, knowledge and experience, talents, Trust, quality of leadership, managers, employees, and the way they
are organized (Barney, 2007). It is becoming a common view among scholars that human resources constitute the most important component of every organization. Johnson et al (2008) seem to be in agreement with this when they argue that the ability of an organization to achieve its mission and target objectives depends largely on having the right people in the right positions as well as the commitment of all those involved.

However, attracting and retaining a highly qualified human team require considerable time and financial investment which is a big challenge to many organizations hence it could form the basis for superior outcome. Organizations vary significantly in the number, quality and the manner in which they utilize their human resources potentials and this could form the basis of superior outcome. However, the extent to which human resource attributes can translate to superior performance in the context of individual organization remains highly contested and less explored.

Organizational capital comprises the various ways an organization uses to integrate and exploit its financial physical and human resources to generate value (Grant, 2002). This consists of organizational culture and structure, reputation, access to information and informal relations among groups within a firm and with those in its environment (Barney, 2007). Penrose, (1995) noted that various skills and abilities possessed by firms could be sources of competitive advantage. According to Hitt et al (2006), effective leadership, strategic alignment of competencies with target goals and resources could highly enhance competitive advantage in organizations. Reputation has been described as an extremely important strategic asset that can lead to superior performance. According to Johnson et al (2008) a good reputation is crucial for success in building strong culture of hard work, staff motivation and retention as well as the ability to win trust from stakeholders.
Organizations with favorable reputation of quality performance and effective management are therefore able to sustain superior outcome for a long period of time. Organizational culture describes the system of shared beliefs and values that develop within an organization and guides the behavior of employees. The best performing organizations have deeply entrenched cultures that are performance oriented, emphasize teamwork, transparent communication and knowledge sharing and value the well-being of people (Hitt et al. 2006). Organizational resources are majorly intangible and difficult to replicate since they and therefore could be exploited to gain sustainable superior outcome (Thompson Strickland and Gamble, 2007). Organizations are therefore different because they have different combinations of resources and capabilities and vary widely in how they utilize these resources. However, it remains difficult to tell which specific tangible and intangible resources have the greatest effect on performance in the context of individual organizations.

2.4 Organizational Performance

Organizational performance refers to a collection of work activities, operational efficiency, effectiveness, their measurements and subsequent outcome attained (Dessler, 2008). According to Barney (2007) organizational performance refers to the outcome achieved when an organization successfully formulates and implements a value creating strategy that enable customers receive a service or product of value greater than what they are willing to pay for. Barney (2001) proposes that an organization may attain average performance, when the actual outcome is equal to what stakeholders expect from an investment with a similar risk. This implies that the value created is equal to expected
value, amounting to a competitive parity, which puts the firm at the same level with others in the same industry.

An organization achieves superior performance when the actual outcome realized exceeds what stakeholders expect based on resources invested for the same purpose. This means that actual value created is greater than expected value, and that it could be a sign of well managed resources. Below average performance is realized when the actual outcome falls below what stakeholders' expect from resources investment, a sign of failure to add value to meet stakeholders' expectations, and that this could be an indication of poor performance. Organizational performance can therefore be described as the actual output or result attained by an organization from a set of valuable resources as measured against intended goals and objectives.

Every organization has well defined mechanisms of measuring performance which enable it evaluate current and past achievement relative to expected standards. The methods used to measure performance depend on the context in which an organization is operating and strategic objectives pursued. Output measures are often used in RBV as indicators of outcome since this reflects a product a firm derives from the deployment of certain types of valuable resources. Market based measures relate to organizational output in terms of growth in market share, profitability, level of output, quality product or service, innovation (Porter, 1985). Market value added focuses on performance improvement in terms of effectiveness in meeting set objectives and efficiency in terms of cost reduction. Accounting measures are meant to evaluate a firm's financial strength based on ability to source for funds, service debts, generate return on investment (Porter 1985). According
to Hitt et al (2006) organizations must maintain performance at an adequate level to be able to sustain the participation of key groups affected by the firm.

Benchmarking performance has been used in determining how an organization compares with other competitors in the same industry, when evaluating firm performance (Johnson et al, 2008). Benchmarking performance involves comparing own performance with industry best practices from high performing organizations in terms of quality, operational efficiency and effectiveness, time and cost in order to learn how to do things better, faster and cheaper. Organizations need to continuously track their performance to determine if they are making any progress towards desired goals.

In recent years, organizations are increasingly using the balanced scorecard proposed by Kaplan and Norton, in measuring performance (Kaplan and Norton, 2001). The balanced scorecard analyses both financial and non-financial outcomes. It recognizes diverse expectations of stakeholders and relate performance outcome with strategic objectives. It uses financial measurements that reveal the results of actions already taken and complements this with operational measures such as customer satisfaction, internal process effectiveness and ability to learn and improve the activities that drive future financial outcome. According to Kaplan and Norton (2007), organizations need a timely and accurate financial reporting data if it is to operate efficiently. The business process dimension enable managers to evaluate how well the business is running and whether its day to day activities including tasks performed by the workforce support its strategic objectives, based on their mission and vision.
Learning and growth dimension of the Balanced Scorecard looks at training of an organization's workforce and its overall shared corporate values and attitudes that enhance self improvement. This enable managers to identify training needs to be focused on as a way of enhancing effectiveness and build organization’s cultural values and best practices that drive future performance. According to Kaplan and Norton (2007), measuring organizational performance against the needs of its customers can be a pointer towards future performance excellence. Organizations that are able to derive the best results from this area are likely to achieve long-term success and stay ahead of others.

The Balanced Scorecard not only links performance to short term outcome but also the way processes are managed involving innovation and learning which are perceived to be crucial to long term success. It has been viewed by many scholars as a more comprehensive way of measuring performance in organizations in the increasingly competitive environment.

Organizational performance is judged by its ability to meet set targets. For public sector organizations the focus lie principally on quality service and value added outcome. Irrespective of measures used, many scholars contend that organizational performance is closely linked to amount and quality of tangible and intangible resources within its command.

2.5 Tangible and Intangible Resources and Organizational Performance

Resource-Based-View of strategy has been successfully used to explain long term differences in performance across organizations which cannot be justified by Michael Porter’s external factors and industry forces (Pearce and Robinson, 2010). This strategy
proposes that there are systematic differences across organizations in how they use resources that are relevant for implementing strategies and that these differences remain the same for a considerably long period (Penrose, 1995). Many scholars believe that acquisition and development of superior organizational resources is the most important reason that some organizations are more successful than others (Barney, 2007). Some have argued that varying levels of performances in organizations can be explained by differences in amount and quality of resources they possess and the extent to which they use the resources to generate value to customers (Johnson et al 2008).

As much as differences in resource endowment may form the basis for superior outcome in organizations, it does not offer adequate explanation. According to (Barney, 2007), not all resources controlled by organizations are strategically relevant to performance, organizations that stay ahead of others are those that are able to identify specific resources that are critical to strategic goals, acquire or develop and maintain them to generate more value than competitors. He has argued that the resource which leads to superior performance must be valuable to customers, rare and difficult to access, inimitable for advantage to last and exploitable by the organization for it to translate to sustainable superior outcome. Barney (2001) argued that attributes of advantage creating resources such as value, rareness, inimitability and non substitutability can be used to explain organizations’ performance.

Researchers focusing on dynamic capabilities argue that specific resource level processes influence competitive advantage and superior performance and that organizations need to continuously adjust resource strengths to sustain competition (Teece, Pisano and Suen, 1997 as cited in Barney, 2007). Grant (2002) tends to focus more on selected tangible and
intangible resources that are strategically relevant and capabilities that optimizes the use of such resources to generate more value than competing firms, as the best way for attaining sustainable superior performance. Arguments raised by most of RBV researchers seem to complement each other by sharing a common view that tangible, intangible resources and organizational capabilities can be used to develop strategies that generate superior outcome.

To stay a head of others, organizations must be able to identify specific resources that are relevant to strategic objectives acquire or develop and effectively utilize them to meet the needs of customers better than their rivals. Empirical studies relating resources and performance have emphasized that as much as both tangible and intangible assets are important to organizational performance, intangible resources could be the real sources of sustainable competitive advantage since competitors cannot easily replicate their use (Liu, et al, 2010). However, some recent researchers have found that tangible assets could generate sustainable competitive advantage, if they are integrated to develop capabilities that enhance value creation (Cruber et al, 2010).

As much as empirical studies in RBV contend that firm level resources and capabilities can be used to explain varying levels of performance across organizations, most scholars have tended to concentrate on attributes that resources must have to generate sustainable competitive advantage and superior performance, while efforts to specify crucial links between tangible and intangible resources and performance outcomes has remained sparse and incomprehensive (Cruber et al, 2010). Although empirical studies have helped enhance the understanding of how firm level resources and capabilities lead to varying levels of performance across organizations, most scholars have tended to concentrate
more on business organizations in other parts of the world while studies linking resources with performance at local level have remained scanty and less comprehensive

2.6 Conceptual Framework

Organizational performance depends on amount and quality of tangible and intangible resources they possess, ability to identify specific resources that are relevant to strategic objectives and the choice of strategy that enhance optimal use of such resources to generate more value to customers. Findings of this study confirmed that secondary school performance will increasingly depend on amount and quality of tangible physical and financial assets and intangible human, and organizational resources they possess and the choice of strategy that enhance optimal use of available resources to generate values. As such, schools that are able to identify specific resources that are relevant to their strategic objectives, acquire or develop and utilize them productively to generate value will perform better and stay ahead of others.

According to findings of this study, both tangible and intangible resources possessed by individual secondary schools, comprising of financial, physical facilities, human and organizational assets that form independent variables indicated strong positive or negative effect on school performance, which was the dependent variable. However, the level of effect depended on the level of adequacy and how effectively resources were used to facilitate teaching and learning and operational efficiency and effectiveness. To achieve higher than average outcome managers of public secondary schools in Bondo
must identify specific resources that match their strategic objectives and effectively use them to provide services of value to their stakeholders.

**Figure 1: Conceptual Model**

<table>
<thead>
<tr>
<th>Tangible Resources</th>
<th>Intangible Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>School finances, physical facilities, general infrastructure</td>
<td>Human resources, org. culture and structure, reputation, access to information and change readiness</td>
</tr>
</tbody>
</table>

**School performance** – Achievement in KCSE, effectiveness in meeting set targets, achievement in co-curriculum activities, competitiveness and growth in enrolment / infrastructure

**Independent Variables**

(Self devised model based on RBV)

**Dependent Variables**
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter describes the research design that will be used to achieve objectives of the study outlined in chapter one. It covers research design, population, sampling procedure, data collection method, and data analysis procedures to be used.

3.2 Research design
This study used cross sectional descriptive survey design since it involved a study of several public secondary schools in Bondo district at one point in time. Sounders, Lewis and Cooper (2007) argue that the method presents facts concerning status of variables investigated at the time of study as well as trends that are emerging. This was considered the most suitable method because it would enable the researcher to obtain highly reliable data due to mass surveys which makes it possible to compare and verify information across several schools and the findings could easily be inferred to a larger population.

