

# **Developing a Construct Validity under Herzberg's Theory for Motivation of Employees in the National Agricultural Research Organization (NARO) – Uganda: An Exploration of Motivational Factors Affecting Agricultural Research Organizations in Sub-Saharan Africa**

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## **Abstract**

*An exploratory study has been undertaken to understand possible factors related to motivation of researchers in Sub-Saharan Africa's (SSA) agricultural research context. This is part of a large study aimed to develop construct validity under Herzberg's theory for motivation of employees in the National Agricultural Research Organization in Uganda. In this exploratory study, publications related to motivational factors in SSA agricultural research systems have been reviewed. Institutionalization of incentives, service conditions, job security and salary packages have been identified as key hygiene factors. On the other hand recognition, meaningful work, flexibility, career development, self-drive, freedom and work overload are critical motivators.*

**Keywords:** Employee motivation, Sub-Saharan Africa, Agricultural Research, Agricultural Research Systems, Hygiene factors, Motivators, Herzberg's two factor theory

## **1. Introduction**

Motivation of employees has been identified as key to job performance and organization's outputs (Latt, 2008). The relationships among organizational goals, profitability, competitiveness, employees' attitude about work and employees' performance have been explored in various studies (Alharji & Yusoff, 2011; Chaudhary & Sharma; 2012). The attitude is highly influenced by how motivated employees are at work; hence their level of job satisfaction. In the competitive world, differences in these parameters would determine the success or failure of the organization (Dongho, 2006). Motivation is described as an employee's intrinsic enthusiasm about and drive to accomplish activities related to work (Heathfield, 2013). Managers should know what motivates their employees to satisfaction and what factors of motivation are applicable in that environment making motivation a core competence of leadership (Latham, 2007). This requires organizations to have effective Human Resource Management (HRM) where motivation is fully integrated. Employees in an organization, when well-motivated, pull their weight effectively behind the organization; they remain loyal and contribute, to the organization's goals and objectives (Shahid, 2013). However, public employees have a reputation of being lethargic and hard to motivate and how to motivate them is one of the three "Big Questions" of Public Management (Behn, 1995). There have been limited studies on employee motivation in public sector worldwide and Africa in particular which has constrained a detailed understanding of the underlying factors of employee motivation (Kuvaas, 2009; Munga & Mbilinyi, 2008; Tongo, 2011). This is contrary to the private sector organizations where empirical evidence on employee motivation is largely available (Mensah & Dogbe, 2011; Oladolun & Ozturen, 2013).

Efforts to improve the performance of public government organizations, however, are partly dependent on the ability to motivate public employees (Houston 2000). This is against a background of increased competitiveness among organizations both locally and internationally, limited skills resources, aging and plateauing employees; and the need for sustainability. There is a dire need for dedicated, loyal, committed and highly motivated employees to generate higher productivity gains for less (Khalid, 2000; Roos, 2005). Sub-Saharan Africa livelihoods and economic development are highly dominated by agricultural sector and in Uganda 66% the working population is employed in this sector (GoU, 2012). National Agricultural Research Organization (NARO) as a public institution charged with agricultural research in Uganda should have sufficiently motivated staff to strategically generate agricultural technologies for increased agricultural productivity, creation of livelihood opportunities and improved household incomes. Agricultural research institutions, in Uganda by their nature, present a unique context whose attempt to adopt traditional approaches or theories of motivation may post different results altogether. This is part of the study intended to develop construct validity for motivation of employees in the National Agricultural Research Organization of Uganda (NARO), specifically focusing on researchers, using the Herzberg's theory. Under the theory, there are two sets of factors that influence motivation: a set of factors called hygiene factors which lead to dissatisfaction and; the other set of factors called motivators which result into satisfaction (Herzberg et al 1965, cited from Stello C., 2011). Studies on motivation using Herzberg's theory have cautioned on generalization of findings and recommend application of the theory in other environments as motivation differs in workplaces and under different environments (Quartey & Attiogbe, 2013). Specifically this paper aims to present an exploration of motivational factors among agricultural research organizations in sub-Saharan Africa. The intention of this exploration is to identify with those factors that can be used for validation of Herzberg's two factor theory under Uganda's context.

