Effect of Project Control on Project Performance of Education Projects in Rwanda: A Case of SOMA Umenye Project

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ABSTRACT

The purpose of this study was to assess the effect of project control and project performance in education project. Despite the fact that the Rwanda Basic Education Board in partnership with United States Agency for International Development (USAID) has implemented the Soma Umenye Project through project control in terms of scheduling, financial resources, risk control and change control, its performance remains poor and critical. In conducting this research, four objectives were: to effect of project schedule control on Soma Umenye project performance, to examine the effect of project resources control on Soma Umenye project performance, and to analyze the effect of project change control on Soma Umenye project performance. To achieve these objectives, literature reviewed on the subject matter including definitions of key concepts, conceptual review, theoretical framework, conceptual framework and research gap analysis, moreover both planned theory and contingency theories were used. Descriptive research design was used and also the target population of the study was 169 employees of Rwanda Basic Education Board and all of them a sample size of 169 employees were selected by using stratified sampling technique. Questionnaire, interview guide and documentation were used as tools of data collection. Data was processed through editing, coding and tabulation and the data was also analyzed by using descriptive statistics. Findings indicated that that holding all the project control to a constant zero, project performance of Rwanda Basic Education Board (REB) will be 0.083 percent, a unit increase in the use of project schedule control would lead to reduction in project performance of Rwanda Basic Education Board by 3.4%, a one percent increase in the use of project resources control would lead to an increase the project performance of Rwanda Basic Education Board by 7.5%, a one percentage increase in the use of risk control would lead to 62.3% increase of project performance of Rwanda Basic Education Board and lastly a one percentage increase in the use of project change control would lead to 27.1% increase of project performance of Rwanda Basic Education Board. Overall, the project risk management control had the greatest effect on project performance at REB, followed by project change control, project resource control and lastly project schedule control. At 5% level of significance and 95% level of confidence, project resources control had 0.549 level of significance; project schedule control had a .327 level of significance, project risk control had a 0.000 level of significance finally project change control also had a 0.011 level of significance. The study concluded that there is a positive relationship between project controls on project performance of education projects in Rwanda, moreover the researcher in line with the findings and objectives of the study suggested that Rwanda Basic Education Board, as a public organ, may continuously establish checkpoints and milestones to review the project's progress, address key issues, and take corrective actions if necessary, to keep the project on track.

Keywords: Education Project, Project, Project Control, Project Performance, Rwanda Basic Education Board

I. INTRODUCTION

Project-based learning pedagogy was used to introduce the concepts of taxonomy to learners (Wekesa & Ongunya, 2016). It is a teaching technique that transforms learning from "teacher tells" to "students do", in which students are assigned tasks based on challenging questions or problems that involve problem solving, decision-making, sense-making, and inquiry. Students are encouraged to reflect; this includes teacher guidance but not instruction. Compared with other teaching methods, project-based learning has the following advantages: it engages learners, develops collaborative learning skills, improves academic performance, develops higher-order thinking skills, and builds positive relationships between students and teachers (Alamri et al., 2020).

To be successful in a project, a company must complete and deliver the project risk-free within the specified time frame, scope, and budget (Ika & Pinto, 2022). In the information technology industry, 75% of implemented projects were successfully completed with the support of project management information systems (Kostalova et al., 2018). Although the use of a project management information system (PMIS) does not guarantee project success, it has become a necessity for public and private companies, large and small, and contributes significantly to project success (Retnowardhani & Suroso, 2019). The four mega projects are Neom City, Silk City, King Abdullah Economic

City and Dubailand. However, the report also pointed out that Europe's $600 billion pan-European transportation network and China's $1 trillion "One Belt, One Road" initiative are also major infrastructure investments.

In the case of Rwanda, as in many other African developing countries, project monitoring in Rwanda is a major challenge (Karunaratne et al., 2018). Given the critical role of the education sector in addressing these challenges, efforts have been made at the policy and implementation levels to create a robust education system characterized by comprehensive educational benefits to citizens. Site visits, frequent meetings, mid-term evaluations and analysis of financial reports are indicators of project monitoring. Midterm reviews are evaluation reports written on a regular basis (such as monthly or bi-monthly) to determine the value of the work completed. A financial report is a report on a project, including payments received and costs of asset disposal. Project monitoring can be viewed in terms of the regularity or timing between these activities. Project monitoring is crucial as the government considers education in Rwanda to be critical to achieving sustainable economic growth and development (Giglio et al., 2018). In the Poverty Reduction Strategy Document, the government regards high-quality basic education for all as its top priority.

