

Logical Framework and Research Projects Enhancement in Public Universities in the Coast Region of Kenya

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ABSTRACT

The purpose of this study was to assess how logical framework approach influences research projects enhancement in public universities in the Coast region of Kenya. The study used a pragmatism paradigm. A descriptive survey and causal comparative research design were adopted. Targeted populations of 1110 academic and non-academic employees for the two universities were used for this study. A sample of 285; consisting of 173 from Technical University of Mombasa and 112 from Pwani University was employed through proportionate and simple random sampling to obtain a representative sample. Data analysis was by inferential and descriptive statistics; mean, frequencies, percentages and standard deviation. The study established that logical framework with an average mean of 3.564 and a standard deviation of 0.785 does not have a significant influence on research project enhancement in public universities. There also exists a weak positive relationship of 0.211. There is certainly no significant relationship between logical framework and research projects enhancement in public universities in Kenya at 5% significance level. The study concludes that treasury should increase funding in public universities and regular training and sensitized on utilizing the logical framework.

Keywords: Logical framework; Research projects enhancement; Public universities

INTRODUCTION

The core mandate of a university is teaching and research. Both aspects of teaching and research are considered important from the government perspective; government funding has focused more on teaching than on research. Consequently, research in universities is largely funded by foundations and the philanthropists. Government funding has fallen short from 15% to 8%. The government is therefore concerned more about the component of teaching (student or employer satisfaction) than on research [1].

Efficient and effective monitoring and evaluation is pegged on an organization's human capacity to conduct monitoring and evaluation (M&E) in terms of leadership, human resource and infrastructure [2]. Building the capacity for strong monitoring and evaluation (M&E) includes putting good systems in place, and developing leaders at all levels that can inspire and engage their teams. Effective monitoring and evaluation leaders hold their organizations accountable for using monitoring and evaluation systems to improve organizational performance and health results. With funding from USAID from 2008 to 2013, measure evaluation Population and Reproductive Health (PRH) offered three types of

leadership development programs. The purpose was to develop the capacity of individuals and teams to achieve monitoring and evaluation results, such data collection, creating clear monitoring and evaluation policies, and developing a supportive monitoring and evaluation culture [3].

Performance can be enhanced through training in order to foster learning new skills and means of approaching and performing a task with efficiency and effectiveness. Regular development and training assist program development with an aim to strategically place a good working relationship with the employees. Employee regular training aided them to concentrate on their individual career development and ultimately achieving short and long term organizational objectives. Institutions should put more emphasis to staff involvement in designing training methods and modules so as to aid in the improve efficiency in training. Training through encouraging employees to participate in design inspires them to study objectively hence enhancing performance and faster specialized pledges. Post training evaluation needs to be conducted to ensure efficiency of inclusive training curricula and works as an uncompromising tool to design, improve and correct present and future training needs and approaches.

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Received: March 09, 2021; **Accepted:** May 30, 2021; **Published:** June 08, 2021

Citation: Hamisi Jitta M, John M, Charles R (2021) Logical Framework and Research Projects Enhancement in Public Universities in the Coast Region of Kenya. Review Pub Administration Manag 9:289.

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The importance and value of training has long been recognized. Train an individual to fish and you feed him for a lifetime [4]. Training enhances confidence building within staff in an organization for improved performance. Training is the key for an influential part of employee growth to meet the vision of an institution. Human capital, with proper training and experience is vital for the production of monitoring and evaluation results. There is need for an effective monitoring and evaluation human resource capacity; quantity and quality, hence monitoring and evaluation human resource management is a requirement for maintaining and retaining stable M&E staff [5]. Capable staff are a major constraint in selecting a functioning M&E systems [6].

Logical framework helps check on project status by systematical collecting and evaluating of research project information. It provides data on whether activities follow to the original plan. This tool used in planning and management of project to aid in project cycle management for purposes of completing a project. It solves problems by taking the inputs of various interested parties. It acts as a benchmark aimed at project realization and highlights the main norms [7]. It analyzes current situation; stakeholders documenting, pinpointing their needs and defining set objectives, establishment of a connection between the purpose, objective, inputs, activities, results; (vertical logic), defining assumptions; identification of risks and purpose; develop a monitoring and evaluating system, learning process and communication among the stakeholders; for instance, the consumers or recipients, policy makers, planners, and implementers. It examines strengths, weaknesses, opportunities and threats SWOT analysis [8]. The LFA is best defined in the Strategic Plan of most institutions in the implementation matrix. The implementation matrix gives a summary of all the objectives, strategies, indicators, activities, outcomes, budget and duration [9].

