

Driving Research Excellence: How Institutional Factors Shape Research Output at Livestock Training Agency (LITA), Tanzania.

Pendo Mdogo^{1*} Dr. Charles Mgeni² Dr. Silver Hokororo³

1. College of economics and business study, Sokoine university of Agriculture, Morogoro , Tanzania
2. College of economics and business study, Sokoine University of Agriculture Morogoro ,Tanzania
3. College of economics and business study, Sokoine University of Agriculture, Morogoro ,Tanzania

*Email of Corresponding author: mdogopendo@gmail.com

Abstract:

Despite the growing emphasis on research as a driver of innovation and development in the agriculture and livestock sectors, limited research output has been produced within technical training institutions. This study, guided by the Organization Support Theory (OST), investigates the specific relationship between key institutional factors: resource, administrative support, and academic workload; and research output among academic staff at the Livestock Training Agency (LITA) in Tanzania. The agency consistently falls short of its research output targets, making it a critical case for study. A mixed-methods approach was employed, using a cross-sectional survey with a simple random sample of 109 academic staff from LITA's eight campuses, and was complemented by qualitative interviews. Quantitative data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results revealed that resources ($p < 0.05$) had a significant positive effect on research output, confirming their critical role in enhancing research output. However, administrative support ($p > 0.05$) and workload ($p > 0.05$) showed no statistically significant effects. Qualitative findings suggested that these two factors still influence research output indirectly through institutional priorities and the absence of a strong research culture. The study concludes that resource availability is the most critical institutional factor driving research output in non-university tertiary institutions. It recommends increasing dedicated research funding and revising institutions' Policies to provide staff with more research time. These measures can help foster a stronger research culture and improve overall academic performance. Therefore, this study provides a foundation for further research on institutional strategies to enhance research output in similar contexts.

Keywords: Institution Factor, Research Output, LITA, Tanzania

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1. Introduction

In academic discourse, research output is more than just a metric of performance; it is a fundamental driver of intellectual advancement and a key indicator of a healthy, functioning academic ecosystem. It represents the culmination of scholarly inquiry and the tangible contribution to the global body of knowledge (Nafukho et al. 2019; Prasojo et al. 2025). This process of knowledge generation is crucial for developing a knowledge-based economy, where innovation and intellectual capital are the primary drivers of growth (Mohamed et al. 2021). Through this process, new theories are formulated, technologies are advanced, and solutions to complex societal problems are discovered- demonstrating research's direct contribution to societal well-being and national development (Jameel & Ahmad 2020; Morze et al. 2022).

Globally, the value of research output is at the center of ongoing debates. The "publish or perish" culture and the intense pressure on academics to produce high-impact publications highlight the competitive nature of modern academia (Heng et al. 2020). However, this focus on quantitative metrics like publication count and journal impact factors has led to a critical debate on how to best measure research output and broader societal impact (Dougherty & Horne 2022). These debates underscore the dual purpose of research output, which is: advancing academic careers through publication, while also informing policy, practice, and public discourse on relevant issues (Wasfi et al. 2020). This shift reflects a growing awareness that the value of research output extends beyond just traditional academic impact. As institutions seek to drive research output excellence, they must consider the quantity of publications and the broader societal impact of the knowledge being produced.

Despite this global consensus on the importance of research, the challenges to achieving high output are particularly acute in developing regions. These challenges are often associated with various factors related to institutional support, including limited funding, inadequate infrastructure, and the early stages of developing a strong research culture (Okafor et al. 2025). While several studies in higher learning institutions have examined such constraints, there remains limited empirical evidence on how these institutional factors interact to influence research output in specialized training agencies such as those under Tanzania's Livestock Training Agency (LITA).

The case of the Livestock Training Agency (LITA) is particularly compelling. The agency is mandated to provide training, consultancy, and research to support Tanzania's livestock sector. Despite various initiatives to boost research, LITA consistently falls short of its annual target of 10 research publications (URT, 2025). This raises a critical question: what is the relationship between institutional factors—specifically resources, administrative support, and academic workload, and research output among academicians at LITA?

By examining these specific relationships, this study aims to provide valuable insights that can inform evidence-based strategies to strengthen LITA's research capacity. Ultimately, enhancing research output at LITA has the potential to improve the quality of livestock training, inform more effective policies, and drive advancements in the livestock sector that benefit the broader community.

2. Literature review

2.1. Definitions of key terms

2.1.1. Research Output

Research output refers to measured scholarly contributions produced by academicians, typically assessed through publications, citations and visibility within the research community (Prasojo et al. 2025). It encompasses scientific publications such as peer-reviewed journal articles, books, book chapters, and conference proceedings, as well as citation metrics that reflect academic influences (Tsugawa et al. 2022). In this study, research output is operationalized through publication counts and citation impact, as these indicators provide an objective measure of scholarly output and contribution to knowledge dissemination.