Rwanda Vision 2020 calls for universal adult literacy by 2020, with achievements based on monitoring of implementation to 2020 (Abbott et al., 2020). In 2002, the strategy of streamlining administration and delegating power transferred responsibilities such as policy formulation, national education planning, standard formulation, and monitoring and evaluation to the central government, while the responsibilities of policy implementation, school planning, and overall management were transferred to provinces (regions) and schools (De Dieu et al., 2022). While most project managers spend most of their time figuring out how to achieve project goals, most projects in Rwanda's education sector are not completed within the allotted time. The main challenges to this delay are human capital and financial resources (Berdugo et al., 2016). Most project managers focus their financial and time resources on dealing with immediate problems and therefore fail to anticipate and prepare for the next challenge.

1.1 Problem Statement

In July 2016, the United States Agency for International Development (USAID) and the Rwanda Basic Education Board launched the $72 million "Soma Umenye" ("Reading and Comprehension") campaign to improve reading performance in early grades by distributing teaching and learning materials (TLM) to improve classroom instruction and supervision, increase the use of assessment and correction, and strengthen systemic capabilities for lower grade reading instruction. Despite the fact that the Rwanda Basic Education Board in partnership with USAID has implemented the Soma Umenye Project through project control in terms of scheduling, financial resources, risk control and change control, its performance remains poor and critical. Obviously, the Soma Umenye Project was implemented everywhere in the country, both in rural and urban areas, to improve reading outcomes in Kinyarwanda for at least 1 million children in public and government-aided schools in Rwanda. Even now, Kinyarwanda as a mother tongue is still poorly spoken, and there are insufficient books for pupils and teachers in schools. In fact, the SOMA Umenye project was expected to make a big difference in spreading the good use of Kinyarwanda as a mother tongue.

According to Niyibizi (2020), as already highlighted in the previous review, this review found that schools do not have enough books for adequate learning and teaching. We found that students and teachers did not have books for certain subjects in primary school (e.g. Kinyarwanda for P5, English for P1, P6, S1 and Mathematics for S5). This was found in 16 schools in five (5) counties. Some subjects have books, but not enough, students share books at a ratio of 1:10 (10 students use 1 book) 1:176 (176 students use 1 book). These disadvantages are due to the Rwanda Basic Education Board (REB) not adequately planning to distribute enough textbooks to schools and not properly managing the textbooks that have been distributed. Unfavorable ratios result in poorer education for students. Ways to address this need to be explored, including partnerships with the private sector.

As Song et al. (2022) state that a school's project control must function as an appropriate process to ensure that all educational program requirements are met. This includes confirming that the project will be completed on time, within budget and to the required standard. There has been no study on the above statement before, and the focus of the research was to assess the effect of project control on project performance in educational projects in Rwanda. Therefore, the researcher filled this gap by assessing the effect of project control on project performance in educational projects in Rwanda with a reference to RDB as a case study.

1.2 Research Objective

The general purpose of this project was to assess the effect of project control on project performance of education projects in Rwanda, while specific objectives are:

i. To assess the effect of project schedule control on Soma Umenye project performance.

ii. To examine the effect of project resources control on Soma Umenye project performance.
iii. To analyze the effect of project change control on Soma Umenye project performance.

1.3 Research hypotheses

H_{01}: There is no significant effect of project schedule control on Soma Umenye project performance.
H_{02}: There is no significant effect of project resources control on Soma Umenye project performance.
H_{03}: There is no significant effect of project change control on Soma Umenye project performance.