Research project enhancement in public universities

Research Projects in Kenyan universities has dwindled over the year due to failure by universities to comply with the Universities act of 2012 and University Standards and Guidelines 2004. The Kenyan government's main challenge in higher education is to find a financially sustainable way of expanding access in an equitable manner, improving the quality and relevance of programs offered, and strengthens university-based research and technology transfer Kenya Higher Education Policy Note, 2019.

A large number of indicators can be used to measure and evaluate performance that could be related to various magnitudes (clusters) like students' enrollment and graduating, research publications, research activities, financial performance and academic promotions. The three major performance evaluation dimensions are cost, quality and time. Another 3 fascinating way of project performance evaluation is through two common sets of indicators. One is connected the owner, consumers, public and stakeholders; clusters of persons, who resolve to view project performance from the macroeconomic point of view. The second includes the developer and a contractor; the clusters of persons who view performance of project from a microeconomic point of view. Assessment of organizational performance can be organized around these areas of performance of institutions of higher learning.

A study of benchmarking practices in institutions of higher learning, found out that participating in benchmarking would give institutions of higher learning a better understanding

of performance. Several areas of performance being used by institutions of higher learning; productivity, effectiveness, customer and stakeholder satisfaction, efficiency, quality and innovation. A performance measures study was conducted with an intention of state the significance of measuring public services performance in terms of effectiveness, impact and efficiency. A performance model was developed to measure performance of institutions of higher learning. It highlights academic and management as the two main performance measurements closely linked to the goals of the university. They were further divided into education and research, human resource and finance.

Studied were conducted to measure performance of institutions of higher learning and recommended these main methods: analysis of input-output ratio, assessment based on outcome and evaluation of stakeholder. BSC use in the education field has lacked academic research related to these issues. Due to the difference in nature of industry and profit modes, it is hard to set a universal indicator to measure institutions performance. Measurement of performance should be founded on different dedications and encourage the use varying performance indicators. Performance measurement is dependent on the environment, approaches and objectives. Performance in public universities can therefore be improved through the intervention of various M&E tools, Performance Contracting and enhancing human capability to conduct M&E.

Research in academics remains the major source of innovation and knowledge at international, national, and regional levels UNDP, 2012. In the last decade, most industrialized countries were indebted to solve the challenges of providing broader access to high school education, training and safeguarding suitable investment on high-level research activities. This provides a subtle balancing act, which hinges on a more specialized funding base and visionary policies.

Research in Kenyan is largely social science based. In the last 10 years, there has been complex growth in research, dimensions and size where, university departments, research institutes, independent think tanks, international agencies, and collaborations with NGOs and government to boost research activities. Lower funding in research was due to a government directed due to stressed financial commitment. International agencies had to come in and fund research activities. There are inadequate local researchers at less than 230 per a million inhabitants to lead research activities among local researches due to lack of funding. The 2015 CUE report noted that the government of Kenya funds research in science and technology related areas. In the financial year 2014/2015, the government allocated 53.8 billion for research and development in science & technology. Public universities and university colleges got Ksh. 47 billion. The outstanding balance was transferred to research institutions like Research Endowment and NACOSTI. Lack of coordination and networking in research at the national level leads to depletion of funds due to duplication of research topic.

The logical framework is used in planning and management of project to aid in project cycle management for purposes of completing a project. It solves problems by taking the inputs of various interested parties. It acts as a benchmark aimed at project realization and highlights the main norms. It analyzes current situation; stakeholders documenting, pinpointing their needs and defining set objectives, establishment of a connection

between the purpose, objective, inputs, activities, results; vertical logic, defining assumptions; identification of risks and purpose; develop a monitoring and evaluating system, learning process and communication among the stakeholders; for instance, the consumers or recipients, policy makers, planners, and implementers. It examines strengths, weaknesses, opportunities and threats SWOT analysis. The LFA is best defined in the Strategic Plan of most institutions in the implementation matrix. The implementation matrix gives a summary of all the objectives, strategies, indicators, activities, outcomes, budget and duration.

Statement of the problem

Underutilization of the logical framework in the managing of public Universities has been mentioned by policy citations as one of the factors negatively influences research projects enhancement in public Universities. Studies carried out in developed and developing countries further affirm that the logical framework remain a key challenge and its adoption is slow for national government but more so to other sectors, including education [10-12]. Recent university rankings have also shown that Kenyan universities are performing below par. In universities, other than research, ranking incorporates teacher-student ratio, ratio of international to local faculty staff and ratio of international to local students. Other gauge used are levels of application and training of science and technology; contribution to new knowledge and research outputs; number of published material on the digital repository; visibility on the online platform and adoption of Information and Communication Technologies; for students and websites surveys, scholars or employers to make evaluations between institutions; visibility and impact of the universities' websites measured by the citations; institutional statistics; perceived quality; articles in citation indexes; articles published and academic performance with respect to size of the organization.