### **1.1 Study Objectives**

This paper aims to make an exploration of motivational factors affecting agricultural research organizations in Sub-Saharan Africa. Specifically the study will

- Give an insight of motivational factors affecting agricultural researchers in Africa
- Identify motivational factors under Herzberg's two factor theory that are relevant in an African agricultural research setting.
- Identify with the relevant items for each of the factors.

### **1.2 The Context and the Problem Statement**

Agriculture is the backbone of Sub-Saharan African economies accounting for 57% of total employment, 17% of Gross Domestic Product and 11% of export earnings (FAO, 2005). There is overwhelming evidence that investments in Sub-Saharan Africa's agricultural research and development have significantly contributed to economic growth, improved productivity and poverty reduction (Beintema & Stad, 2011). Moreover, under the Africa's Research and Development Vision 2020, the region has focused on a transformed agriculture with dynamic agricultural regional markets, abundant and affordable food and; an annual agricultural growth rate of 6% per annum (FAO, 2002). Despite these achievements and vision, many countries in the region still have fragile Research and Development systems depicted by human resource challenges, such as prolonged recruitment freezes, limited training opportunities, aging pool of researchers, and abscondment of senior research staff, poor remuneration and low morale (Beintema & Stad 2011; Mwala & Mwale, 2011; Sene et al, 2011). Studies aimed on aging and turnover of agricultural research staff have focused on incentives, strategies and policies available in order to motivate and retain staff (Murithi & Minayo, 2011; FARA, 2006).

However, these studies have implicitly mentioned motivation as a problem. Given that skills resources for agricultural research are limited, poor motivation stands out as a major problem and especially so to the region whose majority rural households are largely dependent on agriculture both for employment and food (Sene et al, 2011). There has been little effort to establish the relationship between the attitude of agricultural researchers and motivation. Factors influencing employee motivation in this context are not empirically known. In the absence of such information, there is a likelihood of deficiency of employee motivation dimensions in strategic human resource policies, strategies and practices, which can lead to suppressed innovativeness, reduced organizational performance, high staff turnover and decreased overall efficiency as employees do not perform to the best of their abilities (Roos, 2005). This would impinge on the aspirations of the vision of the region's R&D of 2020 and negate the achievements so far realized under the agricultural R&D investments.

Under HRM, motivation strategies are proposed in order to create a working environment, develop policies and practices that will lead to higher employee performance (Armstrong, 2009). The factors affecting the choice of strategies include the complexity of motivation as a subject. Herzberg's two-factor theory for motivation, however, is widely renowned as a practical approach towards motivating employees and has been widely used in the development of competent frameworks, performance management, training and development as human resource contributions arising out of motivation requirements (Armstrong, 2009). The study proposes to fill this gap by undertaking an exploratory study on motivational factors in the region's agricultural research organizations. It will give an insight to enrich the understanding of the factors of motivation in the region's agricultural research organizations to generate information for inclusion in instruments to be used for bigger study on motivation of agricultural researchers in Uganda. The other part of study not contained in this paper proposes to validate Herzberg's theory, to determine motivators and hygiene factors that specifically influence agricultural research staff motivation in Uganda.