II. LITERATURE REVIEW

2.1. Theoretical Framework

2.1.1. Planning Theory

Around 1900, civil engineering projects were often led by creative architects, engineers, and builders themselves, such as Vitruvius (1st century BC), Christopher Wren (1632-1723), Thomas T. Thomas Telford (1757-1834) and Isambard Kingdom Brunel. (1806 – 1859), companies began to systematically apply project management tools and techniques to complex engineering projects (Kabeyi, 2019). Management has evolved from a variety of application areas such as civil construction, engineering and heavy defense activities. Two pioneers of project management were Henri Gantt (the father of planning and control techniques) and Henri Fayol, who was famous for his use of Gantt charts (or reconciliation charts, first developed by Carol Adami Gantt chart is also known as project management tool. Known for creating the "five" management functions that form the basis of the body of knowledge related to project and program management. Gant and Fayol were both students of Frederick Winslow Taylor's scientific management theory. His work pioneered modern project management tools, including the work breakdown structure (WBS) and resource allocation (Haugan, 2010).

Hume is widely credited with drawing attention to the distinction of "should": "what is" does not necessarily lead to "what should be" (Fainstein, 2005). While its actual circumstances may impose constraints on what is possible, our human ability to think about possibilities and make decisions means that what it is and what it should be are linked through values. Whether recognized or not, the connection exists. If values are not explicitly applied, then they are implicit in the underlying cultural conditioning. The basic need for our lives and the place and purpose of our species dominates every system of thought we hold (Hudson et al., 1979).

We cannot conceptually exist without such a cosmology, yet many people are unaware of the values upon which their meaning structures are based. Recognizing this assessment context is critical to planning. Because of its future orientation, planning affects what will happen or what can happen. So, in a just society, the question must be asked of what it should be, recognizing the role of values and what it corresponds to the knowledge they possess - what should correspond to the actions that preceded it. Planning therefore involves a context: values. So, it has a normative aspect. These normative considerations must be incorporated into planning at both the theoretical and practical levels. Furthermore, viewing programs as “intervening variables” suggests the need to recognize the importance of multiple values (Grusec & Goodnow, 1994). It is therefore necessary to consider how these values are determined and how to deal with them. Planning is therefore in a sense a paradox: it is about understanding activities and dealing with them, and therefore it is descriptive. At the same time, however, it is actively concerned with shaping future states and is therefore prescriptive (Loorbach, 2010).

2.1.2 Contingency Theory

The Federer Contingency Theory, also known as the Federer Contingency Model or the Federer Leadership Theory, states that there is no single best leadership style (Souba, 2018). Instead, the leadership style that is most effective in a given situation is the leadership style specific to the situation at hand. The theory was proposed by Austrian psychologist Professor Fred Fiedler in the 1960s. He studied the character and traits of leaders and concluded that because leadership style is determined by a person's life experiences, changing leadership style is extremely difficult, if not impossible (Fiedler, 2015). Because of this, Federer believes that for each task, appropriate leaders must be selected according to their skills and the requirements of the situation. In order for managers to best adapt to their respective situations, each manager must first understand his or her natural leadership style. They then need to evaluate whether their leadership style is appropriate for the current situation. In short, Fiedler concluded that a leader's ability to succeed depends on two factors: natural leadership style and situational friendliness (Cronin & Genovese, 2015).

Contingency theory, a branch of systems theory that studies system design, emerged from the mid-1960s to the 1970s. In its heyday in the early 1980s Scott (1981) stated: "Contingency theory remains the 'dominant approach

to organizational design' and the most widely used contemporary theoretical approach in organizational research (Schreyögg, 1980). But Pfeffer (1997) states: “With some notable exceptions, structural contingency theory has virtually disappeared from the research and management literature.” However, in strategic management, a general axiom of contingency theory is that “no single strategy is universally superior” regardless of environmental or organizational context (Klaas et al., 2006).

The theory also begins with the writings of Hayes (1977) who attempted to reconcile the open and closed systems schools of thought. He draws attention to the environmental factors that influence firm behavior and makes some recommendations for the behavior of rational organizations. The point here is that rational organizations focus on "avoiding surprises." Depending on the type of environment, contingency theory is based on the general guiding assumption that optimal adaptation is achieved by organizations whose internal characteristics best match the requirements of the environment (Donaldson, 2006). The term was coined by Klemm (1984) who argued that the level of uncertainty and the rate of change in the environment influence the development of characteristics within an organization (rapid rates of change vs. a stable and calm environment). An important application of contingency theory is the long-standing recognition of the importance of adapting information processing to environmental diversity.