H_0 "Logical framework has no significant influence on research projects enhancement in public universities".

Objectives of the study

- i. Setting goals in logical framework enhances research projects in public universities.
- ii. Identifying outcomes in logical framework enhances research projects in public universities.
- iii. Identifying outputs in the logical framework enhances research projects in public universities.
- iv. Setting activities in logical framework enhances research projects in public universities.

LITERATURE REVIEW

University education is known to plays a key part in the development of a national Republic of Kenya, Session paper 1 of 2005. Higher education is a key pillar in human growth and development in the world. It does not only provide skills, but is also key in training for essential personnel in different fields. Performance improvement is as a concept of the institutional change where management and the governing entity of the University puts measures to manage a several projects so as to establish the level of performance of the University on a continuous basis and then generates ideas for adapting University behaviors and structure in order to attain

better output. The main goals of University are to advance research so as to enhance the capability of the University to offer its services and flourish in the niche where the University strives [13].

Just like other government institutions, public universities operate in an environment dependent of the government. As a result of emancipation, uncertain economic changes, and new and existing regulations, public universities have been forced to go through changes to compete effectively and survive [14]. This has consequently led to poor performance due to compromised quality of university education as competition amongst universities has soared. Most countries in Africa have gone through financial limitations owing to unpredictable changing economic conditions coupled with uncontrolled increase in population and delivery of social services to the populace. This has forced University education to compete with other sectors of the economy due to inadequate funds from government.

Performance of University comprises several undertakings that help in instituting the University goals and subsequent monitoring the development towards the set target. It makes variations to realize the objectives more effectively and efficiently. Numerous methods have been advanced to help spot and improve University performance. Business scorecards are one of the approaches whereby the undertakings of a University are measured against its visions and mission. Other techniques include time management. Performance of universities can be accomplished by comprehensively using these approaches which could enhance research projects in university. Similar goals can be enhanced through improved quality of services, encouragement of use of best practices and enhancing process control [15].

Universities need to know more about how research attitudes and activity differ between institutions, disciplines and departments whether this activity is influenced by such factors as the colleague or work environment, teaching loads and funding arrangements; socialization of young researchers into the academia; engagement in research and teaching; degree of autonomy staff should to choose their preferred research topics; and proper utilization of research funds. As part of this process, the challenges highlighted by "an aging, highly tenured teaching staff, restricted economic resources, and low opportunities to employ new employees with desired skills and expertise" need to faced head-on. [16-18].

The following challenges have been found to adversely affect Research Projects in Kenyan public universities; Low university funding by the; Lack/inadequate of research facilities; equipment and laboratories; Lack of qualified personnel; Universities growing too thin; lack of direction; Hastily mounting privately sponsored courses thus leading to overreliance on teaching; Poor linkages between industry and the University; hence undermining industry-university research funding; Poor intellectual property policies, plagiarism, lack of research ethos, poor access to information; Poor linkage of university research to nations vision; poor supervision, management, absence of monitoring and evaluation of university research projects; and low influence of university research and utilization of research findings at the national level [19].

The question remains on whether or not the resources disbursed for research assignments are effectively absorbed in universities and how the projects findings help in resolve problems. It is wise to investigate whether these resources were properly utilized to engage in planned activities. A study by Gudo, on 'Financing

Kenyan Higher Education: Public-Private Partnership Approach', a number of concerns that affected university research centers were addresses. The study revealed that funding for higher education under government sponsorship has been on high demand amongst undergraduates who tussle to get placement in universities. Regrettably, the funds disbursed for this opportunity has been decrease yearly. A mere 25% of those who get direct entry points get government funding. In the end, the remaining 75% have created room for investment and growth of private universities [20].

CUE report of 2014 noted that some local institutions of higher learning had collaborated with international universities, corporations, and parastatals to enhance Research Projects. This was also extended to financial institutions, faith-based institutions, and social organizations and other private companies that support sustainable development will be a strategic importance for universities in the future [21]. Addition, when the national government provides subsidies and incentives to the private sector will lead to promotion of research activities in the country which could lead to growth and development [22].