3.3 Population
The population of study will be all the 29 public secondary schools in Bondo district, according to the Bondo District Quality Assurance and Standards Officer as at 31\textsuperscript{st} January 2012, that are classified as national, provincial, and district, comprising of single and mixed gender. Public secondary schools were chosen because they were resourced mainly by the public and had many common features that would allow for easy comparison in terms of resource variables. At the same time there were no established private secondary schools in Bondo district to be considered.
3.4 Data collection

Data collection process involved gathering of both qualitative and quantitative information related to the tangible and intangible resources and performance of public secondary schools in Bondo. Primary data was collected using structured and semi-structured survey questionnaires administered to the 29 principals of public secondary schools through drop and pick method by the researcher. Survey questionnaires were considered appropriate for data collection because the method allow for collection and organization of a large amount of quantitative data in a reasonably short period of time (Sounders, M., Lewis, p., and Thomhil, A., 2009).

Data on performance in Kenya Certificate of Secondary Education (KCSE) was gathered through secondary sources that included KCSE results analysis documents available in the District Quality Assurance and Standards department at the District Education Office Bondo. The questionnaire was divided into four sections; the first part covered information on school bio-data, part two on the current status of tangible resources, part three on the current status of intangible resources and part four on school performances. Target respondents were all principals of public secondary schools in Bondo.

3.5 Data analysis

The unit of analysis used was public secondary schools since data was directly obtained at school level. Information on organizational bio-data and the model variables representing the status of tangible and intangible resources in secondary schools were analyzed using descriptive statistics such as percentages, mean, standard deviation and
frequencies. Regression analysis was used to determine the influence of tangible and intangible resources on school performance. Since the data had many variables, multiple and hierarchical regression analysis were used to help reduce the many predictor variables for each resource category to seven tangible and five intangible independent variables. Mean scores of performance indicators were also used to compute indices representing each performance dimension. Data analysis was guided by the equation:

School performance \( y = f(\text{tangible and intangible resources}) \)

\[
(Y_1 \ldots Y_5) = a + ((X_1 \ldots X_7 + X_a \ldots X_e)
\]

Tangible resource categories were variables labeled \((X_1 \ldots X_7)\) and five intangible resource categories labeled \((X_a \ldots X_e)\). Tangible resource categories used included library facilities coded \(X_1\), science laboratory facilities \((X_2)\), computer/ICT facilities \((X_3)\), teaching and learning resources \((X_4)\), general infrastructure \((X_5)\), co-curriculum facilities \((X_6)\), and financial resources \((X_7)\). Five intangible resource variables used were coded as follows; \(X_a\)-human resource, \(X_b\)-organizational culture and structure, \(X_c\)-reputation, \(X_d\)-access to information, \(X_e\)-change readiness. Indicators of each performance dimension were also reduced to arrive at five dependent variables coded \(Y_1\)-achievement in KCSE, \(Y_2\)-achievement of targets, \(Y_3\)-competitiveness \(Y_4\)-growth in enrolment/infrastructure and \(Y_5\)-achievement in co-curriculum activities.

Results of regression analysis were meant to determine the level of effect of tangible and intangible resources on the various school performance dimensions as reflected by standardized coefficient (Beta), R value, F value as well as significance level P value. Data analysis was done using Statistical Package for Social Sciences (S.P.S.S.) and presented through charts, tables and graph.
CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents data analysis procedure and findings of the study based on data collected from the field as they relate to the research question. The primary purpose of this study was to establish the influence of tangible and intangible resources on the performance of public secondary schools in Bondo district as measured against achievement in KCSE, effectiveness in meeting targets, competitiveness, achievement in co-curriculum activities and growth in enrolment and infrastructure. Questionnaires were distributed to all the 29 principals target schools but one school declined to return completed questionnaire. The actual data used in this analysis was therefore derived form 28 schools, representing about 97% response rate.

Data analysis was done in two parts. The first section presents computed descriptive statistics of school bio-data and resources variables on the status of tangible and intangible resources. This was meant to establish resource levels. Part two presents findings of regression analysis modeling to establish the influence of tangible and intangible resource variables on performance. Finally findings are discussed in relation to RBV theoretical model concepts.

4.2 School Organizational Bio-data

Information on school organizational bio-data was gathered from target schools in order to capture the basic demographic and contextual factors such as age, current student
population, number of steams and category of the school on the basis of national, provincial and district single and mixed gender.

4.2.1 Age of the schools

In order to capture information on the age of public secondary schools in Bondo, respondents were asked to state the year when there school was started. This information was necessary because well established schools have accumulated resources over time and have also built stronger reputation with stakeholders and suppliers of school resources. Results were as indicated in Table 4.1

**Table 4.1 Schools Age**

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>Number of schools</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>7</td>
<td>24.14%</td>
</tr>
<tr>
<td>6-10</td>
<td>6</td>
<td>21.69%</td>
</tr>
<tr>
<td>11-15</td>
<td>5</td>
<td>17.24%</td>
</tr>
<tr>
<td>16-20</td>
<td>6</td>
<td>21.69%</td>
</tr>
<tr>
<td>Above 20 years</td>
<td>5</td>
<td>17.24%</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Data collected during this study

Findings revealed that a number of schools were young growing schools under ten years as indicated in the table below. This implies that construction expenditure rather than direct teaching and learning materials was consuming greater part of their financial budget and therefore were unlikely to maximize on quality

4.2.3 School level classification

This part was meant to capture data establish number of schools at national, provincial and district categories in Bondo district. This information was to help determine the level of establishment schools and access to quality resources. Results are shown in table 4.2
Findings of this study indicated that Out of the 28 schools, one was a national school, 7 provincial and 20 district schools, comprising of 4 girls, 5 boy schools and 20 schools of mixed gender. This implies that a small percentage of schools had access to quality resources while the majority were up-coming schools that were less established and had limited access to quality resources.

### 4.2.2 Student Population per School Category 2009-2012

This part was aimed at getting information on student enrolment per individual school in each category to establish average school size. This was important because funding of public secondary depended on the number of students hence high enrolment meant access to more funding and resources. Results were as shown in table 4.2.

**Table 4.3: Status of Student Enrolment per School Category in the 2009-2012**

<table>
<thead>
<tr>
<th>School Category</th>
<th>No. of Schools</th>
<th>Student enrolment</th>
<th>Percentage Enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>1</td>
<td>1609</td>
<td>17%</td>
</tr>
<tr>
<td>Provincial level</td>
<td>7</td>
<td>3462</td>
<td>36%</td>
</tr>
<tr>
<td>District level</td>
<td>20</td>
<td>4432</td>
<td>47%</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>9503</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Data collected from the field during this study
According to respondents’ public secondary schools in Bondo were classified as national, provincial and district categories. The average student population was highest at national level standing at 1609, followed by provincial with 495 and then district level with the lowest population of 223. 4432 (47%) of the total students’ population was schooling in the 20 district schools, 3462 (36%) in the 7 provincial schools while 1609 (17%) were in the only one national school in the district. Since number of student determined access to funds and resources, the implication is that national and provincial schools had access to more resources as compared to that district schools.

4.2.5 Educational Qualification of Teachers in the District

This part captured information on the distribution of teachers by qualification per school category. This data was considered important in establishing the level of adequacy and distribution of teaching staff per school category in the district, since it had close links with effectiveness in teaching and learning and school performance in KCSE. Findings were as shown in table 4.4.

Table 4.4 Educational qualification of teachers

<table>
<thead>
<tr>
<th>School Category</th>
<th>Teachers with Master Degree</th>
<th>Teachers with B.ED + PGDE</th>
<th>Teachers with Bachelor Degree</th>
<th>Teachers with Diploma</th>
<th>Teachers with Other Qualifications</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>22</td>
<td>23</td>
<td>109</td>
<td>24</td>
<td>104</td>
<td>233</td>
<td>44.29%</td>
</tr>
<tr>
<td>Provincial</td>
<td>12</td>
<td>9</td>
<td>107</td>
<td>32</td>
<td>60</td>
<td>219</td>
<td>41.63%</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>1</td>
<td>63</td>
<td>3</td>
<td>1</td>
<td>74</td>
<td>14.1%</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>33</td>
<td>279</td>
<td>59</td>
<td>175</td>
<td>526</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Data collected from the field during this study

Findings of this study on human resources level revealed marked disparity in the distribution of qualified teachers across schools. The 20 district schools were poorly
endowed with the lowest qualified teachers on average while the eight provincial and one national school had relatively more qualified teachers on average.

4.2.7 Book to Student Ratio

This was used to measure level of adequacy of text books in the schools. The findings indicated that national and provincial schools were better endowed with text books at a ratio of between 1:2 and 1:4 while there was shortage of books in most district schools that had book to student ratio ranging between 1-6 and 1-10 on average. This reveals shortage of text books in most district and some provincial schools that need to be addressed by relevant parties if students are to perform better in national examinations.

4.3.1 Status of Tangible Resources and Intangible Resources

This part required respondent to rate tangible resources currently available in their schools in terms of quality and level of adequacy. Five point scales ranging from 1 strongly disagree to 5 strongly agree was used to rate resource levels. Strongly disagree represented by mean scores ranging from 1 to 2.4 on the Likert scale indicated below average resources levels, somewhat agree 2.5 to 3.5, average resource levels, and 3.6 to 5 above average level. Results are presented in Table 4.5.