Zhao (1994) believes that contingency theory is a "close relative" of systems theory, which states that the effectiveness of action depends on the relationship between the action and other elements of the system, especially the relationship with the environment to which the system is connected. . The theory states that solutions are situational rather than absolute, and they may become inappropriate under different environmental conditions (Javed et al., 2020). Contingency theory, on the other hand, recognizes that there are too many variables that influence the structure of an organization; both external and internal to the organization. Fisher (1998) proposed that variability in the firm's environment refers to the existence of relatively difficult-to-predict changes involving significant differences from prior conditions and thus likely to generate some degree of uncertainty (Aprisma & Sudaryati, 2020).

2.2 Empirical Review

Pinto et al. (2012) identified ten project success themes in his analysis, seven of which were used in Pinto and Slevin's list. This suggests that their factors have been replicated in other studies and represent valid measures of project success. It also revealed gaps in their tools' ability to measure stakeholder benefits, customization/customer issues, and time/cost/quality in more detail. These gaps formed the interview questions along with Pinto and Slevin's (1987) instrument, which was used to develop an adaptive approach to examining perceptions of project success. This study presents the results of in-depth interviews that yielded responses suitable for measuring project success across multiple stakeholder groups. The results form the basis of a multi-stakeholder model, which helps solve problems by identifying and coordinating the perspectives of different stakeholders to ensure consensus among all stakeholder groups to ensure successful project delivery.

Turyahebwa et al. (2013) conducted a study to examine the relationship between financial management practices and business performance of small and medium enterprises in western Uganda to develop a coherent model for improving business performance and hypothesized that financial reporting would have an impact. The study used positivist (quantitative paradigm), cross-sectional and correlational designs. This study used a sample of 335 companies operating in Mbarara, Hima and Bushni and owned/managed by the research institution. The statistical model uses structural equation modeling and moment structure analysis. Results related to the main purpose of the study indicate that financial management practices account for 33.8% of the variance in business project performance. The results also show that working capital management has a significant impact and predicts a business performance variance of over 22%. This study supports a multi-theoretical approach to explaining business project performance in Uganda. This study supports the financing sequence theory that explains corporate financing and the resource-based perspective that helps explain corporate project performance. The study confirmed effective financial management practices and the factor structure of observed and latent variables.

Cheluget and Morogo (2017) assessed the factors affecting the budgeting process of small and medium-sized enterprises (enterprises) in the hospitality industry in Nairobi Central Business District (CBD). A descriptive research design was used. The target group includes 98,608 of all registered small businesses in the Nairobi City Central Business District. Stratified random sampling was used to select the sample. Demographic categories are based on the type of hotel business the company operates. 104 samples will be distributed to 526 hotel companies in the CBD. To measure the study variables, a semi-structured Likert scale questionnaire distributed to business managers ranging from 1 (strongly disagree) to 5 (strongly agree) was used. The data were analyzed using panel data analysis. The study found evidence that computerized accounting systems contribute more to the budgeting process than company size, employee commitment, management skills and power, and ownership structure.

III. METHODOLOGY

3.1 Research Design

The study employed a descriptive research design to present respondents' insights into how program control affects Soma Umenye's program performance at the Rwanda Basic Education Board as a public institution. Furthermore, this study considers the use of quantitative methods for statistical, mathematical or numerical analysis of data collected through surveys, questionnaires and interview guides.

3.2 Target Population

Study population was 169 employees of the Rwanda Education Board/Headquarter working within these departments: procurement and legal division, administration, planning division, internal audit division, finance division, strategic capacity development department, and finally finance division.

3.3 Sample Size and Technique

According to He et al. (2020), a census is the study of each unit, each or part of the population. What the researcher are talking about is full enumeration, that is, full count. Therefore, the researcher mainly used universal sampling technique by selecting all 169 employees from the Rwanda Basic Education Board because they have enough knowledge about the relationship between project control and Soma Umenye project performance.