## **2. Methodology**

Qualitatively, through exploratory design, there will be research synthesis of literature review on research articles, essays, monographs, and government documents on motivation of agricultural research staff that are available in the Sub-Saharan region. These sources have been conveniently selected among those proposed by Onwuegbuzie, Leech & Collins (2012) for representation and legitimation. The approaches of "Key words in context", theme analysis, discourse analysis and text mining will be used in the research synthesis of literature review to identify the relevant variables (Onwuegbuzie, Leech & Collins, 2012). These documents have been mainly goggle searched where relevant papers have been identified. In the goggle search, key words have been used with inclusion of key institutions involved in Africa's agricultural research. The institutions focused on include FAO, IFPRI, FARA, CAADP websites that have undertaken numerous management studies on Africa's agricultural research institutions. Then key words have been used to filter the papers relevant to the subject. These key words are "employee motivation in Africa", "motivation of researchers in Africa's agricultural public research institutions", and "motivation of public organizations in Africa". The searches have produced plenty of documentation on the subject but the author will proceed to selectively identify those writings that are significant to the study in terms of employee motivation at agricultural research institutions. The purpose of this rigorous literature review is to identify variables that are relevant in the study of motivation in agricultural research organizations (Onwuegbuzie et al, 2010). These variables, in addition, will also be found appropriate in the validation of Herzberg's two factor theory of motivation. These findings are described, analyzed, presented, discussed and summarized in a conclusion. The identified factors and related items are presented as bolded words or phrases or italicized for emphasis. Complementary of these documents is highlighted. In the summary the identified factors are then presented as either hygiene or motivators according to Herzberg's theory. These factors and related items will later be cross checked with those in the instruments that the study originally has developed for enrichment.

## **3. Results**

A total of 9 papers were finally identified and found relevant to the study. All these papers are focused on Sub-Saharan African (SSA) countries where a great extent of agricultural research systems are analyzed focusing on individual studies. Most of these papers are results of case studies. The findings are hereby presented and discussed. Mwala and Mwale (2011) undertook a case study entitled "Staff aging, turnover in African Agricultural Research. A case study on Zambia Agricultural Research". While the study is not primarily focused on motivational factors, the generated information surrounding staff turnover has been of great importance in understanding motivational factors in agricultural research organizations especially so for Zambia Agricultural Research Institute (ZARI). The methodology was a case study based on data and information collected through literature review, survey, and interview guide on selected research scientists. Synthesis of this article reveals key words and phrases in the context of motivation and these have been presented below, with bolding done for emphasis and relevance. Under challenges to researchers in ZARI, which in turn would limit the performance potential, the following factors have been identified: Inability of the ZARI to train, mentor and retain researchers, dissatisfaction of poor service conditions, lack of tangible rewards to scientists and limited opportunities for promotion. Other factors identified include failure to retain researchers at ZARI arising from poor salary and retirement packages, inadequate compensation, outdated research infrastructure, and insufficient operating budgets which lead to low morale of researchers.

The undefined path of career development was highlighted as key cause of staff turnover. The article indicates that in spite of performance evaluations conducted annually, not all assessments result into promotions due to the hierarchical structure at ZARI where there are few senior positions subsequently restricting career opportunities at ZARI. Therefore undefined path of career development is a demotivator. The article summarizes the following recommendations for improved motivation among research staff: opportunities for training, a clear path for promotion, provision of personal loans, improvement in research infrastructure, a conducive working environment and; a strategic plan for human resource development. The article provides the variables highlighted which are commensurate with hygiene and motivation factors under Herzberg's theory. Given the similarities of Sub-Saharan Africa's agricultural research institutes these variables form part of the motivational factors that this study is exploring in Uganda.