<table>
<thead>
<tr>
<th>Resource Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your school libraries are sufficiently stocked text books and reference materials</td>
<td>28</td>
<td>2.61</td>
<td>1.227</td>
</tr>
<tr>
<td>Your school library facilities are of high quality</td>
<td>28</td>
<td>2.57</td>
<td>1.425</td>
</tr>
<tr>
<td>Your school library facilities are effectively utilized</td>
<td>28</td>
<td>3.11</td>
<td>1.133</td>
</tr>
<tr>
<td>Your school has a high book-student ratio in most subjects</td>
<td>26</td>
<td>2.65</td>
<td>1.294</td>
</tr>
<tr>
<td>Your school has adequate science laboratory facilities</td>
<td>28</td>
<td>2.57</td>
<td>1.345</td>
</tr>
</tbody>
</table>
Your school science laboratories facilities are adequate  
Laboratory facilities are effectively utilized  
Your school has sufficient functional computers  
Your school has computer literate teachers  
The school adequate ICT facilities  
Operating systems in your school are updated to cope with changing technology  
Your school has adequate classrooms and manageable class size  
Has adequate furniture for teachers and students that make the environment conducive for learning

Table 4.5 Tangible Resources Continued

<table>
<thead>
<tr>
<th>Resource Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your school has adequate land for future expansion</td>
<td>28</td>
<td>3.43</td>
<td>1.200</td>
</tr>
<tr>
<td>Your school has adequate boarding facilities that accommodate the rising number of students</td>
<td>28</td>
<td>1.86</td>
<td>1.044</td>
</tr>
<tr>
<td>Your school has reliable supply of clean water</td>
<td>28</td>
<td>2.50</td>
<td>1.262</td>
</tr>
<tr>
<td>Your school has sufficient, sanitation facilities that enhance high levels of hygiene</td>
<td>28</td>
<td>3.07</td>
<td>1.152</td>
</tr>
<tr>
<td>Your school has reliable supply of electricity</td>
<td>28</td>
<td>3.61</td>
<td>1.286</td>
</tr>
<tr>
<td>Your school has adequate teaching and non teaching staff</td>
<td>28</td>
<td>3.07</td>
<td>1.152</td>
</tr>
<tr>
<td>Your school has adequate competent games teachers</td>
<td>28</td>
<td>3.56</td>
<td>1.121</td>
</tr>
<tr>
<td>Your school has variety of sports and entertainment facilities</td>
<td>28</td>
<td>3.14</td>
<td>1.177</td>
</tr>
<tr>
<td>Your school has many students who are talented in sports</td>
<td>27</td>
<td>3.18</td>
<td>1.056</td>
</tr>
<tr>
<td>Your school has sufficient funds that support its development projects</td>
<td>28</td>
<td>2.04</td>
<td>1.036</td>
</tr>
<tr>
<td>Your school management can source for external funds to support its development projects</td>
<td>28</td>
<td>2.39</td>
<td>.875</td>
</tr>
<tr>
<td>Fee collection is reliable and efficient in your school</td>
<td>28</td>
<td>1.93</td>
<td>.716</td>
</tr>
<tr>
<td>Your school has the capacity to borrow and service loans and debts</td>
<td>28</td>
<td>1.89</td>
<td>.832</td>
</tr>
<tr>
<td>Your school has internal income generating projects that boost its financial strength</td>
<td>27</td>
<td>1.71</td>
<td>1.117</td>
</tr>
</tbody>
</table>

Source: Self devised from Data gathered during this study

According to the findings, 20 out of the 30 physical resource attributes had mean scores of 2.5 to 3.5 representing average levels, 7 were rated 1 to 2.5 representing below average levels while only 3 resource attributes had mean scores of 3.60 to 5.0. Supply of electricity was rated 3.61 indicating that most secondary schools had access to electricity. This is a
clear indication that most secondary schools in Bondo had average levels of physical resources while some few were well endowed with certain physical resources. The study revealed that physical resources were far from adequate in most schools investigated and that available scarce resources were overstretched to meet the growing demand.

4.3.2 Status of Intangible Resources

This part required respondents to rate intangible resources possessed by the school based on quality and how effectively they were utilized. Intangible resources captured included human resources, culture and organizational structure of the school, reputation, access to information and knowledge sharing, change readiness. A scale of 1 to 5 was used with strongly disagree ranging from a mean of 1.0 to 2.4 representing below average levels, somewhat agree rated 2.5 to 2.35 represented average resource level, agree and strongly agree rated 3.6 to 5.0 represented above average levels. Results were as shown in table 4.6.

<table>
<thead>
<tr>
<th>Table 4.6 Status of Intangible Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Your school has competent and effective leadership and management</td>
</tr>
<tr>
<td>Your school management has the capacity to match strategic objectives with resource strengths</td>
</tr>
<tr>
<td>Your school management is updated changing trends in resource supplies.</td>
</tr>
<tr>
<td>Your school has a reputation of effective and efficient management</td>
</tr>
<tr>
<td>Your school has adequate qualified teachers and staff</td>
</tr>
<tr>
<td>Your school has experienced teachers</td>
</tr>
<tr>
<td>Your school has creative teachers and staff capable of finding solutions to problems they face</td>
</tr>
<tr>
<td>The school has motivated team staff</td>
</tr>
<tr>
<td>Your school management and staff are committed to transparency and accountability in the use of school funds</td>
</tr>
</tbody>
</table>
Table 4.6: Intangible Resources Continued

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your school has reliable suppliers of school resources</td>
<td>28</td>
<td>3.46</td>
<td>1.036</td>
</tr>
<tr>
<td>Your school management can coordinate and effectively work with</td>
<td>28</td>
<td>4.14</td>
<td>.591</td>
</tr>
<tr>
<td>teams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your school is reputable for award winning</td>
<td>27</td>
<td>3.48</td>
<td>1.156</td>
</tr>
<tr>
<td>Your school has deeply entrenched culture of hard work</td>
<td>28</td>
<td>3.57</td>
<td>.920</td>
</tr>
<tr>
<td>Your school has a reputation of quality performance</td>
<td>26</td>
<td>3.38</td>
<td>1.023</td>
</tr>
<tr>
<td>Your school management has the ability to attract and retain</td>
<td>28</td>
<td>3.57</td>
<td>.959</td>
</tr>
<tr>
<td>qualified, teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The size of your school enhances cost efficiency</td>
<td>28</td>
<td>3.14</td>
<td>1.145</td>
</tr>
<tr>
<td>Staff in your staff participates in capacity building workshops</td>
<td>28</td>
<td>4.14</td>
<td>.651</td>
</tr>
<tr>
<td>Your school staff partners with other schools</td>
<td>28</td>
<td>4.32</td>
<td>.476</td>
</tr>
<tr>
<td>Your school management and staff bench marks</td>
<td>28</td>
<td>3.82</td>
<td>.945</td>
</tr>
<tr>
<td>performance with high performing schools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating systems used in your school are updated to adapt</td>
<td>28</td>
<td>3.37</td>
<td>1.079</td>
</tr>
<tr>
<td>to changing technology</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Valid N (listwise) 25

Source: Self devised from Data gathered during this study

According to the findings, 14 out of 19 intangible resource attributes were rated agree and strongly agree with mean score of 3.60 to 5.0 indicating above average levels, 5 attributes were rated somewhat agree and agree, with mean score of 2.5 to 3.5 showing average levels and no single attribute fell below average. The implication is that most schools on Bondo had strong intangibles that they could use to enhance exploitation of the scarce tangible resources at their disposal to improve performance.
4.4 School Performance

This section presents findings of this study in relation to performance of public secondary schools in Bond district during the period 2009-2010. The first part shows findings on growth trends in physical facilities, general infrastructure and student enrolment, as well as performance trend in KCSE mean scores. The second part shows the results of multiple and hierarchical regression analysis indicating the effect of tangible and intangible resources school performance as measured against achievement in KCSE, achievement of targets, competitiveness, achievement in co-curriculum activities and growth in enrolment and infrastructure. This was done in order to determine the link between existing resource levels and performance standards in the district.

4.4.1 Performance Trends in the District in the Period 2009-2012

This section required respondents to indicate their school performance trends in the past three years from 2009-2011 in various areas. This information was necessary to establish if there was any effort made to enhance resource levels in response to growing student enrolment. Responses were as follows: percentage increase in students population was estimated at 34.51% on average, percentage increase in quality grades recorded during the period was 34.63% percentage increase in the number of students joining universities stood at 33%, increase in laboratory facilities was 32.16%, number of new class rooms constructed was 2.46, number of new dormitories constructed was 0.38, new staff houses constructed were 1.04, additional sanitation facilities put up during the period were 4.11 on average.
4.4.2 Growth in Student Enrolment per School Category 2009-2011

This data was captured to establish growth trend in student enrolment per school category in Bondo district in the period 2009-2012. This information was necessary to help determine the rate of growth in student population and the extent to which schools were able to adjust their resource levels to cope with the rising numbers. Results were as shown in table 4.7.

Table 4.7 Growth Trend in Student Enrolment per School Category 2009-2012

<table>
<thead>
<tr>
<th>Period</th>
<th>District Level</th>
<th>Provincial Level</th>
<th>National Level</th>
<th>No. of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4432</td>
<td>3462</td>
<td>1609</td>
<td>29</td>
</tr>
<tr>
<td>2011</td>
<td>3822</td>
<td>2971</td>
<td>1456</td>
<td>28</td>
</tr>
<tr>
<td>2010</td>
<td>3444</td>
<td>2766</td>
<td>1374</td>
<td>25</td>
</tr>
<tr>
<td>2009</td>
<td>2291</td>
<td>2455</td>
<td>1043</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Research data gathered from the field

This finding reveals that despite consistent growth in student population experienced by most secondary schools in Bondo district in the past three years, physical facilities were not effectively adjusted to cope with the rising student population. District schools experienced the highest rate of growth due to the up coming new schools started during the period yet they are the most poorly resourced. It is obvious that currently available resources were over stretched beyond capacity and therefore needed an agent attention from all stakeholders involved to avoid compromising results.

Figure 4.1: Student population Growth Trend per School Category 2009-2012

This graph was meant to illustrate growth trend in student enrolment per school category in Bondo district in the period 2009-2012.
According to this graph, there was an upward trend in student enrollment in public secondary schools in Bondo district in the period 2009-2011.

4.4.3 School Performance Trend in KCSE in the District 2009-2011

This part captured data on performance trend in public secondary schools in Bondo in national examination in the period 2009 to 2011. This information was important in comparing performance levels in KCSE with resource levels possessed by the schools in the various schools. Grading in KCSE is based on Grade E lowest that is equivalent to one point and Grade A which is equivalent to twelve points as the highest. Accumulated points for each grade are summed up and the totals divided by the numbers of candidates who sat for the exam to arrive at school mean score. The higher the grade the higher the points and the more the quality grades the higher the school mean score. The district mean score represents averages for all schools in the district. According to KCSE results analysis data derived from the district education office Bondo, the national school remained at the top and improved consistently, some provincial schools in the district maintained above average performance while most district schools recorded fluctuating performance scoring mean scores of 5.00 and below.
Findings of this study indicated a general upward trend in the district mean score recorded at 6.12, 6.45 and 6.64 in the year 2009, 2010 and 2011 respectively.

Figure 4.2: Trend in KCSE District Mean Score 2009(yr1) 2010(yr2) and 2011(yr3)

Self devised from secondary data on KCSE Results analysis got from D QASO office Bondo District.

Findings of this study have indicated an upward trend in the district KCSE mean score in the last three years which implies that schools improved in performance irrespective of the rising student population amidst scarcity of teaching and learning resources. The question of resource shortage in terms of teachers and physical facilities need to be addressed urgently to save education quality in the district.

4.4.4 Tangible resources and School performance

This section presents findings of this study on the effect of various tangible and intangible resource variables on school performance in KCSE, achievement in co-curriculum activities, effectiveness in meeting set targets, competitiveness, growth in enrolment and physical infrastructure. Given the many variables used in this study, multiple and hierarchical regression analysis were used to raise indices for independent and dependent variables for predictor resource variables and indicators of performance.