2.1.2. Institutional factors:

Institutional factors are organizational conditions—policies, structures, and resources—that either facilitate or constrain academic research performance (PMC 2021). They include aspects such as funding availability, administrative support, workload arrangements, research facilities, and institutional recognition of research (Open Research Africa 2022). For empirical clarity, this study adopts institutional factors as organizational-level elements that directly influence the capacity of academicians to produce research output. Specifically, three components are examined:

2.1.2.1. Resources

Resources include access to funding, research equipment, laboratory facilities, and digital libraries, which are critical enablers of successful research endeavors (Kumar & Singh 2011; Lee et al. 2021). Evidence indicates that research grants and infrastructural support significantly correlate with higher publication output (Gralka et al. 2019).

2.1.2.2. Administrative support:

Administrative support refers to the guidance, facilitation, and recognition provided by the institution to support research activities (Purwoko & Saroinsong 2021). It includes assistance with research budget management, collaborative networking, and simplified bureaucratic procedures (Eisenberger et al. 1986), which help reduce non-academic burdens that impede research engagement.

2.1.2.3. Workload

Workload comprises teaching duties, administrative responsibilities, and other job-related commitments that influence time for research (Sallehuddin¹ et al. 2019). Excessive workload limits opportunity for scholarly work, reducing both output and academic motivation.

2.2 Theoretical framework

This study is guided by the Organizational Support Theory (OST), a foundational framework for understanding the employees-organization relationship. Proposed by Eisenberger et al. (1986), OST postulates that employee wish to work for an organization that provides them with a satisfying work environment and values their efforts. According to this theory, a supportive organizational environment fosters a sense of obligation in employees to reciprocate with increased effort and a commitment to achieving organizational goals (Eisenberger et al. 2020).

Applying OST to the academic environment, the presence of adequate research resources, supportive administrative systems, and balancing workload arrangements improves perceptions of institutional support. This fosters a sense of obligation among academic staff to contribute positively-particularly through increased research output. Therefore, OST provides a strong lens to examine how institutional provisions at LITA influence staff motivation to engage in research aligned with institutional objectives. The framework suggests that improved organizational support directly enhances publication and citation output and builds a strong research culture within tertiary training institutions.

2.3 Empirical studies

Empirical studies widely support a positive link between institutional support mechanisms and academic research output. For example, Supports et al. (2021) at the University of Ibadan in Nigeria found that strong research funding, well-equipped libraries, and administrative support significantly improved publication output among academic staff. Similarly, Falola et al. (2020) reported that institutions with strong research and technical support systems recorded higher capacity engagement in research and improved performance in scholarly responsibilities.

However, contrasting evidence suggests persistent institutional barriers. Heffernan & Heffernan (2019) revealed substantial dissatisfaction among Nigerian academics due to inadequate funding and bureaucratic obstacles, forcing researchers to self-finance their projects. Hall (2010) also reported that administrative interventions did not significantly improve research output in U.S. universities, except in settings where collaboration between management and staff was strong.

Beyond Africa, Western setting, studies across diverse academic systems continue to indicate that insufficient resources, high workload, and weak policy support hinder research output, especially in non-research-intensive institutions. These inconsistencies imply that institutional support is context-dependent, shaped by organizational priorities, leadership commitment, and the availability of resources.

Despite growing scholarly attention globally, limited research has focused on non-university tertiary institutions like the Livestock Training Agency (LITA). Unlike universities, such institutions prioritize vocational training over research, potentially creating structural challenges that undermine research culture, support, and output. In Tanzania, empirical work on institutional determinants of research output remains scarce, and no prior study has comprehensively examined how resource, administrative support, and workload collectively influence research output among LITA academicians.

While existing literature highlights various institutional enablers and constraints to research output, gaps remain in: context-specific evidence from developing countries, Studies on non-university tertiary institutions, examination of combined effects of (resources, administrative support, and workload), and research focusing specifically on LITA in Tanzania. This study, therefore, addresses a critical contextual and institutional gap by analyzing how organizational provision influences research output within LITA.

Hypotheses formulation

The foundation of organization support theory guided the development of the hypotheses tested in this study. Organization support theory suggests that factors such as resources, administrative support, and workload and time constraints are positively related to academic staff to produce research output

The following hypotheses were formulated:

- Hypothesis 1(H1): Institutional factors significantly influence research output among academic staff at LITA.
- H1a: Administrative support has a significant positive relationship with research output
- H1b: Resources have a significant positive relationship with academic staff to bring research output
- H1c: Workload and time constraints have a significant positive relationship with research output