Table 1

Study Population

Departments/Unit	**Employees of Rwanda Development Board**
Directorate General	4
Procurement	6
Internal Audit	4
Planning, Monitoring and Evaluation	9
Strategy and Compliance	19
Curriculum, Teaching & Learning Resources	31
Head of Teacher Development & Management and Career Guidance & Counseling Department	44
Corporate Services Division	15
Special Needs & Inclusive Education Unit	7
Capacity Building and Skills	14
Financial and Administration	16
Total	**169**

Therefore, employees of the Rwanda Basic Education Board (REB) are equal to 169, this means that they are less than 300, and therefore the researcher considered to use all of them, i.e. the census inquiry method.

3.4 Data Collection Instruments

The process of gathering and examining different types of data is encompassed by data collection techniques. These techniques typically involve reviewing relevant documents, conducting interviews, and making observations (Kielhofner & Coster, 2017). In this section, the researcher employed various tools such as questionnaires, interview guides, and documentation to collect data.

3.5 Data Analysis

The interpretation of collected data to uncover patterns, relationships, and trends is known as data analysis (Wickham & Wickham, 2016). Consequently, this research employed both qualitative and quantitative approaches to present the findings of participants using descriptive statistics such as the mean and standard deviation. Additionally, correlation analysis was utilized to evaluate the impact of project control on the performance of education projects in Rwanda. Furthermore, inferential statistics were employed to make projections about populations and test hypotheses in order to draw conclusions about said populations.

3.6 Data Presentation and Interpretation

This chapter covers data presentation, analysis, and interpretation of results according to research methods. The findings have been presented through the effect of project control on project performance of education projects in Rwanda: a case of Rwanda Basic Education Board. These findings are related to the following objectives of the study: the effect of project schedule control on Soma Umenye project performance, the effect of project resources control on Soma Umenye project performance, effect of project risk control on Soma Umenye project performance and finally the effect of project change control on Soma Umenye project performance. Additionally, these data were presented in the form of descriptive statistical tables, percentages, the mean, and the standard deviation for the data analysis process. In line with the study objectives and research questions, information was collected from 169 respondents of the Rwanda Basic Education Board. This chapter is organized by using the Statistical Package for the Social Sciences (SPSS) version 20 to analyze the information from the raw data.

IV. FINDINGS & DISCUSSIONS

4.1 Response Rate

Out of the 169 sampled, all 169 responded to the study. As a result, the response rate was thus 100%. This was considered sufficient for data analysis.

Table 2

Response Rate

Sampled	Responded	Response Rate (%)
169	169	100%

4.1.1 Demographic of Respondents

This section gave more details about the respondent's profile who participated in the study in terms of their age, gender, educational level, occupation, and time working within an organization. Table 3 reveals that the great percentage of 73 (43.2%) respondents belong to the age group of 31 - 40years; 42 (24.9%) respondents belong to the age group of 21 - 30years; and finally, 54 (31.9%) respondents belong to the age years group of 45 - 45 years. Therefore, findings imply that all categories of employees of Rwanda Basic Education Board in terms of age have participated in this study.

Table 3

Age of Respondents

Age	Frequency	Percent
From 21-30	42	24.9
From 31-40	73	43.2
From 41-50	54	31.9
Total	**169**	**100**

Table 4 indicates that 92 (54.4%) respondents were male while other 77 (45.6%) respondents were female. Therefore, both female and male employees currently working at Rwanda Basic Education Board have participated in this study however the gender inequality in respondents occurred at small rate where female are greater than male categories.

Table 4

Gender of Respondents

Gender	Frequency	Percent
Male	92	54.4
Female	77	45.6
Total	**169**	**100**

Table 5 indicates that majority of 106 (62.7%) respondents hold the bachelor's degree while the second categories of 63 (37.3%) respondents hold master's degree. Therefore, majority employees of Rwanda Basic

Education Board have been well accomplished their studies, moreover these employees build better culture that encourages creativity and innovation is a mission-critical strategy for forward movement and sustainability.