A similar case study was undertaken in Kenya by Murithi and Minayo, in 2011 entitled "Staff aging, turnover in African Agricultural Research. A case study on Kenya Agricultural Research Institute" (Murithi & Minayo, 2011). It focused on aging and turnover of Agricultural researchers with a purpose was to identify the incentives, strategies and policies available at Kenya Agricultural Research Institute (KARI) to motivate and retain staff. Although the study included both researchers and support staff, the findings on motivational factors mainly referred to research scientists and are similar to those of Mwala and Mwale (2011) outlined above. The methodology, however, differs as only secondary data was used from various employee reports. The study shows a reduction in research staff from 605 in 2004 to 565 in 2010 arising out of recruitment freeze of new young scientists partly due to government policy, scientists undertaking higher education in overseas universities and thereafter pursue improved job opportunities abroad, and others joining local universities where though basic pay was similar to KARI's, working environment was flexible. In addition, the study shows, these local universities offer better housing, medical, commuter and other allowances and; staffs are unionized to demand for better terms of service and remunerations. Aging staff, lack of a clear succession plan and difficulties in retaining well-qualified scientists are identified as key challenges. KARI's efforts undertaken to reverse the trend are highlighted and include performance based evaluation for promotion and institutionalization of incentives to improve staff motivation and retention. Among the institutionalized incentives are: institutional identity where all agricultural research scientists are managed by a single entity, increased retirement age from 55 to 65 years, providing uniform terms and conditions of employment, further opportunities to scientists for training to attain higher degrees upon whose attainment one would qualify for promotion, introduction of an elaborate training plan, and increased remuneration. Others are commuter allowance, introduction of flexibility in working conditions and; comprehensive group insurance and medical insurance. Institutionalized, also, is a transparent and participatory performance based evaluation system for scientist's annually. Murithi and Manayo (2011) present some of the results of the survey on KARI staff satisfaction which showed an 80% staff satisfaction following the institutionalization of these changes. The attributes cited by staff for satisfaction include professional development, job security; timely decision making that involves employees, fair pay and fair appraisal system. Among the reasons cited for dissatisfaction among the scientists are: poor remuneration, promotion not forthcoming, staff complaints not well addressed, no room for career development, and discrimination in training opportunities (Murithi and Minayo, 2011).

In a related article by Beintema and Stads (2011) entitled "African Agricultural Research in the new Millennium. Progress for some, challenges for many." the authors provide data on institutional development and investments in agricultural research and development in Africa in order to enable policy makers keep abreast of science policy pertaining to agriculture. This is expected to lead to taking better-informed decisions that would address the current challenges to enhanced agricultural productivity. Using time series data, the authors analyze the funding and staffing levels of national agricultural Research Institutes (NARIs) for 32 SSA countries. The study shows that there is wide spending in research and development, increased researcher numbers with key areas of expenditure as salaries (Ghana), research activities, equipment, and infrastructure (Tanzania) and institutional development, research programs, rehabilitation of research infrastructure, post graduate training and improved staff salaries (Uganda). Despite these positive trends, the following challenges have been identified for immediate redress to avoid reverse of these developments: Salaries, retirement packages and conditions of service are poor; outdated infrastructure, and insufficient operating budgets.

The paper recommends the following for improvement: Mentoring programs to facilitate on-job training; regular staff performance evaluation to form basis for promotion, better medical benefits, and commitment to work for NARI for a set period of time. The paper has highlighted both hygiene and motivational factors under Herzberg's two factor theory that may affect motivation among NARI researchers and have therefore been incorporated among the variables to investigate. A report by the Forum for Agricultural Research in Africa (FARA, 2006) entitled "Agricultural delivery in Africa: An assessment of the requirements for efficient, effective and productive National Agricultural Research Systems in Africa: Main Report and Strategic Recommendations", was developed through a study that concentrated on the National Agricultural Research Institutes (NARIs) in 50 African Countries. Data were collected using questionnaires. Likert scale was used and data analyzed using SPSS. The report notes that administrative changes in the top management of research institutes are less frequent than in the lower cadres of management and calls for a need to learn about the causes and consequences of instability in the lower ranks. The possible causes identified include:

- Lack of a well-planned and steady replacement program and complete absence of mentoring for young scientists identified as serious weakness in agricultural research in Africa.
- Poor conditions of service. This has led to brain drain as researchers look for greener pastures and trainees not returning to their home countries.
- NARIs offer very few incentives to encourage scientists to stay and develop their careers in their institutions. Only 8% of NARIs reported having competitive salaries.
- Lack of a training program by most NARIs.
- Absence of a Minister's or Director General's award for achievement in research.
- Publications of the NARIs are very poor