2.4 Conceptual framework model

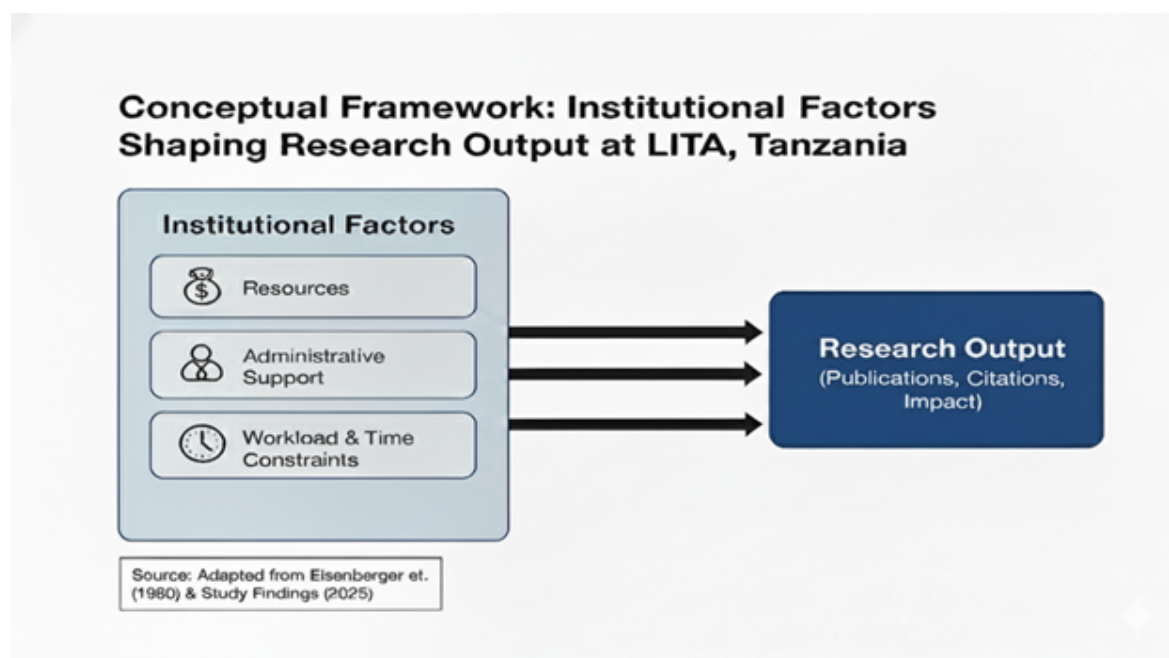


Figure 1 source: Adapted from Eisenberger et. (1980) & study findings (2025)

3. Research methodology

3.1 Research design

The study was conducted across all eight LITA campuses in Tanzania- Temeke, Buhuri, Tengeru, Kikulula, Mabuki, Mpwapwa, Morogoro, and Madaba. These campuses represent diverse agro-ecological zones and varying institutional capacities, which influence research engagement in different way. Both quantitative and qualitative research approaches were adopted for this study, as it focused on hypothesis testing. Moreover, the study employed a Convergent mixed-methods design, simultaneously collecting and analyzing both quantitative and qualitative data to form a single, comprehensive interpretation. The quantitative component employed a Cross-sectional survey (Hall 2010 ; Setia 2016) to efficiently and cost-effectively gather a large volume of data at a single point in time, capturing a broad overview of the population. Concurrently, the qualitative component used in-Depth interviews to collect rich, narrative data from a smaller subset of participants. This provided context and deep insight into the quantitative findings. Merging the quantitative score and qualitative themes was critical for validating the findings and identifying both convergent and divergent patterns, leading to a more complete and insightful conclusion.

3.2 Data collection process

The targeted population for this study comprised academic staff from eight campuses of LITA. The sampling frame included individuals holding PhD, Master's, Bachelor's, and Diploma qualifications. The target population consists of full-time academic staff engaged in teaching and research activities as per the LITA scheme of service for academic duties. The sample size was determined using the Yamane formula, resulting in a total of 115 respondents. A simple random sampling method was then employed to obtain a representative sample of academic staff from each campus. A total of 109 questionnaires were completed, yielding a response rate of 95% for further analysis. The questionnaire was pre-tested, and modifications were made based on the feedback received. The themes used in designing the questionnaire were informed by the theory and other previous studies (Dwivedi et al. 2019).

3.3 Operationalization of Variables

The structured questionnaire used in data collection comprised three major parts. Part one comprised six questions inquiring about the personal demographic information of the respondent.

Research output is measured through several indicators. Publications, including journal articles, books, and conference proceedings, are assessed using a five-point Likert scale that measures the academic staff's confidence and engagement in research-related activities (Dwivedi et al. 2019; Frantz et al. 2022). The number of citations and academic recognition received by the researcher's publication were also considered a continuous variable. Additionally, the overall research impact is evaluated using a five-point Likert scale ranging from *strongly agree* (1) to *strongly disagree* (5).

The institutional factors, which are the independent variable in this framework, are divided into three categories: resources, administrative support, and workload and time constraints. The resource factor includes research funding and grants, which were measured as a continuous variable representing the total amount of funding received by the academic staff in the past three years (Kristanto & Cao 2025; A. Dwivedi et al. 2019). The availability of laboratories and equipment, internet access and digital libraries, and office space and facilities are all assessed using five-point likert scale (Y. K. Dwivedi et al. 2019).

The administrative support factors consisted of the advice and assistance provided to researchers in managing their research budgets, the promotion of career advancement based on research performance, and the overall promotion and appreciation of the value of research, all measured using a five-point Likert scale (Purwoko & Saroinsong 2021; Eisenberger et al. 1986). Finally, the workload factor examines the balance between teaching, research, and consultancy activities, as well as the time allocated for research activities, using five-point Likert scales (Heyard & Hottenrott 2021; Sallehuddin¹ et al. 2019).