Regression equation used was: \( (Y_1, ..., Y_5) = a + ((X_1, ..., X_7 + X_8, ..., X_e)). \)
Regression analysis involved regressing tangible resource variables and each of the five school performance dimensions. Intangible resource variables and each school performance dimension. Finally, all combined tangible and intangible resource variable were regressed with school performance. Regression analysis was used to show the level of effect of each set of each set of resource categories on each performance dimension. Regression results were shown in terms of standardized coefficient (Beta), R, F-value, and significance value. The higher the Beta and R value, the higher the effect of the predictor resource variable on the school performance. Positive Beta means positive effect, while negative Beta reflected negative impact on school performance. Results of regression analysis were as follows:

<table>
<thead>
<tr>
<th>Table 4.8 Tangible Resources and Achievement in KCSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible Resources</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>Library facilities</td>
</tr>
<tr>
<td>Science laboratory facilities</td>
</tr>
<tr>
<td>ICT facilities</td>
</tr>
<tr>
<td>Teaching facilities</td>
</tr>
</tbody>
</table>
Table 4.8 shows the results of regression analysis on the effect of tangible resources on school achievement in KCSE. According to the results, only library facilities and teaching and learning facilities showed positive statistical effect on school performance in KCSE, Beta=.746 and .442 respectively, P < 0.05. Science laboratory, financial resources indicated negative statistical significant effect at p < .05. Tangible resources accounted for adjusted R = .807, at F value= 15.794 with a significance level of p < 0.05 of school performance in KCSE. Library and Teaching and learning facilities were therefore more crucial to school performance in KCSE.

Table 4.9: Tangible Resources and Achievement of Targets

<table>
<thead>
<tr>
<th>Tangible Resources</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>28</td>
<td>3.944</td>
<td>.401</td>
<td>.000</td>
<td></td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Library facilities</td>
<td>28</td>
<td>2.46</td>
<td>-.230</td>
<td>.088</td>
<td>-.384</td>
<td>-2.610</td>
<td>.011</td>
</tr>
<tr>
<td>Science lab.facilities</td>
<td>28</td>
<td>2.68</td>
<td>-.162</td>
<td>.093</td>
<td>-.227</td>
<td>-1.739</td>
<td>.087</td>
</tr>
<tr>
<td>ICT facilities</td>
<td>28</td>
<td>2.53</td>
<td>.082</td>
<td>.113</td>
<td>.107</td>
<td>.730</td>
<td>.468</td>
</tr>
<tr>
<td>Teaching facilities</td>
<td>28</td>
<td>3.11</td>
<td>.190</td>
<td>.106</td>
<td>.243</td>
<td>1.791</td>
<td>.078</td>
</tr>
<tr>
<td>General infrastructure</td>
<td>28</td>
<td>2.75</td>
<td>.030</td>
<td>.075</td>
<td>.047</td>
<td>.396</td>
<td>.693</td>
</tr>
<tr>
<td>Co curriculum facilities</td>
<td>28</td>
<td>2.78</td>
<td>.302</td>
<td>.107</td>
<td>.332</td>
<td>2.816</td>
<td>.007</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field.
Dependent Variable: Achievement of targets

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.486</td>
<td>0.236</td>
<td>0.148</td>
<td>0.468</td>
<td>4.292</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field

Table 4.9 shows findings of on the effect of tangible resources on achievement of targets in secondary in Bondo. Three of the resource variables indicated positive statistical effect on achievement of targets based on beta value as follows; co-curriculum facilities (Beta=.332), Teaching and learning facilities (Beta=.243) and ICT facilities (Beta=.107). However, only co-curriculum facilities showed statistical significant effect p < 0.05 Tangible resources contribute with adjusted R =.486 or 48.6% of Achievement of school targets, F value = 4.292 and level of significance P <0.05. This means that resources co-curriculum facilities were crucial for schools to achieve their targets in sports. However, tangible resources by themselves were not directly linked to achievement of school targets.

Table 4.10 Tangible Resources and Competitiveness

<table>
<thead>
<tr>
<th>Tangible Resources</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>28</td>
<td>2.806</td>
<td>0.491</td>
<td>5.71</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library facilities</td>
<td>28</td>
<td>2.46</td>
<td>-0.127</td>
<td>0.108</td>
<td>-0.178</td>
<td>-1.177</td>
<td>0.244</td>
</tr>
<tr>
<td>Science laboratory facilities</td>
<td>28</td>
<td>2.68</td>
<td>0.182</td>
<td>0.114</td>
<td>0.214</td>
<td>1.593</td>
<td>0.116</td>
</tr>
<tr>
<td>ICT facilities</td>
<td>28</td>
<td>2.53</td>
<td>0.007</td>
<td>0.138</td>
<td>0.007</td>
<td>0.049</td>
<td>0.961</td>
</tr>
<tr>
<td>Teaching facilities</td>
<td>28</td>
<td>3.11</td>
<td>0.417</td>
<td>0.13</td>
<td>0.448</td>
<td>3.214</td>
<td>0.002</td>
</tr>
<tr>
<td>General infrastructure</td>
<td>28</td>
<td>2.75</td>
<td>-0.007</td>
<td>0.092</td>
<td>0.01</td>
<td>-0.078</td>
<td>0.938</td>
</tr>
<tr>
<td>Co curriculum facilities</td>
<td>28</td>
<td>2.78</td>
<td>0.112</td>
<td>0.131</td>
<td>-0.277</td>
<td>0.852</td>
<td>0.398</td>
</tr>
<tr>
<td>Financial resources</td>
<td>28</td>
<td>2.31</td>
<td>-0.286</td>
<td>0.146</td>
<td>-1.952</td>
<td>0.055</td>
<td></td>
</tr>
</tbody>
</table>

Dependent Variable: Competitiveness
Table 4.10 presents findings on the effect of tangible resources on school competitive position. Teaching and learning facilities indicated statistical positive effect (Beta=.448), science laboratory facilities showed positive Beta=.214 on school competitive position. However, only teaching and learning and financial resources indicated statistical significant effect on school competitive position at P value < 0.05. Tangible resources contributed for R value=.539 or 53.9% of school competitive position at F value =2.691, Level of significance p = 0.05 This implies that teaching and learning, science laboratory and financial resources were important for schools to be competitive.

Table 4.11 Tangible Resources and Growth in Student Enrolment and infrastructure

<table>
<thead>
<tr>
<th>Tangible Resources</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td>4.699</td>
<td>.322</td>
<td>14.592</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Library facilities</td>
<td>28</td>
<td>2.46</td>
<td>.084</td>
<td>.071</td>
<td>.183</td>
<td>1.183</td>
<td>.241</td>
</tr>
<tr>
<td>Science laboratory facilities</td>
<td>28</td>
<td>2.68</td>
<td>-.283</td>
<td>.075</td>
<td>-.519</td>
<td>-3.779</td>
<td>.000</td>
</tr>
<tr>
<td>ICT facilities</td>
<td>28</td>
<td>2.53</td>
<td>-.083</td>
<td>.090</td>
<td>-.142</td>
<td>-.923</td>
<td>.360</td>
</tr>
<tr>
<td>Teaching facilities</td>
<td>28</td>
<td>3.11</td>
<td>.084</td>
<td>.085</td>
<td>.141</td>
<td>.990</td>
<td>.326</td>
</tr>
<tr>
<td>General infrastructure</td>
<td>28</td>
<td>2.75</td>
<td>-.045</td>
<td>.060</td>
<td>-.094</td>
<td>-.749</td>
<td>.457</td>
</tr>
<tr>
<td>Co curriculum facilities</td>
<td>28</td>
<td>2.78</td>
<td>-.037</td>
<td>.086</td>
<td>-.053</td>
<td>-.426</td>
<td>.671</td>
</tr>
<tr>
<td>Financial resources</td>
<td>28</td>
<td>2.31</td>
<td>.116</td>
<td>.096</td>
<td>.175</td>
<td>1.211</td>
<td>.231</td>
</tr>
</tbody>
</table>

Dependent Variable: Growth in physical infrastructure

Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.511*</td>
<td>.261</td>
<td>.176</td>
<td>.394</td>
<td>3.568</td>
<td>.003</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field
Source of table 4.11: Regression analysis results got using research data from the field.

Results presented on table 4.11 show the findings on the effect of tangible resource variables on growth in enrolment and infrastructure. Only library facilities and teaching, learning facilities and financial resources indicated positive effect on growth in enrolment and infrastructure based on adjusted positive Beta-.183 and .141 and .175 respectively. However, only science laboratory facilities indicated statistical significant negative effect on growth in enrolment and physical infrastructure. Tangible resources accounted for R value = .511 or 51.1% of school growth in enrolment and physical infrastructure, with F value = 3.568, level of significance p < 0.05. This may imply that while schools were making effort to acquire teaching and learning materials while very little emphasis to expand science laboratory facilities which impacted negatively on growth. Financial resources were also necessary for schools to develop physical facilities and grow.

Table 4.12 Tangible Resources and Achievement in Co-curriculum Activities

<table>
<thead>
<tr>
<th>Model 6</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>28</td>
<td>3.635</td>
<td>.382</td>
<td>9.505</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library facilities</td>
<td>28</td>
<td>2.46</td>
<td>.096</td>
<td>.084</td>
<td>.179</td>
<td>1.140</td>
<td>.259</td>
</tr>
<tr>
<td>Science lab. facilities</td>
<td>28</td>
<td>2.68</td>
<td>-.273</td>
<td>.089</td>
<td>-.429</td>
<td>3.073</td>
<td>.003</td>
</tr>
<tr>
<td>ICT facilities</td>
<td>28</td>
<td>2.53</td>
<td>-.106</td>
<td>.107</td>
<td>-.155</td>
<td>-992</td>
<td>.325</td>
</tr>
<tr>
<td>Teaching facilities</td>
<td>28</td>
<td>3.11</td>
<td>.278</td>
<td>.101</td>
<td>.398</td>
<td>2.751</td>
<td>.008</td>
</tr>
<tr>
<td>General infrastructure</td>
<td>28</td>
<td>2.75</td>
<td>-.063</td>
<td>.072</td>
<td>-.112</td>
<td>-877</td>
<td>.384</td>
</tr>
<tr>
<td>Co curriculum facilities</td>
<td>28</td>
<td>2.78</td>
<td>.059</td>
<td>.102</td>
<td>.073</td>
<td>.579</td>
<td>.565</td>
</tr>
<tr>
<td>Financial resources</td>
<td>28</td>
<td>2.31</td>
<td>.075</td>
<td>.114</td>
<td>.097</td>
<td>.657</td>
<td>.514</td>
</tr>
</tbody>
</table>

Dependent Variable: Achievement in co - curriculum activities

Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.486</td>
<td>.236</td>
<td>.148</td>
<td>.468</td>
<td>3.396</td>
<td>.004</td>
</tr>
</tbody>
</table>

46
Source of table 4.12: Regression analysis results got using research data from the field.

Table 4.12 shows findings of regression analysis on the effect of tangible resources on achievement in co-curriculum activities. Only teaching and learning facilities indicated statistical significant positive effect on achievement in co-curriculum activities. Science laboratory facilities indicated statistical significant negative effect at level of significance $p < 0.05$ each. As can be observed in table 4.12, teaching and learning facilities showed positive Beta=.398, co-curriculum facilities .073. Tangible resources contributed $R$ value of .486 or 48.6% of school achievement in co-curriculum activities, $F$ value = 3.396 and level of significance $p < 0.05$. This implies that achievement in co-curriculum activities depended more on access to teaching and learning and practical material