The study indicates that journals published by scientists in the past 5 years in internationally refereed journals are minimal. Thirty nine percent of NARI scientists had not published a single article in a refereed journal in the past 5 years. The study noted that research scientists in government research institutions are public servants whose progress is via a system that does not necessarily take into consideration their research publications. Thus, there is no incentive, pressure or obligation on scientists to publish research papers (FARA, 2006). The report summarizes four possible areas for motivational factors relevant to the study can be derived. These are: governance and management; financial status and management; strengthening scientific capacity and collaboration. Kabore, Oudraogo and Traore (2011) present a case study entitled "Staff aging and turn over in agricultural research. A case study of Burkina Faso." The study was undertaken in Burkina Faso's Environment and Agricultural Research Institute (INERA). The overall goal of the study was to determine recommendations for motivating and retaining research staff. The methodology used is literature review of human resource development in agricultural research and development, and a survey using a general questionnaire administered to 146 research scientists of whom 82% were males. The findings in terms of motivational factors are as indicated below:

- Young scientists are being trained; however, majority of senior scientists would have retired within the decade as 84% are aged between 40-60 years. In addition, the young scientists would miss out on benefiting from the experience of the senior researchers and this will subsequently affect research performance.
- There is rampant departure of research scientists from INERA to other private organizations due to poor salary despite the recent reviews (private sector pays two to three times higher), lack of recognition of individual merit and lack of adequate research facilities and equipment.
- Lack of recruitment policy
- Difficulty for INERA to attract and retain research staff
- Staff expectations such as educational opportunities, promotional opportunities, remuneration, benefits and incentives are not met.

The study proposes a strategy that would lead to a motivated research staff. In the strategy, young researchers should be attracted and retained by INERA; there should be a training plan for short and long term trainings; and exchange program. In addition a deliberate promotion of dynamic research teams is proposed as well as a system to acknowledge and reward competent researchers. Sene et al (2011) synthesizes results of five national case studies conducted to analyze the scope and magnitude of the human resource challenges facing national agricultural research institutes (NARIs) in Africa. Under the title "Staff Aging and Turnover in African Agricultural Research and Development.

Lessons from five National Agricultural Research Institutes”, the study focused on Burkina Faso’s Environment and Agricultural Research Institute (INERA), Senegalese Agricultural Research Institute (ISRA), South Africa’s Agricultural Research Council (ARC) and Zambia Agricultural Research Institute (ZARI). The synthesis further elaborates on motivational factors in African agricultural research that can also be conceptualized under Herzberg’s two factor theory. While some of these factors have already been mentioned under individual case studies cited above, this synthesis confirms these findings. Under hygiene and motivational factors identified that National Agricultural Research Institutes (NARIs) are faced with include challenges related to poor conditions in terms of salaries, benefits and retirement packages, necessary infrastructure, operating budget, collaborators and management structures to successfully conduct research. Under Agricultural Research Council of South Africa, major factors are related to salary levels, conditions of service, and organizational culture. Under the Agricultural Research Institute (ARI) of Burkina Faso, causes of departure of most research staff arise from poor salaries, inadequate equipment and facilities, and lack of recognition, low job satisfaction, and poor motivation (Sene et al, 2011). In addition, lack of training opportunities, limited career development, low wages and allowances, poor working conditions, lack of equity in allocating rewards and lack of government recognition of the importance of Research and Development (R&D) are identified as key dissatisfiers in Senegal’s Agricultural Research Institute (ISRA) that have led to researcher departures (Sene et al, 2011).