3.4 Data analysis

A mixed-methods analytical approach was applied in this study to ensure a comprehensive evaluation of how institutional factors affect research output among academic staff at the Livestock Training Agency (LITA). The analysis involved three main phases: descriptive analysis of demographic characteristics, quantitative modeling using Partial Least Squares Structural Equation Modeling (PLS-SEM), and qualitative thematic analysis.

3.4.1 Quantitative Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS) and smarPLS. SPSS was used to summarize demographic characteristics (age, gender, education level, rank, and years of experience) and visualize them using a Sankey diagram for clarity. This allowed assessment of sample representation, identification of potential influences, and evaluation of generalizability. It provided a detailed demographic profile and enabled assessment of how representative the sample was of the larger population, which is crucial for determining whether the study findings can be credibly applied to similar institutions.

SmartPLS was used to test the hypothesized relationships among institutional factors (resources, administrative support, and workload) and research output, employing Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was selected due to its suitability for prediction-oriented research, small to medium

sample sizes, and non-normal data distributions. The analysis followed the two-step procedure recommended by Hair et al. (2019), comprising measurement model assessment and structural model evaluation.

- Measurement Model Assessment

Institutional factors were modeled as reflective constructs, while research output was specified as a reflective construct. The validity, reliability factor loading of constructs were evaluated as follows:

Initial assessment of the reflective construct (research output) began with confirmatory Factor Analysis (CFA), during which eleven items were excluded due to low factor loadings (below the recommended threshold of 0.600) (Hair et al. 2014; Abramson et al. 2015). Construct reliability was evaluated using Cronbach's alpha and Composite reliability (CR). Which all CR values exceeded the recommended threshold of 0.700 (Litningaransokn 2013). Convergent Validity was established, as the Average Variance Extracted (AVE) was greater than 0.500. Additionally, discriminant validity was confirmed using two criteria: the Fornell-Larcker criterion, which showed that the square root of the AVE for each construct was greater than its inter-construct correlations, and the heterotrait-Monotrait Ratio of Correlation (HTMT), where all values remained below the 0.90 threshold (Henseler et al. 2015).

The Institutional Factors were assessed using distinct criteria: Collinearity among indicators was assessed using the outer Variance Inflation Factor (VIF). All VIF values below 5 were considered acceptable (Hokororo & Michael 2019), as well as Indicator Contribution. The significance of the reflective indicator was determined by evaluating its outer weights (relative contribution) using bootstrapping. Indicators with p-values less than 0.05 were deemed to have a significant contribution. Furthermore, the rule of thumb recommending that desirable indicator weights be 0.1 or above was followed (Andreev et al. 2009).

- Structural model evaluation

After validating the measurement model, the structural model was assessed to determine the strength and significance of hypothesized relationships: Bootstrapping with 5,000 subsamples was conducted to ensure result stability (Hair et al. 2014).

- Collinearity, before to hypothesis testing, was assessed among the predictor constructs using the Valience inflation factors (VIF). All VIF values were below the critical threshold of 5.0 (Hair et al. 2019).
- Hypothesis testing: The testing of hypotheses relied on assessing path significance through the p-value and T-statistics. Hypotheses were considered acceptable if the T-statistics exceeded 1.96 (corresponding to a 5% error rate) and the p-value was less than 0.05 (Hair et al. 2019).
- Explanatory power (R^2): The coefficient of determination was assessed to determine the model's explanatory power. The R^2 value was 0.150, suggesting that the independent variables explain 15% of the variance in the dependent variable (Andreev et al. 2009; Heyard & Hottenrott 2021; Prasojo et al. 2025). This level of R^2 is considered modest.
- Predictive relevance (Q^2): Predictive relevance (Q^2) was estimated. The attained Q^2 value was 0.036, which is positive and greater than zero, indicating acceptable predictive relevance of the model (Henseler et al. 2009).

The structural model results, including path coefficients and significance, are presented in Table 4 and Figure 2.

3.4.2 Qualitative Data Analysis

Qualitative data from interviews were analyzed using a reflexive thematic analysis approach guided by Braun & Clarke (2006). The analysis followed six steps:

- i) Familiarizing myself with the data by transcribing all audio recordings and repeatedly reading through both the transcripts and my handwritten field notes.

- ii) Generating initial codes by systematically highlighting phrases and sentences that captured key concepts
- iii) Searching for themes by grouping similar codes into potential themes
- iv) Reviewing and refining themes by checking them against the entire dataset.
- v) Defining and naming themes to create a clear narrative
- vi) Producing the final report by integrating the themes with the quantitative data

5. Finding and Discussion

The demographic characteristics show that the largest age group represented comprises individuals in their 30s, accounting for more than half of the total participants. The next most common age groups are those in their 40s and 50s. In terms of education level, the majority of participants hold a bachelor's degree, followed by a substantial proportion with a master's degree. A smaller percentage possesses either a diploma or a doctoral degree. Regarding sex, the data set was predominantly male, with men comprising approximately two-thirds of the total participants.