Researchers can be motivated in three key ways; recognition among their peers including promotion, monetary reward, availing resources or funding or through encouragement to increase their productivity through publications and patents. Researcher's motivation towards generating research outputs is key for them to develop exploitative behavior. To boast their motivation; training by university on importance of transferring knowledge is a crucial element as well as setting up a reward program for researchers involved in commercialization. Reputation and recognition has been found to supersede any financial or economic profits researchers may accrue from the commercialization process [23]. It categorizes factors which motivate researchers in commercializing research outputs into three concepts which she names "ribbon" (reputational/career rewards); "puzzle" (intrinsic satisfaction) and "gold" (financial rewards). She concludes that researchers who are entrepreneurial by nature are driven by "puzzle" and "gold" factors while traditional researchers who cannot link research and business more often are motivated by "ribbon" factors.

Research and Development (R&D) funding is a key indicators of a nation's economic position [24]. Investments in R&D form the foundation of new knowledge generation through research which ultimately leads to generation of products and services through applied research. Research is an expensive venture which constantly requires funding mechanisms and commercialization leads to alternative income to fund more research activities. An estimated 60% of R&D expenditure in most African countries comes from Governments, donors and public Institutions as reported by African Union.

Exploitation of publicly funded research by Universities is important to demonstrate and justify public investment and therefore commitments to commercialize research needs to be prioritized right from the funding stage. This is so much so since about 70% of Research activities are funded by Governments in developing countries. While it is factual that many Governments are the greatest funders for University research, little or no funds are set aside for Commercialization of the research results. A study conducted in New Zealand Universities to determine the part of Governments towards encouraging development of academic research indicate that lack of funding coupled with lack of foresight

into commercialization leads to few academic research moving past the research results [25].

An average 18 OECD nations availed data, 31% of students enroll in technical institutions without graduating from a courses comparable to this education level. Through these limitations in mind, underachievement and drop-out incur high fiscal costs resulting to lesser returns to non-degree university education in comparison to degrees, while fees per student are similar in both cases – at an average of USD 13,700 yearly throughout the OECD countries in 2009 [26]. This rises queries on the scope for enhancing the "productivity" of university education through targeted policies to improve the excellence of service, and consequently, students' success and retention.

Promotion has a significant impact to employees, particularly to their motivation. This notion has been justifying by previous studies [27] have found that the promotional factor has direct impacts on the level of staff motivation in the institution. Similarly, Islam and Ismail, also established a positive association between promotion and motivation of staff. The study also proposed a technique to inspire staffs through equal chances of advancement to all qualified staffs, this lead the employees become more fascinated in conducting their duties as they feel that they shall be compensated. Training amenities ought to also be availed therefore that staffs can make themselves entitled to advancement.

Logical framework most resilient and common methods employed in project management for project planning and monitoring. It is applicable in government and non-governmental organizations. There is constant use of this tool notwithstanding several disapprovals. This approach has however not been necessarily being damaged by critics. However, financiers admit it has limitations and weaknesses but they continue to employ it as a planning and monitoring tool. A realistic method to monitoring and evaluation is ideal. In the real world, it may be limited by restrictions that avert its regular use of either a LFA or some too practical method to monitoring and evaluation. Further, whatever the method used the basic values for monitoring and evaluation (M&E) which are quantifiable objective, target, performance indicator, and regular reporting. This is the simplest and most efficient method of data collection, reporting and recording.

This tool is used for efficient planning for project complete. It aids in solving problems takes in view inputs of interested parties. This is a principle for project realization and highlights the key expectations It started in early 1960s with the aim of assisting project managers to plan and monitor project development. The initial model was developed for NORAD and USAID made a substantial impact in 1990s.

Many authors have proposed various project success dimensions so as to establish the achievement or downfall of a project. A stakeholder approach has been used to focus on success of projects in a multi-dimension and multi-criteria approach. Project realization dimensions as benefits to the performing organization, benefits to customers, project efficiency, and preparation for the future.

The Canadian Space Agency (CSA) highlights how the LFA was employed to back the corporate process in project selection to facilitate decisions making and analysis of general approaches at high level project management, development of the scope of the

organizations' and project mission. It was also key in fostering participation and involvement of stakeholder, aiding in project planning, assigning roles and tasks with regard to success of projects, and integration with the current tools. It was flexible enough to accommodate dissimilar project management methodologies such as extreme and agile project management.