Table 5

Academic Qualification of Respondents

Education Level	Frequency	Percent
Bachelor's degree	106	62.7
Master's degree	63	37.3
Total	**169**	**100**

Table 6 refers to the classification of respondents according to the time that they have been working in Rwanda Basic Education Board, therefore majority of 76 (44.9%) respondents belong to less than 5-10 year's age group, the second number of 62 (36.7%) respondents belong to the year's age group of 5 to 10 years, and finally 31 (18.3%) respondents belong to the year's group of 10 years and above. Therefore, through the human capacity development policies at Rwanda Basic Education Board takes higher engagement levels that improve company culture and increase productivity, ultimately creating a positive impact on the organization's efficiency and effectiveness.

Table 6

Years of Experience

Experience	Frequency	Percent
1-5 years	62	36.7
5-10 years	76	44.9
10 years and above	31	18.3
Total	**169**	**100**

4.2 Findings Presentation Per Objectives

By using appropriate data analysis, interpretation, and presentation techniques, researchers can generate meaningful insights, understand research results, and effectively communicate research results.

Table 7

Relationship between Project Schedule Control and Soma Umenye Project Performance

Statements	Mean	Std. Dev.	Comments
Project schedule determines Soma Umenye project's timeline	4.05	0.225	Very strong homogeneity
REB's project schedule control always secures necessary approvals and also confirm the feasibility of its works	4.33	0.472	Weak heterogeneity
Project actions scheduling aligns REB's stakeholders' expectations and the project purpose	5	0	Very strong homogeneity
REB's project schedule informs stakeholders of the scope and objectives	4	0	Very strong homogeneity
With project schedule, REB monitors and controls the project's progress	4.14	0.344	Very strong homogeneity

N=169

Table 7 indicated that "REB's project schedule control always secures necessary approvals and also confirm the feasibility of its works " responded at very highest mean and the responses were homogeneous (mean= 4.33, SD= .472), and item 3 indicates that " Project actions scheduling aligns REB's stakeholders' expectations and the project purpose " responded at very highest mean and the responses were homogeneous (mean= 5.00 SD=0.000); moreover item 4 reveals that " REB's project schedule informs stakeholders of the scope and objectives " responded at very highest mean and the responses were homogeneous (mean= 4.00, SD= .000); despite item 5 indicated that " With project schedule, REB monitors and controls the project's progress " has lowest mean and responses were heterogeneous (mean= 4.14, SD= .344). Therefore, in project controlling, actual costs are captured and compiled in a format that allows comparison with the project budget. Cost control is required to keep records of funds spent in order to: Minimize spending; identify cost overruns (Calahorra-Jimenez et al., 2020). According to Blazewicz et al. (2019) the project schedule is used to communicate to all stakeholders when certain work elements and project events are expected to be accomplished. Furthermore, it is also the tool that links the project elements of work to the resources needed to accomplish that work.

Table 8

Relationship between Project Resources Control and Soma Umenye Project Performance

Statements	Mean	Std. Dev.	Comments
Project planning control helps REB to identify its goals clearly	4.71	0.481	Weak heterogeneity
Project resources management at REB mostly guarantees monitoring of the schedule and the budget at every stage	4.37	0.485	Very strong homogeneity
Project resources control ensures that REB keeps projects on time and on budget	4.57	0.615	Very strong heterogeneity
Project resources control ensures that all necessary resources, including staff, supplies, and equipment, are on hand and distributed wisely	5	0	Very strong homogeneity
Project resources control procedures aid REB in resource utilization optimization to reduce costs and increase project value	4.18	0.388	Very strong homogeneity