5.1 The implication of each demographic characteristic

5.1.1. Gender Disparity

The finding that women are underrepresented in academia, and specifically in the study sample, aligns with numerous previous studies. A 2019 report by the UNESCO Institute for Statistics titled *Women in Science* revealed that globally; women make up less than 30% of the world's researchers. This suggests that the gender gap observed at LITA is not an isolated case but a systemic issue mirrored in academic institutions worldwide, particularly in STEM fields. The implication is that any efforts to improve research output must also address the structural barriers that hinder female academics' participation and success. Similarly, a study by Hokororo and Michael (2019) found that the underrepresentation of women in academia is a widespread issue occurring not only at Training institutions such as LITA but also in higher learning universities .

5.1.2. Age and Early Career Focus

Demographic characteristics of the respondents are summarized with a Sankey Diagram in Figure 1. The dominance of academic staff in their 30s with bachelor's and master's degrees indicates a workforce in the early to mid-stages of their careers. Research by Marsh et al. (2023) on academic productivity has shown that research output often increases with academic rank and experience, peaking in the mid-to-late career stages. This implies that LITA's relatively low research output may be attributed to its young to its young workforce, who requires more targeted support, mentorship, and resources to develop their research skills and habits.

5.1.3. Education

The majority of participants hold bachelor's degrees, with fewer holding master's degrees, and only two possessing doctoral degrees, which is a critical finding. Study by Ostriker et al (2010) in the *Journal of Higher Education* found a strong correlation between holding a PH.D and higher research output, as doctoral programs are specifically designed to train individuals in research methodologies and scholarly publishing. This suggests that one implication for LITA is the need to incentivize and provide opportunities for its staff to pursue doctoral degrees, which could directly contribute to a stronger research culture and higher publication rates.

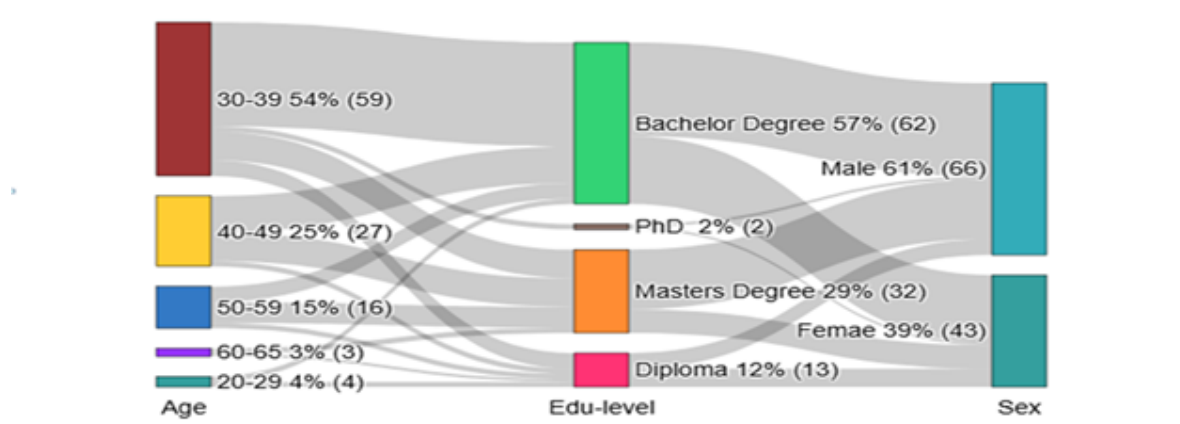


Figure 2. Demographic information of respondent

5.2 Measurement Model

The measurement model examines the size and significance of factor loadings, composite Reliability (CR), convergent validity (Average Variance Extracted or AVE), and discriminant validity (using the Fornell-Larcker Criterion) for the institutional factors (resources, workload and time constraints, and administrative supports) in relation to research output. Figure 2 and Table 1, 2, and 3 present the results of these assessments.