4.4.5 Intangible Resources and School Performance

Table 4.13 Intangible Resources and Achievement in KCSE

<table>
<thead>
<tr>
<th>Model 6</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>27</td>
<td>25.461</td>
<td>7.809</td>
<td></td>
<td></td>
<td>3.260</td>
<td>.002</td>
</tr>
<tr>
<td>Human resources</td>
<td>27</td>
<td>4.36</td>
<td>-1.318</td>
<td>2.390</td>
<td>-.075</td>
<td>-.552</td>
<td>.584</td>
</tr>
<tr>
<td>Culture and structure</td>
<td>27</td>
<td>3.86</td>
<td>-1.261</td>
<td>1.104</td>
<td>-.136</td>
<td>-1.142</td>
<td>.258</td>
</tr>
<tr>
<td>Reputation</td>
<td>27</td>
<td>3.89</td>
<td>.809</td>
<td>1.545</td>
<td>.065</td>
<td>.524</td>
<td>.602</td>
</tr>
<tr>
<td>Access to Information</td>
<td>27</td>
<td>4.25</td>
<td>-2.188</td>
<td>1.351</td>
<td>-.207</td>
<td>-1.620</td>
<td>.111</td>
</tr>
<tr>
<td>Change readiness</td>
<td>27</td>
<td>4.21</td>
<td>1.391</td>
<td>1.214</td>
<td>.126</td>
<td>1.146</td>
<td>.257</td>
</tr>
</tbody>
</table>

Dependent variable: Achievement in KCSE

Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std Error of Estimate</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.818</td>
<td>.670</td>
<td>.603</td>
<td>5.0437</td>
<td>15.797</td>
<td>.000</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field

Table 4.13 presents findings of regression analysis on the effect of intangible resource variables on achievement in KCSE. Only reputation and change readiness have indicated
statistical positive effect on achievement in KCSE with positive Beta=.065 and .126 respectively. No intangible resource variable indicated statistical significant effect on achievement in KCSE. Intangible resources contributed R value of .603 which is 60.3% of achievement in KCSE, F value = 15.797 and level of significance p < 0.05. This means that as much as intangible resources were closely linked to school achievement in KCSE, individual resource attributes added minimal value when used separately.

### 4.14 Intangible Resources and Achievement of School targets

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Constant)</strong></td>
<td></td>
<td>2.905</td>
<td>.614</td>
<td></td>
<td></td>
<td>4.733</td>
<td>.000</td>
</tr>
<tr>
<td>Human resources</td>
<td>28</td>
<td>4.36</td>
<td>.295</td>
<td>.205</td>
<td>.256</td>
<td>1.433</td>
<td>.157</td>
</tr>
<tr>
<td>Culture and structure</td>
<td>28</td>
<td>3.86</td>
<td>-.080</td>
<td>.098</td>
<td>-.121</td>
<td>- .823</td>
<td>.414</td>
</tr>
<tr>
<td>Reputation</td>
<td>28</td>
<td>3.89</td>
<td>-.040</td>
<td>.146</td>
<td>-.046</td>
<td>-.276</td>
<td>.783</td>
</tr>
<tr>
<td>Access to information</td>
<td>28</td>
<td>4.25</td>
<td>.090</td>
<td>.125</td>
<td>.120</td>
<td>.715</td>
<td>.478</td>
</tr>
<tr>
<td>Change readiness</td>
<td>28</td>
<td>4.21</td>
<td>.088</td>
<td>.115</td>
<td>.124</td>
<td>.767</td>
<td>.446</td>
</tr>
</tbody>
</table>

Dependent variable: Achievement of School targets

<table>
<thead>
<tr>
<th>R</th>
<th>R. Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.611</td>
<td>.374</td>
<td>.253</td>
<td>.491</td>
<td>4.29</td>
<td>.001</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field.

Table 4.14 presents findings of regression analysis on the effect of intangible resources on achievement of school targets. Results have revealed that human resources showed statistical positive effect with standardized Beta=.256, access to information Beta=.120, and change readiness Beta=.124. However no intangible resource variable indicated statistical significant effect on achievement of school targets at p < 0.05. Intangible resource variables accounted for R value of .611 or 61.1% in achievement of school
targets, with F value of 4.29, level of significance p < 0.05. This implies that intangible resources had high correlation with achievement of school targets.

Table 4.15 Intangible Resources and School Competitiveness

<table>
<thead>
<tr>
<th>Intangible Resources</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>28</td>
<td>4.36</td>
<td>-.592</td>
<td>.158</td>
<td>-.576</td>
<td>3.752</td>
<td>.000</td>
</tr>
<tr>
<td>Human resources</td>
<td>28</td>
<td>3.86</td>
<td>-.064</td>
<td>.112</td>
<td>-.081</td>
<td>-.573</td>
<td>.569</td>
</tr>
<tr>
<td>Culture and structure</td>
<td>28</td>
<td>4.25</td>
<td>.178</td>
<td>.096</td>
<td>.267</td>
<td>1.855</td>
<td>.069</td>
</tr>
<tr>
<td>Reputation</td>
<td>28</td>
<td>4.21</td>
<td>.318</td>
<td>.088</td>
<td>.501</td>
<td>3.606</td>
<td>.001</td>
</tr>
<tr>
<td>Access to information and knowledge sharing</td>
<td>28</td>
<td>3.89</td>
<td>.293</td>
<td>.075</td>
<td>.493</td>
<td>3.919</td>
<td>.000</td>
</tr>
<tr>
<td>Change readiness</td>
<td>28</td>
<td>3.61</td>
<td>.471</td>
<td>7.666</td>
<td>000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Independent Variable: Competitiveness

Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.733a</td>
<td>.538</td>
<td>.448</td>
<td>.377</td>
<td>6.022</td>
<td>.000</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field.

Table 4.15 presents findings of regression analysis on the effect of intangible resource variables on the competitiveness of the schools investigated. Human resources and reputation showed negative statistical significant effect Beta = -576, organizational culture and structure and change readiness indicated statistical significant positive effect Beta=.493. Beta=.267 and Beta=.501 respectively. However, it is human resources, change readiness and organizational culture and structure that indicated statistical significant effect at a level of significance p <0.05. Intangible resources contributed .733 or 73.3% of school competitiveness with F value = 6.022 at a level of significance p < 0.05. Change readiness, organizational culture and structure and human resources were important to school competitive position and thus confirm what literature says Resources about the role of intangible resources on performance.
Table 4.16 Intangible Resources and Growth in Enrolment and Physical Infrastructure

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td>5.026</td>
<td>-.198</td>
<td>.138</td>
<td>-.225</td>
<td>2.146</td>
<td>000</td>
</tr>
<tr>
<td>Human resources</td>
<td>28</td>
<td>4.36</td>
<td>-.198</td>
<td>.138</td>
<td>-.225</td>
<td>-1.429</td>
<td>.159</td>
</tr>
<tr>
<td>Culture and structure</td>
<td>28</td>
<td>3.86</td>
<td>-.123</td>
<td>.066</td>
<td>-.242</td>
<td>-1.876</td>
<td>.066</td>
</tr>
<tr>
<td>Reputation</td>
<td>28</td>
<td>3.89</td>
<td>.412</td>
<td>.098</td>
<td>.611</td>
<td>4.192</td>
<td>.000</td>
</tr>
<tr>
<td>Access to information</td>
<td>28</td>
<td>4.25</td>
<td>.340</td>
<td>.084</td>
<td>.595</td>
<td>4.030</td>
<td>.000</td>
</tr>
<tr>
<td>Change readiness</td>
<td>28</td>
<td>4.21</td>
<td>-.116</td>
<td>.077</td>
<td>-.213</td>
<td>-1.497</td>
<td>.140</td>
</tr>
</tbody>
</table>

Dependent variable: Growth in Physical infrastructure
Model summary

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.717*</td>
<td>.513</td>
<td>.419</td>
<td>.331</td>
<td>5.467</td>
<td>000</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field.

Table 4.16 presents results of regression analysis on the effect of intangible resource variables on school growth in enrolment and infrastructure. Reputation and access to information showed strong positive effect $\beta = .611$ and $\beta = .595$ respectively at a statistical significance level $p < 0.05$. Human resources, organizational culture and structure and change readiness showed statistical negative effect on growth at a statistical significance level of $p < 0.05$. Intangible resources accounted for $R$ value of .717 or 71.7% school achievement in growth in enrolment and physical infrastructure, with $F$ value = 5.467 at a level of significance $p < 0.05$. Reputation and access to information were therefore crucial for schools to achieve growth thus supporting empirical findings. Reputable schools with high access to information were able to attract students and suppliers of school resource and grow faster than those with low reputation and limited access to information.
Table 4.17 Intangible Resources and Achievement in Co-curriculum Activities

<table>
<thead>
<tr>
<th>Intangible Resources</th>
<th>N</th>
<th>Mean</th>
<th>Unstdzd Beta</th>
<th>Std. Error</th>
<th>Stdzd Beta</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td>3.991</td>
<td>.432</td>
<td></td>
<td></td>
<td>9.245</td>
<td>000</td>
</tr>
<tr>
<td>Human resources</td>
<td>28</td>
<td>4.36</td>
<td>.196</td>
<td>.144</td>
<td>.253</td>
<td>1.356</td>
<td>.181</td>
</tr>
<tr>
<td>Culture and structure</td>
<td>28</td>
<td>3.68</td>
<td>.039</td>
<td>.069</td>
<td>.087</td>
<td>.568</td>
<td>.572</td>
</tr>
<tr>
<td>Reputation</td>
<td>28</td>
<td>43.89</td>
<td>-.053</td>
<td>.102</td>
<td>-.089</td>
<td>-.513</td>
<td>.610</td>
</tr>
<tr>
<td>Access to information</td>
<td>28</td>
<td>4.25</td>
<td>.008</td>
<td>.088</td>
<td>.015</td>
<td>.086</td>
<td>.932</td>
</tr>
<tr>
<td>Change readiness</td>
<td>28</td>
<td>4.21</td>
<td>-.083</td>
<td>.081</td>
<td>-.173</td>
<td>-1.023</td>
<td>.311</td>
</tr>
</tbody>
</table>

Dependent variable: Achievement in co-curriculum activities

Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.562*</td>
<td>.316</td>
<td>.184</td>
<td>.345</td>
<td>2.393</td>
<td>.016</td>
</tr>
</tbody>
</table>

Source: Regression analysis results got using research data from the field.

Table 4.17 shows findings on the effect of intangible resources on achievement in co-curriculum activities. Human resources, organizational culture and structure indicated, and change readiness indicated statistical positive effect as reflected in positive Beta=.253, .087 and .015 respectively. Reputation and change readiness showed negative effect. However, none of the intangible resources showed statistical significant effect at p < 0.5. Intangible resources accounted for an R value of .562 or 56.2% of school achievement in co-curriculum activities, F value = 2.293 at a significance level of p < 0.05. This implies that success in co-curriculum activities was determined by both access and use of co-curriculum facilities and access to information that depend more on the nature of human resources possessed by the schools.
4.5 Tangible and Intangible Resources and School Performance

In order to determine the effect of tangible and intangible resources on school performance, multiple and hierarchical regression analysis was used to raise indices for both tangible and intangible resources and performance indicators. Tangible and intangible resource variables were then regressed with each performance measure to determine the level of effect of each resource category on school performance and when different resource categories were combined.