A qualitative study by Juup and Ibn Ali, in Bangladesh generated data for monitoring high-ranking policy makers and enhance practices at on the ground: they linked participatory and systems processes management. The monitoring data summarizes the opinions of anticipated recipients, likened to client contentment data in business. Data collection method and deliberating it in the field creates prospects of enhancing projects, reinforce associations and help achieve their development goals. The survey research noted that performance was monitored as per the local people's sentiments; personnel have incentives to listen and get answers to their worries and urgencies. For instance, a social group uses responses from ladies' self-help assemblies to assess employee performance. This descriptive research design however was too general and only focused on qualitative data leaving out quantitative data.

In a descriptive study by Bakewell and Garbutt they established that when logical framework is employed for monitoring and evaluations emphasis is frequently on logical framework; to examine anticipated accomplishments highlighted in the model, and not to focus on the work. In principle, Bakewell and Garbutt debate, that in practice it rarely happens, but the logical framework is reviewed through the programme cycle and modifications effected, to the output level.

Businge's study of Ugandan Rwenzori region discovered that funders hardly function out of the log frame approach whereby, they are fixated into results in the log frame; occasionally the scenario on the field may affect the success of some outcomes henceforth necessitating changes in some project aspects. Therefore, any proposed alterations by the executing establishments had to go through lengthy to and fro communication over the modifications.

THEORETICAL FRAMEWORK

Goal setting theory

This theory denotes that performance and motivation is higher when people set specific goals, which at times may be problematic but acceptable and there is constant response on how employees perform. Goal-setting theory proposes that employee evaluation is based on the attainment of set objectives or goals. The theory emphasizes workers should discuss the targets together with their line managers within a specified period of time. The harder the goals, the harder to attain them and this in term leads to higher performance and rewards once the goals have been attained. Latham and Lock 2002. The harder the goals, the higher the performance as opposed to easy goals/targets.

Employees are supposed to participation in setting goal as this is vital to agreeing between the employees and their managers. The theory can best be applied in utilization of various monitoring and evaluation tools when employees set targets and negotiate for their respective areas of operation with management. This is further cascaded down at lower levels within the institution where workers negotiate their specific targets with their section heads.

The goals setting theory argues for enhanced performance of research projects in public universities, goals have to be set. Proper application of tools for monitoring and evaluation, leading to enhanced performance of research projects in public universities.

Conceptual framework

Research projects enhancement has been designated dependent variable, which shall be measured in terms of consistency over the preceding two months' period. The study holds that there is significant correlation between utilization of logical framework and research projects enhancement in public universities. The relationship will be nurtured, by ensuring proper and consistent utilization of the logical framework to add value for both individual and collective well-being to employees and public universities for growth and sustainability of research projects.

Research projects enhancement in public universities is important in providing quality education, especially where the performance is supported with effective utilization of the logical framework. The policy and few empirical literature reviewed suggest that poor research projects enhancement in public universities constrains growth of research outputs, grants, completion rate and promotion of academic staff (Figure 1).

RESEARCH METHODOLOGY

This study adopted the pragmatism paradigm. Descriptive research survey design since it describes the state of affairs as it is. Descriptive design is used when collecting information about people's attitudes, opinions, habits and other possible behavior. This is appropriate as it permits information collection from dependent and independent variables using questionnaires and interviews [28]. The target population of this study was all the academic and non-academic staff working in Technical University of Mombasa and Pwani University. The target population was therefore be 1110 comprising of academic, and administrative staff members from both the Technical University of Mombasa and Pwani University as shown in Table 1.

The total target population is 1110 from which a sample will be drawn.

Sample size and sampling procedure

A sample size must be big enough to be a representative of the universal population [29]. A researcher should choose a sample size which is able to provide sufficient information about the population and can be analyzed with ease [30]. The sample size that was employed in this study was guided by Fishers formula [31]. This aided in obtaining a paradigmatic sample from the target population used in the study. The target population was 1110 drawn from the two universities. The sample size was obtained using the formula given by the following equation.

$$n = \frac{z^2 pq}{d^2} \quad (1)$$

n=Anticipated sample size (if the target population is > 10,000).

Z=Standard normal deviate at the required confidence level.

P=Proportion in the target population approximated to have characteristics in the study. If it is unknown, then 0% will be used.

q=1-0.32 = 0.68.