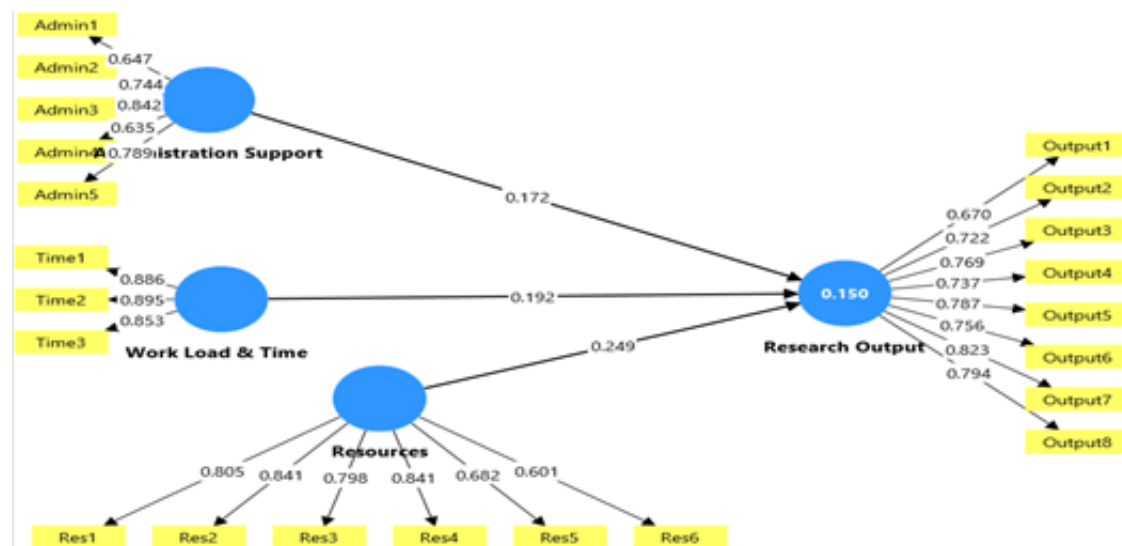


Figure 3. Institutional factors – Research output path model

Table 1: Loadings, Reliability and Convergent validity

Constructs		<i>Outer loadings</i>	<i>Cronbach's alpha</i>	<i>CR</i> >0.7	<i>AVE</i> >0.5
Administrative support	<i>Item's</i>	0.647	0.801	0.853	0.541
	Admin1	0.744			
	Admin2	0.842			
	Admin3	0.635			
	Admin4	0.789			
	Admin5	0.670			
Research Output	Output1	0.722	0.895	0.915	0.575
	Output2	0.769			
	Output3	0.737			
	Output4	0.787			
	Output5	0.756			
	Output6	0.823			
	Output7	0.794			
	Output8	0.805			
	Res1	0.841			
Resources	Res2	0.798	0.863	0.894	0.588
	Res3	0.841			
	Res4	0.682			
	Res5	0.601			
	Res6	0.886			
	Time1	0.895			
	Time2	0.853			
Workload and time constraints	Time3		0.854	0.910	0.771

Source: The authors result of data analysis were derived using Smart PLS

The results show that the composite reliability (CR) values range from 0.853 to 0.915, which exceed the recommended minimum threshold of 0.7, indicating that the internal consistence reliability of the construct is established. Additionally, the standardized factor loadings for all indicators are above the minimum threshold of

0.6 and are statistically significant. The high reliability of these indicators is further supported by the average variance extracted (AVE) value exceeding 0.5, demonstrating convergent validity.

Table 2: Assessment of Discriminant Validity (Fornell & Larcker criterion)

	<i>Administration Support</i>	<i>Research Output</i>	<i>Resources</i>	<i>Work Load & Time</i>
Administration Support	0.736			
Research Output	0.243	0.758		
Resources	0.209	0.280	0.767	
Work Load & Time	0.101	0.202	-0.027	0.878

Source: Authors results of data analysis obtained from smart PLS

Discriminant validity of the indicators was assessed using the Fornell-Larcker Criterion. The result showed that the square root of the average variance extracted (AVE) for each construct was greater than the inter-construct correlations (Hair et al. 2014).

Table 3. HTMT discriminant validity

	<i>Administration Support</i>	<i>Research Output</i>	<i>Resources</i>	<i>Work Load & Time</i>
Administration Support				
Research Output	0.267			
Resources	0.279	0.282		
Work Load & Time	0.132	0.221	0.104	

Source: Authors results of data analysis obtained from smart PLS

Additionally, discriminant validity was assessed through the heterotrait-monotrait ratio of correlations (HTMT) as proposed by Henseler et al. (2015), with a value remaining below the threshold of 0.90. The results indicated that all variables achieved a value below this maximum threshold, thereby confirming the establishment of discriminant validity among the reflective constructs examined. Therefore, discriminant validity has been established.

5.3 Structural model assessment

The assessment of the structural model involved evaluating collinearity among the indicators of the construct using Variance Inflation Factor (VIF) before testing the hypotheses regarding the relationships among the resources, administrative support, workload and research output. The decision of these hypotheses were based on the significance (p-value) of the structural relationships, determined through a bootstrapping procedure, as well as the evaluation of the standard deviation and t-statistics as recommended by Hair et al. (2017). These analyses were used to test the relationship between resources, administrative support and workload and time constraints on research output. Table 4 presents the evaluation of the structural model, including the value for VIF, Significance (p), t-statistics, standard deviation, sample mean, and original mean.

Table 4: Variance Inflation Factor (VIF)

<i>Indicators</i>	<i>VIF</i>
Admin1	1.545
Admin2	1.431
Admin3	1.688
Admin4	1.582
Admin5	1.811
Output1	1.869
Output2	2.347
Output3	1.896
Output4	2.205
Output5	2.368
Output6	2.595
Output7	2.794
Output8	2.552
Res1	1.780
Res2	2.353
Res3	2.289
Res4	2.232
Res5	1.674
Res6	1.442
Time1	2.038
Time2	2.155
Time3	2.133

Source: Authors results of data analysis obtained from smart PLS

The Variance Inflation Factor (VIF) is used to assess multicollinearity among the predictor variables. The VIF values ranged from 1.341 to 2.794, which are below 5, indicating that multicollinearity is not a concern. This suggests that the predictor variables (resource, administrative support, and workload) are sufficiently

independent of one another. The low VIF values strengthen the validity and interpretability of the structural model results, as the relationship between institutional factors and research output is not excessively influenced by overlapping predictor variables.