Regression equation used was school performance (Y)

\[ Y = f(\text{tangible and intangible resources}) = a + (X_1 + X_7 + X_8 + X_9) \]

Refer tables showing the effect of combined tangible and intangible resources on each school performance dimension in Appendix V. Findings of regression analysis appeared interesting. First of all, when tangible and intangible resources were combined, more resource variables indicated positive effect on the various performance measures. Number of resource variables indicating statistical significance at \( p < 0.05 \) also increased.

In the combined regression model, R value also varied across different resource categories, indicating varying levels of effect of individual resource attribute on each performance dimension. Tangible and intangible resources and KCSE indicated the highest R value of 84.9%, \( F = 11.625 \), level of significance \( p < 0.05 \), on achievement of school targets, \( R^2 = 0.618 \) or 61.8%, combined resource categories and competitiveness showed \( R^2 = 0.735 \) or 73.5%, growth in enrolment and physical infrastructure indicated \( R^2 = 0.733 \) or 73.3% and on co-curriculum activities, the resource combinations indicated adjusted R value of 0.657 or 65.7%, \( F = 3.541 \), statistical
significance level of \( p < 0.05 \). Refer appendix V on results of regression analysis of tangible and intangible resources and school performance in co-curriculum activities. This implied that tangible and intangible resource variables became more productive when combined than when they are used on their own. For instance library, teaching and learning resources, financial, co-curriculum facilities showed higher statistical positive effect when combined with intangible resources.

4.6 Discussion

This study examined the influence of tangible and intangible resources on the performance of public secondary schools in Bondo district. The Resource-Based-View model that focuses on firm level resources as the basis for competitive advantage and superior performance was applied in analyzing the effect of resources on school performance (Penrose, 1959, Grant, 2002, Barney, 2007). Taking resource heterogeneity approach, the basic assumption used in this study was that schools vary in resource levels in terms of quality and quantity and how they are used and that such difference could explain why some schools outperform others. According to the respondents, public secondary schools in Bondo district varied in resource level and how they use their resources. This is consistent with RBV literature when Penrose (1959) describe organizations as bundle of productive resources that are heterogeneous. The recognition that secondary schools vary in resource endowment terms of quality, quantity and how they are used, to a larger extent explains why some schools consistently perform better than others of the same category in the district.
Results of this study on status of resources revealed big gaps in resource levels between national, provincial and district schools. It was found that national and provincial schools that had above average levels of physical facilities, financial and qualified staff also performed better than, district schools that had average levels while some few schools lacked even the basic facilities needed to achieve at least an average outcome. This was contrary to views of (Johnson, Scholes and Whittington, 2008) who argued that threshold level resources are necessary for an organization to meet at least its minimum objectives. It came out clearly that better resourced schools performed higher than those with low resource level. This finding was in line with current RBV literature. Every school therefore needs specific level of physical, financial and human resources to be able to successfully achieve its target objectives.

Results of regression analysis on the effect of tangible and intangible resources on each performance measure revealed mixed results. When tangible resources were regressed with each performance dimension Library and teaching learning resources indicated strong statistical significant positive effect on achievement in KCSE, achievement of targets and competitiveness. Co-curriculum and ICT facilities also indicated positive effect on achievement of targets. This implies that success in co-curriculum activities depended on availability of games facilities; hence schools with more games facilities would perform better than others in sports. Tangible resources contributed up-to R value of 80.7 % in achievement in KCSE in the separate model and 84.9% in the combined model and therefore can be considered crucial for improving school performance. This implies that schools needed specific types of tangible resources to facilitate teaching and learning. According to Twan et al (2007) organizations needed specific tangible resources
to achieve their objectives. Science laboratory facilities and teaching and learning facilities showed statistical significant positive effect on school competitive position. Specific resource variables indicated positive effect on different performance dimensions in the separate regression models. For instance only reputation and change readiness had positive effect on school achievement in KCSE. This implies that schools with high reputation were able to perform better in KCSE since they could attract students and suppliers of school resources.

According to Huang and Provan (2007) organizations with favorable reputation are able to build and sustain superior performance over a long period of time. Human resources, access to information, and change readiness showed statistical positive effect on achievement of school targets. This was expected because the nature of human resources determined effectiveness in the use of other sets of resources to generate value. At the same time access to information showed positive effect it enhanced learning of new ideas on how to do things better while ability to anticipate change enabled schools to adjust their resource levels to achieve their targets. This confirmed that not all resources were relevant to strategic objectives; Barney (2007) advantage creating resources are those that are strategically relevant hence the need for school managers to identify specific resources that would best support objectives pursued for schools to improve performance.

Organizational culture and structure indicated statistical positive effect on more than one model. This finding was consistent with literature where it is argued that organizations needed appropriate structures and culture of hard work to enhance effective deployment and use of resources to achieve competitive advantage (Hitt, Hoskisson and Ireland, 2006). Human resources in terms of qualification of employees and management
competence indicated statistical positive effect on competitiveness. According to Teece, Pisano & Suen (2009) organization culture, reputation, access to information and management skills could be real sources of competitive advantage in organizations. Hence secondary schools with this resource attributes tend to perform better than others.

The number of resource variables indicating positive effect on each performance dimension also increased in some of regression models when the two sets of predictor variables were combined. The regression model on the effect of tangible and intangible resources on achievement in KCSE, library facilities, and teaching and learning resources still indicated strong effect. However teaching and learning resources indicated stronger effect, which could be due to enhanced use. Reputation and change readiness also showed statistical positive effect on achievement in KCSE in the combined. This implies that tangible and intangible resources were more productive when combined. The findings were consistent with literature where it is argued that intangible resources should be exploited to maximize the value of tangible resources. Findings reported by Twan et al (2009) indicated that organizational performance dimensions were affected by different sets of resource combinations. Secondary schools must therefore identify the best combination of resources that can generate the best outcome if they are to perform highly.

In the combined regression model on the effect of tangible and intangible resources on school competitive position more intangible resources indicated statistical significant effect when compared to tangible resource. Organizational culture and structure and change readiness indicated strongest effect on competitiveness in the combined model. This means schools with appropriate strictures and are able to anticipate change tend to
perform better than others which lack effective strictures duet to enhanced exploitation of available resources. According Teece, Pisano, Suen (2009) strategically relevant resources must be adjusted continuously to cope with change if their level of productivity is to be sustained. Hence secondary schools that consistently renew there structures and strategic resources are able to sustain superior performance and stay ahead of others.

This is agreement with the agreement with RBV literature when it is argued that organizations need to exploit intangible resource variables to maximize the value of tangible resources Tishler (2004). To be successful achieving superior outcome, school managers must be able to analyze and identify the best combination of resources that support their objectives and adopt appropriate strategies that allow for effective use. Based on these findings, schools with more resources will temporarily outperform others that are less endowed but effective use of selected tangible resources and ability to exploit intangible attributes would pave way for sustainable superior outcome.
CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a brief summary of the study, conclusions and proposed recommendations based on the influence of tangible and intangible resources on the performance of public secondary schools in Bondo District.

5.2 Summary of the Findings

The main purpose of this study was to establish the influence of tangible and intangible resources on the performance of public secondary schools in Bondo. School performance was measured based on achievement in KCSE and co-curriculum activities, performance improvement, and effectiveness in meeting targets, competitiveness, and growth in enrolment / infrastructure. The study was built upon on the RBV theoretical perspective of strategy that focuses on firm level resources as sources of superior performance in organizations. This study found the RBV theoretical model to be the most appropriate in analyzing school performance especially when resources are scarce since it is a strategic stretch model that emphasizes optimal use of currently available resource to maximize benefits for the firm. The findings of the status of resources in the district revealed marked variation in resources endowment across schools in terms of quality and quantity of physical facilities, financial resources qualified staff and how they were used. These differences to a large extent explained why some schools performed better than others of the same category. Some schools with similar resource levels also registered different performance levels implying that they varied in how they used resources at their disposal.
According to results of regression analysis particular resources attributes indicated stronger effect on performance dimension as compared to others and each performance dimension was affected by different sets of resource variables. Tangible resource attributes that showed strong effect on achievement in KCSE were library, and teaching and intangible resource attributes such as reputation and change readiness. Achievement of targets depended more on sciences laboratory, ICT, teaching and learning, co-curriculum facilities, human resources, access to information and change readiness. School competitive position depended mostly on teaching and learning facilities, organizational culture and structure, access to information and change readiness. Growth on enrolment and physical infrastructure was influenced by library facilities, reputation, and access to information. Achievement in sports depended more on amount and quality of co-curriculum facilities, students with talents in sports, commitment of games teachers and effective use described as facilities. Physical facilities attributes showed the greatest positive effect on almost all performance dimensions.

When both tangible and intangible resources were combined, more resources variables indicated statistical positive effect on the various performance dimensions. This implies that both resource categories were more productive when combined than when they are used separately hence the need for schools to exploit both tangible and intangible resources to improve their performance. It is worth pointing out that tangible resource variables showed the greatest effect on school performance followed by human resource attributes that showed positive effect to almost all performance dimensions.
Finally, this study revealed huge disparities in resource endowment in terms of quantity and quality across public schools at national provincial and district levels. Schools also varied significantly how they used resources at their disposal. This study also indicated that some few schools that had higher resource levels were able to maintain above average performance in KCSE during the period 2009-2011. While district schools experienced rapid growth in enrolment over the period 2009-2011, growth in physical facilities was minimal. Findings of this study proved that schools that were endowed with high levels of both tangible and intangible resources tended to perform better than others that were less endowed.

5.3 Conclusion

This study investigated the influence of tangible (library, science laboratory, ICT, teaching and learning facilities, general infrastructure, co-curriculum and financial resources) and intangible resources (human resources, culture and structure, reputation, access to information, and change readiness) on the performance of public secondary schools in Bondo district. Performance measures used were achievement in KCSE, achievement of targets, competitiveness, growth in enrolment and physical infrastructure, and achievement in co-curriculum activities. Resource-Based-View theoretical concepts were used to provide a better understanding of the influence of tangible and intangible resources on performance at secondary school level.

Several tangible and intangible resources indicated statistical positive effect on the various performance dimensions in the regression analysis models. Tangible resources that showed positive effect included teaching and learning facilities, library, ICT, co-
curriculum facilities and intangible attributes such as; organizational culture and structure, reputation, change readiness, access to information. Human resources indicated positive effect on competitiveness and on several other performance measures when tangible and intangible resources were combined. The effect of resources on school performance therefore depends on both access and use. For it is not possible for students and staff to make use of resources they do not have and currently available resources cannot add value if they are not put into productive use.