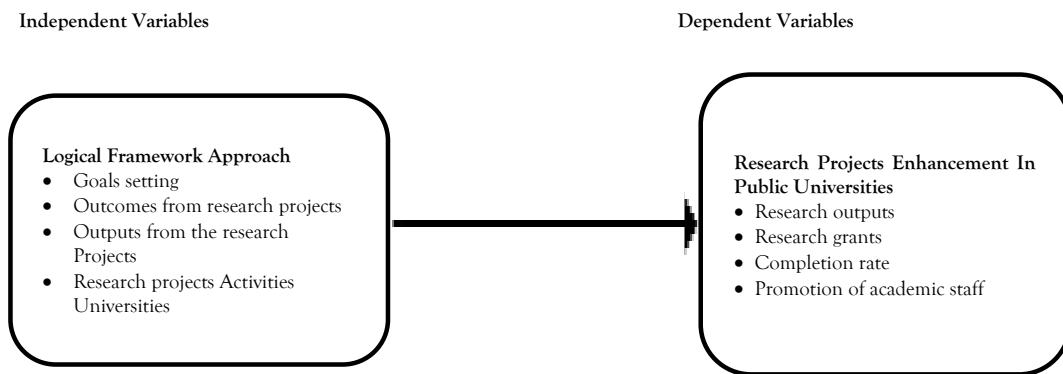


Figure 1: Conceptual framework for logical framework and research projects enhancement in public universities.

Table 1: Target population.

Individuals	TUM	PU	Total
Academic			
Professors	5	10	15
Associate Professors Senior	4	7	11
Lecturers	20	40	60
Lecturers	92	81	173
Teaching Assistant	140	80	220
Administration			
Heads of Departments	40	21	61
Sections heads	95	51	146
Administrative Asst.	173	63	236
Technicians	105	83	188
Total	674	436	1110

Source: Researcher 2019

The total target population is 1110 from which a sample will be drawn.

d=Level of statistical significance set = 0.05

z=Assuming 95% confidence interval Z = 1.96

$$n = \frac{1.96^2 \cdot 0.5 \cdot 0.5}{0.05^2} \tag{2}$$

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For a population that is less than 10,000, modification will be prepared using Cochran’s correction formula (Cochran, 2011);

$$nf = \frac{n}{1 + (n/N)} \tag{3}$$

Where;

Nf = Final sample size, when population is less than 10,000

N = Sample for populations of 10,000 or more

N = Size of the total population from which the sample is drawn

$$nf = \frac{384}{1 + (384/1110)} \tag{4}$$

nf = 285.31 Therefore

nf = 85

Therefore, the sample was 285 drawn from the target population of 1110 using fisher’s formula of 2003.

The study employed proportionate and simple random sampling. This aided to obtaining a representative sample. In random

sampling, every sample size in the population giving equal chance for every sample to be chosen Mugenda and Mugenda, 2003. This allowed generalization for a bigger populace with a margin of error that can statistically be determinable as shown in [Table 2].

Therefore, the sample used for this study was 285 people from both universities from each category of staff. This method of determining the sample size was used based on the strength of each category and to avoid biasness.

The instrument that was used for data collect were an open-ended questionnaire and interview guide. They were employed for data collection from the selected samples from both universities; Technical University of Mombasa and Pwani University. The study employed the use of open-ended questionnaires for data collection from academic and non-academic employees of both Technical University of Mombasa and Pwani University. The questionnaires encompassed open ended questions. Data analysis was done using both qualitative and quantitative approaches.

Research instruments

The tools adopted for collecting data were an open-ended questionnaire and interview guide. They were employed for data collection from the selected samples from both universities; Pwani University and Technical University of Mombasa. The study employed the use of open-ended questionnaires for data collection from academic and non-academic employees of both universities. The questionnaires encompassed open ended questions. Questionnaires have

Table 2: Sampling procedures.

Category of staff	TUM	PU	Total
Academic			
Professors	5	7	12
Associate Professors Senior	7	5	12
Lecturers	5	12	17
Lecturers	32	18	50
Teaching Assistant	18	15	33
Administration			
Heads of Departments	19	18	36
Sections heads	16	14	30
Administrative Asst.	32	10	42
Technicians	40	12	52
Total	174	111	285

an advantage of being cost efficient particularly from a large group [33].

Data analysis technique

This was done by means of both descriptive and inferential statistics. Further, both qualitative and quantitative methodologies were applied to examine, process and interpret data.

Quantitative data dispensation included coding close-ended data, entry, cleaning, transformation, analysis, and interpretation. The SPSS programme was employed for analyses to yield percentages, frequency distributions and measures of central tendency. Data collection instruments were first checked and this involved elimination of unacceptable questionnaires. This process involved elimination of incomplete, little variance. Data editing followed to check whether they have ambiguous answers, incomplete, inconsistent or/and illegible. Thirdly, the data was coded. A codebook for the dissimilar variables was developed with a numbering structure of the questionnaires. Statistical Package for Social Sciences (SPSS version 25) was adopted in this study. The fourth step involved entry of figures within a programmed computer. The fifth phase was cleaning data to check for stability. Instability may come from out of range, great values or faulty logic. The sixth step was carrying out diagnostic tests using the Shapiro-Wilk Test to decide if data was normally distributed. Durbin Watson technique to check autocorrelation of variables was also employed [33].