- Hypothesis H1: Institutional Factors and Research Output

The study tested the hypothesis that institutional factors significantly predict research output among academicians under the Livestock Training Agency (LITA). The results showed that institutional factors collectively explain 15% of the variance in research output ($R^2 = 0.150$). This level of predictive power indicates a modest but meaningful influence, suggesting that while institutional conditions matter, they are not the only determinants of research output. This finding is consistent with Prasojo et al. (2025) ; Heyard & Hottenrott (2021), who also reported similar levels of predictive capacity when examining institutional predictors in academic research contexts.

The implication is that institutional determinants-such as resources, administrative support, and workload-provide the foundational environment necessary for research engagement, but they alone do not guarantee higher research output. The relatively low R^2 value suggests that other unobserved variables, particularly individual-level factors such as intrinsic motivation, research competence, self-efficacy, and personal commitment, may exert a strong influence on research output. In the context of LITA, this finding reflects an institutional setting where structural supports exist but do not fully translate into increased research performance. This aligns with the argument by Heffernan & Heffernan (2019) that the presence of institutional mechanisms must be complemented by a strong research culture and active participation incentives to be effective.

Therefore, the modest explanatory power of institutional factors highlights the need for a more comprehensive institutional strategy-one that simultaneously strengthens research infrastructure, provides motivational incentives, and nurtures staff capacity. LITA should consider policies that not only improve institutional provisions but also enhance individual motivation and research competence to achieve a more substantial improvement in research output.

- Hypothesis H1b: Resources and Research Output

The study further examined the specific influence of resources on research output. The findings revealed a significant positive relationship between resources and research output, with a path coefficient of 0.249, t-value of 2.524, and P- value of 0.012. These results confirm Hypothesis H1b, indicating that better availability of research resources-such as funding, modern facilities, and relevant equipment-has a direct and statistically significant effect on research output of academic staff. This finding aligns with prior research by Hair et al.(2017) and Noh (2012), who emphasized that sufficient access to research resources serves as a critical enabler for academic output.

The implication of this finding for LITA is highly practical. It demonstrates that investment in tangible and financial resources is one of the most effective institutional levers for improving research outcomes. Academic staff cannot effectively engage in research without access to adequate materials, laboratories, internet connectivity, and financial support for data collection, publication, and conference participation. This evidence suggests that institutional encouragement or pressure to publish-without parallel improvements in funding and infrastructure-will have limited success.

In this regard, LITA's leadership should prioritize strategic budgetary allocations for research infrastructure and competitive grant schemes. Establishing a dedicated research fund, ensuring transparent and equitable access to internal grants, and strengthening support for external grant application would create a more enabling research environment. Additionally, the provision of up-to date facilities and research databases could further enhance research efficiency and output. In essence, these results confirm that resources serve as the backbone of academic research output, and strengthen them is a critical step toward positioning LITA as a research-oriented institution.

- Hypotheses H1a and H1c. Administrative support ,workload and Research output

The study's finding that there is no significant relationship between administrative support and workload and time constraints and research output carries important implications for LITA and similar institutions. The results,

with path coefficients of 0.172 and 0.192 respectively, align with previous research by Heyard & Hottenrott (2021; Heffernan & Heffernan (2019), challenging the conventional belief that simply providing administrative aid or reducing teaching hours will automatically lead to more publications. This suggests that the availability of support and time alone is not sufficient; a deeper issue likely exists, pointing to the absence of a strong research culture.

The lack of a direct link implies that while policies may be in place to offer support or manage workload, academic staff may not be utilizing that time for research. The problem is not merely about providing resources-it is about fostering an environment where research is valued, prioritized, and incentivized. For LITA, this means that policy changes should be accompanied by efforts to cultivate a culture of inquiry and scholarly engagement, ensuring that any new support systems and protected time are effectively utilized for their intended purpose.

Table 5: Result of hypotheses

<i>Hypotheses</i>	<i>Beta coefficient</i>	<i>Standard deviation</i>	<i>T -statistics</i>	<i>P- values</i>
Administrative -> Research Output	0.172	0.130	1.324	0.186
Resource -> Research Output	0.249	0.099	2.514	0.012
Workload and Time -> Research Output	0.192	0.111	1.727	0.084

Source: Authors results of data analysis obtained from smart PLS



Figure 4: Research mode and T value

5.4 Qualitative Result and discussion

5.4.1. Resources and Research Output

The study identified inadequate research resources and funding as a persistent barrier to research output at LITA. Informants consistently emphasized that the institutional research budget is insufficient and often lacks transparency, reflecting broader financial limitations within the agency. Informants 1 and 2 noted that while LITA allocates funds for other institutional priorities such as training and administrative operations, dedicated research financing remains minimal. This finding corroborates earlier studies that identified inadequate funding as one of the most significant constraints to research performance in institutions within developing countries (Dwivedi et al.2019; Harrison et al. 2001).

In addition, informant 3 and 4 reported difficulties in obtaining external research grants, emphasizing a lack of grant-writing capacity and competitiveness among academic staff. This observation suggests that the problem is not only internal underfunding, but also limited institutional capacity to attract external research support. Similar challenges have been reported in other public higher-learning institutions, where inadequate training and mentorship in proposal development hinder researchers from accessing donor-funded projects (Haryanto et al. 2023). Consequently, the scarcity of both internal and external funding sources restricts the ability of staff to initiate, sustain, and publish quality research.