Results of the current status of resources revealed huge disparities in distribution of physical facilities, human and financial resources across national, provincial and district schools. Generally schools that had higher levels of physical facilities, financial resources and qualified staff tended to perform better than others that were less endowed. Based on these findings, differences in resource endowment explain to a greater extent why some schools consistently performed exemplarily well while others lagged behind. Where schools with similar resources levels performed differently it can be concluded that they varied significantly in how they used their resources. According to results of this study, both tangible and intangible resources are important determinants of performance at secondary schools level.

As much as numerous tangible and intangible resource attributes indicated positive effect on school performance, the level of effect varied widely. Certain resource attributes showed stronger effect on school performance than others while some few indicated negative effect. Some resources that indicated negative effect on KCSE outcome in the combined model included science laboratory facilities, ICT, financial, human, and access to information. Therefore teaching and learning facilities, library, co curriculum facilities,
organizational culture and structure, access to information and change readiness that showed strong effect are considered crucial to school performance. At the same time each performance dimension was influenced by particular sets of both tangible and intangible resource attributes. On this basis school managers must be able to identify the best combination of resources that support their strategic objectives for each performance dimension to help maximize on the use of available scarce resources to improve performance.

As much as tangible resources indicated the greatest effect on school performance, each school needed specific levels of physical facilities, human and financial resources to achieve strategic objectives. At the same time appropriate structures and intangible resource attributes were necessary to enhance effective use of available resources for schools to achieve value added outcome. It is possession and productive use of valuable resources that are relevant to strategic objectives that accounts for school performance. However, management ability to identify school based critical resources is crucial for above average performance to be realized. In the face of scarce resources, the match between strategic objectives and resource strength becomes crucial if schools are to improve performance. This implies that even schools with meager resources can add value through effective use of available scarce resources.

Finally this study concludes that the performance of public secondary schools in Bondo will increasingly depend on the possession of both tangible and intangible resources which must reach threshold levels and how effectively they are utilized to add value. To achieve long-term success, school managers must continuously adjust their school based
strategic resources to cope with changing trends if superior performance is to be sustained.

5.4 Recommendations for Policy and Practice

Some of the key policy issues identified by this study included resource shortage, disparity in resource endowment across schools at all levels and limited use of ICT facilities among other areas not mentioned. Findings of this study revealed that most schools that registered below to average results faced shortage of certain resources which were crucial to school performance. Public secondary schools in Bondo need specific levels of physical facilities to achieve their target goals. However, some schools lacked adequate teaching and learning, library and science laboratory facilities, yet tangible resources indicated the highest correlation with school performance dimensions. This study recommends to education policy makers to ensure that schools are served with adequate basic facilities that are crucial to school performance if schools are to perform well. Providing adequate physical facilities and addressing disparities in resource endowment across schools will be an appropriate strategy towards improving performance in the district.

Findings of this study revealed limited use of ICT facilities in most secondary schools in Bondo in information processing. ICT facilities were rated below average by most respondents and also indicated low positive effect on some performance dimensions such as competitiveness and achievement of targets and negative effect in some of the regression analysis models. Yet access to information and change readiness that depended on ICT indicated strong positive effect on a number of performance measures.
Public secondary schools in Bondo need to fully adopt and implement the use of ICT to strengthen their competitive position and cope with change. For this to be realized education policy makers need to design a workable policy framework on how secondary schools can be served with adequate computers /ICT facilities to enhance access to information if they are to become more competitive and adaptive to change.

According to findings of this study specific tangible and intangible resource variables showed higher statistical significant positive or negative effect on each dimension than others and were therefore considered more productive. Examples of such resources included, teaching and learning, library, co-curriculum facilities, science laboratory to mention but a few and intangible attribute such organizational culture and structure, reputation, access to information and change readiness. Managers of public secondary schools in Bondo district are therefore advised on the need to identify acquire and maintain key resources that are critical to their strategic objectives to be able to achieve value added performance.

Resources are only productive if they are put into effective use to provide services of value to stakeholders. According to results of regression analysis in chapter four more tangible and intangible resource variables indicated statistical significant relationship with various school performance dimensions in the combined model. Managers of public secondary schools in Bondo are hereby advised on the need to identify the best combination of resources that they could prioritize and also ensure appropriate structures are put in place to enhance effective use of available scarce resources if their impact is to be felt on school performance. School managers are also sensitized on the need to
formulate strategic objectives that match their school resources strength for value added outcome is to be realized.

In the combined model in chapter four, more tangible and intangible resources indicated statistical significant effect on school performance dimensions and the level of effect of resource variables also increased as indicated by higher R value. This implied that tangible and intangible resources were more productive when combined. For instance human resources were crucial in developing structures that enhancing effective use of physical facilities and other intangible resources. This study therefore recommends to managers of public secondary schools in Bondo to ensure both tangible and intangible resources at their disposal are effectively exploited to help improve school performance.

Results of regression analysis in chapter four revealed that different performance dimension was affected by different sets of resource variables. This supported the use of the balanced scorecard in this study as a comprehensive way of measuring performance at secondary school level. Secondary schools cannot exploit their full potential if they look at performance in terms of KCSE outcome and ignore other crucial performance dimensions such as growth, competitive position, and achievement of set targets and out of class activities that need to be measured on an ongoing basis. School managers are therefore advised to adopt the balance scorecard as tool for tracking performance if they are to excel in various performance dimensions.

5.5 Limitations of this Study

One area of concern to be pointed out in this study was that posed by the lack of adequate documented empirical evidence on the application of RBT strategic theoretical model in
relating resources and performance at secondary school level. This study therefore used empirical evidence from business and non-profit organizations that have been explored much so far, which may not have provided clear picture on the extent to which resources can translate to performance at school level.

One limitation encountered in the field during data collection was caused by one of the respondents who declined to provide feedback after several attempts were made by the researcher. This reduced response rate to 97%, with 28 schools included in the analysis instead of 29. The response rate was however still high enough to provide reliable data. However, since target population comprised of 28 public secondary schools in Bondo district, with only the principals as respondents, findings of this study need to be applied in other contexts with caution.

Another challenge was how to determine an appropriate measure for the numerous tangible and intangible resource variables used in this study. Multiple and Hierarchical regression analyses were used in this study to determine the effect of tangible and intangible resources on the various school performance dimensions. As much as multiple and hierarchical regression analyses have been used by many researchers, this method only provide estimated level of effect of resources variables on organizational performance.

5.6 Suggestions for Further Research

This study established that there was limited documented literature on empirical evidence relating resources and school performance since this area seemed not to have been explored much by earlier researchers. RBV as a strategic stretch model is highly
applicable in enhancing productive use of resources in secondary schools especially when resources are scarce. This study recommends increased use of RBV model by future researchers to help enhance the understanding of role of resources on education quality in various institutions of learning in Kenya. This will also help provide additional empirical evidence to support future research in this important area.

This study observed that it was important to consider contextual factors before applying findings of this study to educational institutions in different contexts due to disparities in resource levels which might have affected the findings. The study recommends a further research to explore ways in which the prevalent inequality in resource deployment and distribution across secondary schools can be resolved to enable schools compete fairly.

A further research study could also explore the best combination of resources that could be used to maximize performance and possibly the context in which strategic resources are used and the likely implications on school performance.

A future research may also explore new ways of measuring intangible resource variables as well as more accurate ways of determining the effect of individual resource variables of school performance especially when variables are many. As much as earlier researchers have used multiple and hierarchical regression analysis, this method only give estimated level of effect which may not be very accurate.
REFERENCES


APPENDICES

Appendix I: Questionnaire

This questionnaire is designed to gather information concerning the influence of tangible and intangible resources on the performance of public secondary schools in Bondo District.

Part One: School Bio-Data

1) Please indicate the name of your school _____________________________

2) Kindly indicate the year when your school was started ________________

3) Kindly indicate student population of your school during the years;
   1. 2009 [ ] 2010 [ ] 2011 [ ] 2012 [ ]

4) May you kindly indicate the number of streams per class in your school:
   a) Form one [ ]
   b) Form two [ ]
   c) Form three [ ]
   d) Form four [ ]

5) Please indicate the category of your school according classifications given below.
   a) District level, single/ mixed gender [ ]
   b) Provincial, single/ mixed gender [ ]
   c) National level, single/ mixed gender [ ]

Part Two: Information on the Current Status of Tangible Resources in Your School

6) How many none teaching staff do you have in your school?[ ]

7) How many teachers in total do you have in your school?[ ]

   Please indicate the category of teachers in your school according to the following classifications.

   Master Degree [ ]
   ii) Bachelor’s +P.G.D.E [ ]

   iv) Bachelor’s Degree [ ]
   v) Diploma [ ]
   vi) Any other [ ]
d) Please indicate the number of teachers in your school employed by the following:

i) Teachers’ Service Commission [__]  
ii) School Board of Governors [__]

e) What is the recommended number of teachers for your school according to Curriculum Based Establishment (C.B.E)? [__]

f) Kindly indicate an estimated percentage total fee collection in a year in your school [__]

g) What is the estimated percentage yearly fee default in your school? [__]

h) Kindly indicate the estimated outstanding debt for your school in a year [__]

i) What is the current book-student ratio in core subjects in your school?[__]

**TABLE 1**: What is the current status of tangible resources in your school in terms of quality and level of adequacy? Please indicate by ticking your most appropriate choice from the rating scale provided.


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<td>Your school libraries have adequate textbooks and reference materials</td>
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<td>Your school library facilities are adequate and of high quality</td>
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<td>Your school library facilities are effectively utilized</td>
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<td>Your school has a high book -student ratio</td>
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<td><strong>Science Laboratory Facilities</strong></td>
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<td>Your school has adequate science practical equipments</td>
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<td>Your school science laboratories facilities are adequate</td>
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<td>Your school has qualified laboratory technicians</td>
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<td>Science laboratories facilities in your school are effectively utilized</td>
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<td>Your school has adequate functional computers</td>
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<td>Most teachers in your school are computer literate</td>
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<td>Your school has adequate ICT operating systems</td>
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<td>Information processing systems in your school are updated to cope with changing technology</td>
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<td>Your school has adequate teaching and learning facilities of reputable quality</td>
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<td>Your school has adequate classrooms and manageable class size that enhance interactive learning process</td>
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<td>Your school has adequate furniture for teachers and students that make the</td>
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environment conducive for learning
Your school has sufficient teaching and non-teaching staff with manageable workload

**General infrastructure**
The school has adequate accommodation facilities for teachers
Your school has adequate boarding facilities
The school has reliable supply of clean water
Your school has sufficient, well maintained sanitation facilities
Your school has reliable supply of electricity
Your school has adequate land for future expansion

**Co curriculum Facilities**
Your school has adequate, competent games teachers
Your school has adequate sports and entertainment facilities of high quality
Your school has many students who are talented in sports
Co curriculum facilities in your school are effectively utilized by teachers and students

**Financial Resources**
Your school has access to sufficient funds that support its development projects
Your school management has a high ability to source for external funds
Fee collection is reliable and effective in your school
Your school has the capacity to borrow and service loans and debts
Your school has internal income generating projects that boost its financial strength

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**Part Three: Information Status of Intangible Resources**

**TABLE 2:** 8. What is the current status of intangible resources in your school in terms of quality and level of effectiveness? Use the rating scale 1-5 provided.