N=169

Table 8 revealed that "Project resources management at REB mostly guarantees monitoring of the schedule and the budget at every stage" responded at very highest mean and the responses were homogeneous (mean= 4.37, SD= .485); item 1 indicates that " Project planning control helps REB to identify its goals clearly " responded at very highest mean and the responses were homogeneous (mean= 4.71 SD=4.81); moreover item 4 reveals that " Project resources control ensures that all necessary resources, including staff, supplies, and equipment, are on hand and distributed wisely" responded at very highest mean and the responses were homogeneous (mean= 5.00, SD= .000); despite item 3 indicated that " Project resources control ensures that REB keeps projects on time and on budget " has strong mean and responses were heterogeneous (mean= 4.57, SD= .615). Therefore, project resources control always eliminates the danger of overbooking, avoiding unnecessary delays. In addition, project resources control allows managers use fewer resources more efficiently and makes project planning more transparent and helps avoid miscommunications. Project resources control ensures the availability of planned physical resources, monitoring them against the plan, and taking corrective actions when required (Dallasega et al., 2021). By doing this, the right resources are available to the project at the right time and place and released when no longer required, furthermore physical resources include materials, equipment, infrastructure, and facilities. Usage of project resources is tracked along with their expenditures, shortages, surpluses, their use, and release (Huang et al., 2020).

Table 9

Relationship between Project Change Control and Soma Umenye Project Performance

Statements	Mean	Std. Dev.	Comments
Project change control enhances REB's beneficiaries and stakeholders' satisfaction	4.15	0.423	Very strong homogeneity
Project change control always ensures better utilization of project resources and aids assets	5	0	Very strong homogeneity
Project change procedure enables REB's project team to account for any outstanding debt	4.82	0.383	Very strong homogeneity
Project change procedures enables REB to provide final payments to the team and resources	4.46	0.562	Strong heterogeneity
Project change control practices ensures that everybody involved has a good transition process	4.58	0.495	Very strong homogeneity

N=169

Table 9 indicated that "Project change control practices ensures that everybody involved has a good transition process " responded at very highest mean and the responses were homogeneous (mean= 4.58, SD= .495); item 1 indicates that "Project change control always ensures better utilization of project resources and aids assets" responded at very highest mean and the responses were homogeneous (mean= 5.00, SD= .000); item 1 reveals that " Project change control enhances REB's beneficiaries and stakeholders' satisfaction" responded at very highest mean and the responses were homogeneous (mean= 4.15, SD= .423); item 4 reveals that " Project change procedures enables REB to provide final payments to the team and resources " responded at very highest mean and the responses were heterogeneous (mean= 4.46, SD= .562); and finally despite item 4 indicated that " Project change procedures enables REB to provide final payments to the team and resources" has lowest mean and responses were heterogeneous (mean= 2.98, SD= .562). Therefore, change control helps project managers at Rwanda Basic Education Board make decisions about the project and its framework change requests. Also, using project controls in REB's project helps lay the groundwork for each project component. This also enables the project to meet its objectives, schedule requirements,

and budgetary considerations. Project controls help keep projects focused and connected to team members and the organization as a whole. Change management in project management is a combination of managing change and managing people (teams and stakeholders) to incorporate change (Stouten et al., 2018). It significantly impacts how motivated employees are and how teams perform. Through, project change control, manager may oversee the team members' work to ensure they successfully incorporate change into their practices and achieve the overall project objectives (Galli, 2018).

4.3 Regression Analysis

In statistical modeling, regression analysis is a set of statistical procedures used to estimate the relationship between a dependent variable and one or more independent variables.

Table 10

Correlations

Control Variables			Project schedule control	Project resources control	Project risk management control	Project change control
Time & Scope & Success	Project schedule control	Correlation	1	0.314	0.177	0.089
		Significance (2-tailed)	.	0	0.023	0.253
		Df	0	164	164	164
	Project resources control	Correlation	0.314	1	0.416	0.091
		Significance (2-tailed)	0	.	0	0.241
		Df	164	0	164	164
	Project risk management control	Correlation	0.177	0.416	1	0.236
		Significance (2-tailed)	0.023	0	.	0.002
		Df	164	164	0	164
	Project change control	Correlation	0.089	0.091	0.236	1
		Significance (2-tailed)	0.253	0.241	0.002	.
		Df	164	164	164	0

Table 10 indicates that project control on project performance of education projects in Rwanda are positively correlated to project control conducted at Rwanda Basic Education Board is done through schedule control, resource control, risk control, and finally change control, which positively influences the performance of education projects at REB.