5.4.2 Workload and Research Output

The qualitative data provide a nuanced understanding of the non-significant statistical relationship between workload and research output observed in the quantitative model. Despite the absence of a significant numerical effect, the theme of workload and time constraints emerged strongly in participants narratives. Informant 5 described how the combination of teaching, administrative responsibilities, and student supervision leaves limited time for conducting and documenting research. This highlights that workload functions more as an indirect constraints that diminishes research engagement rather than as a direct determinant of output quantity.

This finding is consistent with Heyard & Hottenrott (2021) ; Sallehuddin et al. (2019), who observed that academics often balance multiple institutional roles, and while some continue to publish, they do so under significant personal strain. In LITA's context, the qualitative evidence suggests that although staff may be willing to conduct research, the institutional environment does not provide structured time allocation or workload adjustments to support this goal. Thus, the lack of significance in the quantitative results does not imply that workload is unimportant-it reflects that the impact of workload is mediated by other factors such as motivation, institutional recognition, and person commitment to research

5.4.3 Administrative Support and Research Output

The theme of ineffective administrative support provides further insight into why this factor showed no significant relationship with research output in the quantitative model. Informants consistently described a mismatch between formal institutional structures and the actual implementation of research support initiatives. As noted by Informant 6, while the agency actively supports training programs, research activities receive limited administrative attention and recognition. This perception of neglect undermines the principle of organizational support theory, which posits that employee are more likely to engage in optional tasks such as research when they perceive tangible institutional support (Eisenberger et al. 2025) .

Furthermore, participants reported that staffs who independently publish research often receive no institutional acknowledgment or incentive. This lack of recognition discourages sustained scholarly activity and reflects an absence of a coherent research policy with clear guidelines, incentives, or accountability mechanisms. Consequently, administrative support at LITA appears to exist only at a structural Level- through departments or office- but not as a functional system that nurture results, indicate that administrative support in its current form does not drive research output because it fail to address the motivational and cultural dimensions essential for academic productivity.

6. Conclusion

This study successfully established that institutional factors significantly influence research output at the Livestock Training Agency (LITA). The Organization Support Theory (OST) provides a strong framework for understanding these relationships. Our findings, derived from a mixed-methods approach and analyzed using PLS-SEM, demonstrate that while all three institutional factors are perceived as important, their actual influence varies.

The most critical finding is the significant positive effect of resources on research output. This confirms that for an institution like LITA, tangible support in the form of funding, equipment, and infrastructure is a primary driver of academic productivity. This result is consistent with some empirical literature and highlights the foundational role of financial and physical capital in enabling research, particularly in less-established institutions.

Conversely, the study's quantitative results showed a non-significant relationship between administrative support and workload on research output. This counterintuitive finding is a major contribution of the paper. It suggests that, despite their effect not being statistically significant barriers to academic staff, these factors may not be direct or primary determinants of research output at LITA. The qualitative insights further illuminate this, revealing that these issues are part of a deeper, systemic problem—a weak research culture where research is not sufficiently prioritized by the administration. In such an environment, issues like administrative red tape and heavy teaching loads are symptoms, not the root cause, of low research output. This finding distinguishes our study from others that may have found a direct link, underscoring the context-specific nature of these relationships.

In summary, this research underscores the need for a targeted approach to enhancing research output. Simply increasing administrative support or adjusting workloads in isolation may not yield the desired results if the underlying institutional culture does not genuinely value and prioritize research.

7. Recommendations

Based on the study's findings, here are actionable recommendations for LITA and similar institutions aiming to enhance their research capacity:

7.1. Increasing Research Funding: Given the strong positive relationship between resource and research output, LITA should prioritize increasing its dedicated research budget. This includes not only internal grants but also providing support for academic staff to apply for external funding. The institution should establish a transparent and fair system for allocating these funds.

7.2. Cultivate a pro-research Institutional Culture: The non-significant quantitative findings regarding administrative support and workload point to a deeper issue. LITA's administration must go beyond token gesture and actively demonstrate its commitment to research. This is achieved by:

7.2.1. Revise workload policies: Formally allocate protected time for research in academic staff's schedules, separate from teaching and administrative duties.

7.2.2. Provide Strategic Administration Support: Offer tangible support for grant writing, ethics approval and publication processes, which can reduce bureaucratic hurdles and empower researches.

7.2.3. Establish a Strong Mentorship Program: Connect junior academic staff with experienced mentors to guide them through the research and publication process

7.3. Promote and Reward Research Excellence: The institution should implement a performance management system that formally recognizes and rewards research output, such as publications in reputable journals and successful grant applications. Linking research achievement to career advancement (example Promotion and salary increments) can provide strong incentives for academic staff to prioritize research.

7.4. Invest in Research Infrastructure: Beyond funding, LITA should invest in physical and digital resources. This includes upgrading laboratory facilities, ensuring reliable high-speed internet access, and providing a well-equipped digital library with access to relevant academic databases.

7.5 The underrepresentation of women in academia at LITA: highlights the need for targeted strategies to support female academic, such as mentorship programs, flexible research schedules, and leadership development opportunities, to enhance their participation and research output.

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