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<td>Your school has competent and effective leadership and management</td>
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<td>Your school management can match strategic objectives resource strengths</td>
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<td>Your school has highly qualified teachers and support staff</td>
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<td>Most teaching and non teaching staff in your school are experienced</td>
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<td>Your school has creative teachers and staff capable of finding solutions to problems they face</td>
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73
| **Your school has shared vision and values that drive performance** |
| **The school has self motivated teams of teaching and non teaching staff who work with minimal supervision** |
| **Your school management and staff are committed to transparency and accountability in the use of school funds** |
| **Your school has deeply entrenched culture of hard work** |
| **Your school management and leadership have the capacity to coordinate and effectively work with teams** |

**Reputation**

- Your school is well known for award winning in examinations and sports
- Your school has reliable suppliers of school resources
- Your school has a reputation of quality performance
- Your school management has the ability to attract and retain qualified, teaching and support staff
- The size of your school enhances cost efficiency through scale economies

**Access to Information and Knowledge Sharing**

- Staff in your school participates in capacity building workshops
- Your school staff partners with other schools in setting and marking exams
- Your school management and staff benchmarks performance

**Change Readiness**

- Operating systems used in your school are updated to adapt to changing technology
- Your school management is well informed of changes in the external environment that affect current and future trends in resource supplies

---

**Part Four: Information on School Performance**

9. Kindly indicate your school performance trend in the past three years from the year 2009-2011 in the listed areas:

a) The approximate percentage increase in student population______________
b) Percentage increase in the number of quality grades for the stated period______________
c) Percentage increase in the number of students joining universities______________
d) Approximate percentage increase in laboratory equipments______________
e) Percentage increase in text books for teaching and learning______________
f) Indicate the number of new classrooms initiated and completed within this time period______________
g) Number of new dormitories constructed during this period______________
h) Number of new staff houses constructed in your school in this time period

i) Number of additional toilets/ washrooms constructed during the period

Table 3:10. What is the possible influence of tangible resources on your school performance?

Use the rating scale 1-5 provided to indicate your level of agreement with listed statements


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<th>4</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
</table>
Achievement in sports and willingness of students to participate in sporting activities

Table 4: 11. What is in your opinion is the possible influence of intangible resources on your school performance? Use the rating scale 1-5 provided to show your level of agreement with listed statements.


| Effectiveness of teaching and learning and adequate teaching and learning materials | 1 | 2 | 3 | 4 | 5 |
| Ability to perform better than competing and quality of teachers and students | 1 | 2 | 3 | 4 | 5 |
| The ability of your school to compete for scarce resources and management awareness of changing trends in resources supply conditions | 1 | 2 | 3 | 4 | 5 |
| Number of quality grades achieved and students’ previous achievement at enrolment | 1 | 2 | 3 | 4 | 5 |
| Achievement of above average performance and commitment of staff | 1 | 2 | 3 | 4 | 5 |

**Competitiveness**

Partnering with other schools in joint exams and school competitive position
Bench marking performance and value added outcome
Ability to compete and productive use of available resources
Your school’s competitive position and reputation of high quality performance
Achievement of target objectives and management ability to coordinate and work with teams towards desired goals
Achievement of cost efficiency and size of your school
Effectiveness of your school in meeting targets and commitment of teaching and non teaching staff to hard work
Effectiveness and efficiency of your school’s operating updating to cope with changing technology
### Appendix II: List of Public Secondary Schools in Bondo District According to Bondo District Quality Assurance and Standards Officer as at 31 January 2012

<table>
<thead>
<tr>
<th>LIST OF SCHOOLS</th>
<th>CATEGORY</th>
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<tbody>
<tr>
<td>1. Maranda Boys Boarding Secondary School</td>
<td>National</td>
</tr>
<tr>
<td>2. Usenge Boys Boarding Secondary School</td>
<td>Provincial</td>
</tr>
<tr>
<td>5. Nyangoma Boys Boarding</td>
<td>Provincial</td>
</tr>
<tr>
<td>6. Majiwa Boys Day and Boarding</td>
<td>Provincial</td>
</tr>
<tr>
<td>7. Bar Kanyango Boys Boarding</td>
<td>Provincial</td>
</tr>
<tr>
<td>8. Got Agulu Boys Boarding</td>
<td>District</td>
</tr>
<tr>
<td>9. Got Abiero Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>10. JoakimOwang Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>11. Kapiyo Day</td>
<td>District</td>
</tr>
<tr>
<td>12. Uyawi Mixed Day and Boarding</td>
<td>District</td>
</tr>
<tr>
<td>13. Barkowino Mixed Boarding and Day</td>
<td>District</td>
</tr>
<tr>
<td>14. Got Matar Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>15. Wambasa Girls’ Boarding</td>
<td>District</td>
</tr>
<tr>
<td>16. Majengo Mixed Day and Boarding</td>
<td>District</td>
</tr>
<tr>
<td>17. Nyaguda Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>18. Jusa Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>19. JaramogiOdinga Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>20. Ndira Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>21. Gobei Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>22. ST. Paul’s Mitiro Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>23. Akoko Mixed Day and Boarding</td>
<td>District</td>
</tr>
<tr>
<td>24. Barchando Girls’ Boarding</td>
<td>District</td>
</tr>
<tr>
<td>25. Father Ouderaa Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>26. Bondo Township Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>27. Mbeka Girls’ Day</td>
<td>District</td>
</tr>
<tr>
<td>28. Aguara Mixed Day</td>
<td>District</td>
</tr>
<tr>
<td>29. Maranyona Mixed Day</td>
<td>District</td>
</tr>
</tbody>
</table>
Appendix III: Letter of Authorization from the University of Nairobi

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
MBA PROGRAM – LOWER KABETE CAMPUS

Date: 2nd June 2012

TO WHOM IT MAY CONCERN

The bearer of this letter Akinyi Jenipher Adero

REGISTRATION NO: D61/60585/2010

The above named student is in the Master of Business Administration degree program. As part of requirements for the course, she is requesting to carry out a study on The influence of tangible and intangible resources on the performance of public secondary schools in Bondo district, Kisumu.

She has identified your organization for that purpose. This is to kindly request your assistance to enable her complete the study.

The exercise is strictly for academic purposes and a copy of the final paper will be availed to your organization on request.

Your assistance will be greatly appreciated.

Thanking you in advance.

Sincerely,

MR. ALEX JALEHA
COORDINATOR, SOB, KISUMU CAMPUS
UNIVERSITY OF NAIROBI

CO-ORDINATOR

ISO 9001: 2008 Certified
Through the D.E.O's Office

P.O BOX 580, BONDO

Dear Respondent

RE: The Influence of Tangible and Intangible Resources on the Performance of Public Secondary Schools in Bondo District

I am a post graduate student at the University of Nairobi currently pursuing a Masters Degree in Business Administration, with strategic management as my area of specialization. As part of the requirements of the stated program, I am currying out a strategic management research on the above stated topic. It is my hope that the study will add value to education by establishing how best schools could use available scarce resources to improve performance.

The purpose of this letter is to kindly request for your responses to the questionnaire items as honestly as possible and to the best of your knowledge.

I would wish to assure my respondents that information given will primarily be for this study purpose and will be treated as confidential. YOU NEED NOT TO IDENTIFY YOUR INSTITUTION.

Thanks in advance for your anticipated positive contribution.

Yours faithfully,

Akinyi Jenipher Adero
APPENDIX V: Regression analysis Results on Tangible and Intangible Resources and School Performance

Model Summary

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.849*</td>
<td>.721</td>
<td>.659</td>
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</table>

a. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Library facilities, Reputation, Human resources, Access to information and knowledge sharing, Computer laboratory/ICT facilities

ANOVA*

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>1 Residual</td>
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a. Dependent Variable: Achievement in KSCE

b. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Library facilities, Reputation, Human resources, Access to information and knowledge sharing, Computer laboratory/ICT facilities

Coefficients*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
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</thead>
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<tr>
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<td>B</td>
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<td>Beta</td>
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<td>Science laboratory facilities</td>
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<tr>
<td>Computer laboratory/ICT facilities</td>
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<tr>
<td>1 Teaching facilities</td>
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<td>General infrastructure</td>
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<td>Co curriculum facilities</td>
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<td>-.770</td>
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<td>Financial resources</td>
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<td>2.221</td>
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<td>Culture and structure</td>
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<td>-.054</td>
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<td>Reputation</td>
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<td>1.460</td>
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<td>1.162</td>
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<td>1.270</td>
<td>-2.69</td>
<td>-2.239</td>
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<td>Change readiness</td>
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<td>1.137</td>
<td>.081</td>
<td>.791</td>
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a. Dependent Variable: Achievement in KSCE

Model Summary

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<td>.381</td>
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a. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

ANOVAT

<table>
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<th>Model</th>
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a. Dependent Variable: Achievement of targets
b. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

Coefficients*T

<table>
<thead>
<tr>
<th>Model</th>
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<th>Standardized Coefficients</th>
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<td>Science laboratory facilities</td>
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<td>Computer laboratory/ICT facilities</td>
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<td>.117</td>
<td>.102</td>
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<td>Teaching facilities</td>
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<td>.085</td>
<td>.008</td>
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<td>Co curriculum facilities</td>
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<td>.139</td>
<td>.201</td>
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<td>Financial resources</td>
<td>-.115</td>
<td>.136</td>
<td>-.133</td>
<td>-8.45</td>
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81
| Human resources | .264 | .209 | .230 | 1.263 | .212 |
| Culture and structure | -0.052 | .104 | -0.078 | -0.501 | .619 |
| Reputation | -0.010 | .150 | -0.011 | -0.064 | .949 |
| Access to information and knowledge sharing | .065 | .129 | .087 | .503 | .617 |
| Change readiness | .070 | .117 | .098 | .596 | .554 |

a. Dependent Variable: Achievement of targets

**Model Summary**

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a. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

**ANOVA***

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a. Dependent Variable: competitiveness
b. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

**Coefficients***

<table>
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<tr>
<th>Model</th>
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<td>Teaching facilities</td>
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82
### Model Summary

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a. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

### ANOVA*

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</table>

a. Dependent Variable: Growth in physical infrastructure
b. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

### Coefficients*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
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<tr>
<td></td>
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<td></td>
</tr>
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a. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

### ANOVA

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a. Dependent Variable: Competitiveness
b. Predictors: (Constant), Change readiness, Culture and structure, Teaching facilities, General infrastructure, Co curriculum facilities, Financial resources, Science laboratory facilities, Computer laboratory/ICT facilities, Library facilities, Reputation, Access to information and knowledge sharing, Human resources

### Coefficients

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a. Dependent Variable: Co-curriculum activities