Summary tables were used to describe the qualitative data. Responses got from interviews and open ended questionnaires were classified into specific categories and the numbers of each category were tallied. This enabled the researcher convert qualitative data into quantitative data or nominal data. The data was used for reinforcement of quantitative data. Descriptive statistics like percentages and frequencies were used to define data. Statistical Package for Social Sciences (SPSS) Version 25 was adopted.

H_0 : Logical framework has no influence on research projects enhancement in public universities

$$Y_i = \beta_0 + \beta_1 X_i + \epsilon_i \quad (5)$$

Whereby;

Y = Research projects enhancement in public universities

β_0 = Constant

β_1 = Coefficients of determination

X_i = LFA

ϵ = Error term

Findings

The study was set out to establish how logical framework influences research projects enhancement in public universities. Therefore, the respondents were asked to state their level of agreement or disagreement with the following statements on a Likert scale of 1 - 5 where 1=Strongly Disagree; 2= Disagree; Agree; 3= Neutral; 4=Agree; 5=Strongly Agree). The results are presented in Table 3.

The first statement, setting goals in the logical framework influences research projects enhancement in public universities. Out of 250 participants who took part in the study, 109 (43.7%) agreed, 56 (22.5) strongly agreed, 21 (8.5%) disagreed, 7 (2.8%) strongly disagreed and 56 (22.5%) were neutral. This line item has a mean score of 3.75 and a standard deviation of 0.996 which is greater than composite mean of 3.564 and standard deviation of 0.785. This implies that setting goals in the logical framework influences research projects enhancement in public universities.

The second statement, stakeholder participation in logical frame development influences research projects enhancement in public universities. Out of 250 participants who took part in the study, 118 (47.1%) agreed, 57 (22.9) strongly agreed, 47 (18.6%) strongly agreed, 18 (7.1%) disagreed and 11 (4.3%) strongly disagree. This line statement has a mean score of 3.69 and standard deviation of 1.0 being greater than composite mean of 3.564 and a standard deviation of 0.785 implying that the line item influences research projects enhancement positively in public universities. This is sustained by studies by Shenhar et al., who noted that a stakeholders approach was successful in projects of multi-dimension and multi-criteria approaches. Project realization dimensions were beneficial to the performing organization, customers, enhanced project efficiency and preparation for the future.

The third statement, setting indicators in a logical frame influences research projects enhancement in public universities. Out of 250 respondents, 81 (32.9%) agreed, 47 (18.6%) strongly disagreed, 43 (17.1%) neutral, 43 (17.1%) disagreed and 36 (14.3%) strongly

agreed. This line statement has a mean score of 3.63 and a standard deviation of 0.821 which is higher than composite mean of 3.564 and standard deviation of 0.785 implying that the line item influences research projects enhancement in public universities.

The fourth statement, activity setting in logical frame influences research projects enhancement in public universities. Out of 250 respondents, 112 (45.1%) agreed, 60 (23.9%) neutral, 35 (14.1%) strongly agreed, 32 (12.7%) disagreed and 11 (4.2%) strongly disagreed. This line item had a mean score of 3.52 and a standard deviation of 0.528 being lower than composite mean of 3.564 and standard deviation of 0.785 meaning the line item influences the research projects enhancement in public universities negatively.

The fifth statement, output identification in logical frame influences research projects enhancement in public universities. Out of 250 respondents, 76 (30.4%) were neutral with the statement, 76 (30.4%) agreed 44 (17.4%) disagreed, 36 (14.5%) strongly disagreed, and 18 (7.3%) strongly agree. This line item had a mean score of 3.23 and standard deviation of 0.256 being lower than composite mean of 3.564 and standard deviation of

0.785 implying that this line item influences research projects enhancement in public universities negatively.

Further, Key Informant Interview (KII) established that participants from both the institutions TUM and PU do not put much emphasis on utilization of logical framework as “we lack the skills and expertise to use the logical framework as an M&E tool. We mainly rely on the logical framework to monitor progress of development projects and not research projects”.

Correlation of logical framework and research projects enhancement in public universities

This was conducted to establish the nature and degree of the interaction between utilization of logical framework and research projects enhancement in public universities. The findings are shown in Table 4.