Table 11

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733[a]	0.537	0.526	0.184

a. Predictors: (Constant), project change control, project resources control, project schedule control, project risk management control

From the table 11 above, R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table below there was a positive relationship between the study variables as shown by 0.537 at the 1% significance level. Furthermore, the Adjusted R squared is the coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variables, from the findings in the table above the value of adjusted R squared was 0.526 which is an indication that there was variation of 52.6% on performance of Rwanda Basic Education Board due to changes in project schedule control, project resources control and project risk control finally project change control at 95% confidence interval. This is an indication that 52% of the changes in performance could be account for by the independent variables.

Table 12
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.083	0.112		0.742	0.459
	Project schedule control	-0.034	0.056	-0.036	-0.6	0.549
	Project resources control	0.075	0.077	0.06	0.983	0.327
	Project risk control	0.623	0.061	0.645	10.197	0
	Project change control	0.271	0.105	0.154	2.569	0.011

Dependent Variable: Performance of education projects in Rwanda Basic Education Board

From the regression equation above, it was found that holding all the project control to a constant zero, project performance of REB will be 0.083 percent, a unit increase in the use of project schedule control would lead to reduction in project performance of Rwanda Basic Education Board by 3.4%, a one percent increase in the use of project resources control would lead to an increase the project performance of Rwanda Basic Education Board by 7.5%, a one percentage increase in the use of risk control would lead to 62.3% increase of project performance of Rwanda Basic Education Board and lastly a one percentage increase in the use of project change control would lead to 27.1% increase of project performance of Rwanda Basic Education Board. Overall, the project risk management control had the greatest effect on project performance at REB, followed by project change control, project resource control and lastly project schedule control. At 5% level of significance and 95% level of confidence, project resources control had 0.549 level of significance; project schedule control had a .327 level of significance, project risk control had a 0.000 level of significance finally project change control also had a 0.011 level of significance. Therefore; both project resources control and project schedule control were insignificant ((p>0.05) while project risk control and project change control were significant (p<0.05).

Substituting the estimated results in the empirical model specified in chapter three gives:

B = The value of increase/decrease in Y as per one unit of increase in X, ε = error term (other variables)

$$Y=0.083-0.034X_1+ 0.075\ X_2+0.\ 623X_3+0.\ 271X_4 \quad +\varepsilon$$

4.4 Hypotheses Testing Results

The study assessed the effect of project control on project performance of education projects in Rwanda; multiple regressions were used. Findings are presented below:

H_{01}**:** There is no significant effect of project schedule control on Soma Umenye project performance; therefore, the P-value was .549, which means that it was greater than the significance level (P≥0.05); therefore, the researcher did not reject the null hypothesis. As a result, the project schedule at Rwanda Education Basic Board may continuously further be used to communicate to all relevant personnel when specific work items and project events are expected to be completed. A project plan is also a tool that links project work items to the resources needed to complete that work.

H_{02}: There is no significant effect of project resources control on Soma Umenye project performance, therefore, the P-value was 0.327, which means that it was greater than the significance level (P≥0.05); therefore, the researcher did not reject the null hypothesis.

H_{03}: here is no significant effect of project change control on Soma Umenye project performance, therefore, the P-value was 0.11, which means that it was less than the significance level (P≤0.05); therefore, the researcher did not reject the null hypothesis.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The results show that project controls provide a prudent approach to risk management in education projects in Rwanda and that these budget and schedule impacts can also be reduced by proactively identifying risks, continuously monitoring risks, and developing contingency plans to manage and mitigate issues to avoid certain risks. future. Therefore, researchers found a positive relationship between project control and project performance in education projects in Rwanda.

5.2 Recommendations

Rwanda Basic Education Board must continually improve the definition and control of its change projects in order to implement systems that help define the scope of change and how it is controlled. Rwanda Basic Education Board, as a public institution, can continuously establish checkpoints and milestones to review project progress, address key issues and take necessary corrective measures to keep the project on track. This is an important project control technique.

Rwanda Basic Education Board should make sure that team members, stakeholders, and development partners know their project expectations and the timelines to meet. Finally, the researchers recommend that the Rwanda Basic Education Board continuously aligns its projects with portfolio or organizational goals by developing a work breakdown structure (WBS). In addition, the public agency can collaborate on the initial project plan on an ongoing basis and develop an effective risk management plan.

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