There is a weak positive (0.211) relationship amongst logical framework and research projects enhancement in public universities in Kenya. This relationship is however, not statistical significant at 5% or 0.05 level of significance.

Table 3: Logical framework and research projects enhancement in public universities.

S/No	Statement	1 %	2 %	3 %	4 %	5 %	M	S.D
	Setting goals in the logical framework enhances Research Projects in public universities	7 (2.8%)	21 (8.5%)	56 (22.5%)	109 (43.7%)	57 (22.5%)	3.75	0.996
	Stakeholder participation in logical frame development enhances performance research projects in public universities	11 (4.3%)	18 (7.1%)	57 (22.9%)	117 (47.1%)	47 (18.6%)	3.69	1.00
	Setting indicators in a logical frame enhances Research Projects in public universities	47 (18.6%)	43 (17.1%)	43 (17.1%)	81 (32.9%)	36 (14.3%)	3.63	0.821
	Activity setting in logical frame enhances Research Projects in public universities	11 (4.2%)	32 (12.7%)	60 (23.9%)	112 (45.1%)	35 (14.1%)	3.52	0.528
	Output identification in logical frame enhances Research Projects in public universities	36 (14.5%)	44 (17.4%)	76 (30.4%)	76 (30.4%)	18 (7.3%)	3.23	0.256
Composite Mean and Standard deviation							3.564	0.78556

Table 4: Model summary on logical framework on research projects enhancement in public universities.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.211 ^a	0.044	0.031	0.70670

a. Predictors: (Constant), logical framework

Table 5: ANOVA^a on logical framework on research projects enhancement in public universities.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.622	1	1.622	3.247	0.076 ^b
Residual	123.752	248	0.499		
Total	125.374	249			

a. Dependent Variable: Research projects enhancement

Table 6: Coefficients^a on logical framework on research projects enhancement in public universities.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.998	0.376		7.965	0.000
Logical framework	0.192	0.107	0.211	1.802	0.076

a. Dependent Variable: Research projects enhancement in public universities.

Regression of logical framework approach and research projects enhancement in public universities

In order to know the effect of logical framework on research projects enhancement, regression analysis was conducted between the variables. Data collected were converted to continuous data by summation to introduce the score as shown in Tables 5 and 6.

The relationship between logical framework and research projects enhancement explains only 4.4% of all variations in research projects in public universities in Kenya. Other factors not in the model accounts for 95.6% of all the variation. This implies that the logical framework has little influence on Research Projects in public universities.

There exists no significant association between logical framework and research projects enhancement in public universities in Kenya at 5% level of significance.

From the data presented in Table 6, it can be seen that logical framework has no statistical influence on research projects enhancement in public universities in Kenya at 5% level of significance hence there is no resultant equation. This is because the p value is more than 0.05.

Test of Hypothesis

H_0 states that “logical framework has no significant influence on enhancing research projects in public universities”. Results from Table 5 shows that utilization of logical framework has no significant contribution on Research Projects in public universities. It accounts for 4.4% of all the variables in Research Projects. This is further supported by outcomes in Table 6 which shows no significant relationship between logical framework and Research Projects in public universities. The F test has a value of 3.247 and a p value of 0.076 being higher than 0.05. The null hypothesis is not rejected.

CONCLUSION

There is certainly no significant relationship between logical framework and research projects enhancement in public universities in Kenya at 5% significance level. The study established that utilization of logical framework ($m = 3.564$; $SD = 0.7855$; $p\text{-value} = 0.076$ and a weak correlation of 0.211) had no significant influence on performance of research project in public universities. This implies that the null hypothesis one which states “utilization of logical framework approach has no significant influence on research projects in public universities” the null hypothesis is not rejected. Logical framework has historically been known to be a resilient tool and common methods used in project management for project planning and monitoring. However, in this study that was not proved. At institution level, members of staff also need to be trained and sensitized on the use of this tool as it will positively influence research projects in public universities. Employees in public universities should be engaged as stakeholders so that they can be able to put their input in the utilization of logical framework.

RECOMMENDATIONS

Public universities should encourage and train its staff on the importance and use of logical framework. There should be regular refresher course training to increase employee skills in application logical framework so as to enhance research project enhancement

as well as funding of logical framework approach sustainable in public universities. The Ministry of Education and Commission for University Education (CUE) should come up with policy measures so as institutions can adopt the use of various tools for monitoring and evaluation for effective and efficient monitoring and evaluation of their research projects in public universities.

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