In a related paper entitled “Measuring R&D Performance from an innovation Systems perspective. An Illustration from the Nigeria and Ghana Agricultural Research Systems” by Ragasa et al (2011), a number of factors are identified as critical to agricultural staff morale in Nigeria and Ghana. Overall staff satisfaction ranged from 21-24% as very satisfied and 65-67% satisfied. Identified organization practices responsible for satisfaction were mainly motivators listed as: effectiveness of research organizations, peer recognition, transparency, gender equality, job security, adequacy of resources, no corruption, political autonomy, qualification of staff, clarity of roles, participatory leadership, mobility and openness to information. Specifically, in both countries low satisfaction among respondents arose from both hygiene and motivation factors related to adequacy of physical resources and research funds (78-80%), and; fair and competitive compensation while for Nigeria, job security was identified as key factor. Similarly, peer recognition and gender equality in opportunities are highly rated as motivators. Others recognized as motivating factors include basic resources, peer effects and financial incentives. Specifically for researchers, higher salaries and promotion are the top most motivators, while skills development, training, and timely release of research funds follow suit. Sixty percent of Research Managers and Heads of Research Organizations in Nigeria identify research funding and timely release of funds as the most important motivator, followed by facilities and infrastructure, conducive working environment, peer recognition, high salaries and impact of technologies generated. The motivation factors identified in Ghana mirror those of Nigeria and include high salaries (and health insurance), recognition, staff discipline and morale, career development and conducive environment. The paper stresses that motivation is not from financial incentives alone but is also based on non-financial incentives such as advance opportunities, consistent performance indicators and conducive working environment for researchers to undertake their research tasks.

This paper has been important in our study as it has enabled us open up on the possible motivating factors of agricultural researchers. Given the similarities between Uganda on one hand and; Nigeria and Ghana on the other hand, in terms of research capacities both human and physical, the insight provided is significant for the study under consideration. Another paper that has provided an insight on motivational factors in agricultural research is given by Ragasa et al (2010) entitled “Strengthening innovation capacity of Nigerian Agricultural Research Organizations”. The paper gives a descriptive analysis of the survey conducted in 43 agricultural organizations and 366 staff involved in agricultural research in Nigeria in the contexts of innovation capacity, organizations’ culture, work environment and incentive structures, among others. The methodology used was a survey that utilizes two questionnaires (one for top research managers and one for individual researchers) among the sampled 15 Research Institutes (RIs), 11 Federal Colleges of Agriculture (FCAs), 25 faculties of agriculture and veterinary medicine at federal universities, 3 universities of agriculture, and the Agricultural Research Council of Nigeria (ARCN) all drawn from the 2010 ARCN records. For purposes of this study, focus has been put on issues related to motivation and incentives among individual researchers. Using a Likert scales of 1-5 the following factors have been identified as sources of motivation among researchers: recognition from colleagues, high self-value and peer recognition as sources of motivation among researchers. Additionally, equal opportunity for men and women staff in promotion, sufficient resources to carry out research, fear of job loss in the near future, and the need to hire on the basis of merit are indicated as key motivation factors.

Ragas et al (2010) identify enormous inadequacy of resources, serious job insecurity among researchers and dissatisfaction of researchers with organizational policy on staff recruitment, staff remuneration and mobility to areas of operation as limitations to performance. Other factors identified under work environment include good hiring procedures, good performance evaluations and reward system focusing on merit a basis for promotion, good opportunities for promotion in organization and fair performance appraisals. The paper makes the following recommendations for good organizational performance: equal opportunities for promotion for both males and females, staff qualified for do their jobs, staff satisfaction, information sharing, good performance evaluation and reward systems, and freedom in performance of duties. The results of individual capacity and incentives give equally relevant information on motivation. Important sources of motivations that would lead to increasing research productivity indicated by agricultural researchers include: promotion, high salary and; skills development and training; peer recognition, better conducive work environment, guidance from supervisors, and the need for an Intellectual Property Rights (IPR) policy.

#### **4. A Summary of Findings**

In summary, motivational factors identified in the review can be conceptualized under Herzberg's two factor theory this study has adapted and therefore be classified as either hygiene or motivational factors. A list of motivational factors and related items under Herzberg's two factor theory has therefore been developed from this exploratory review and has given an insight of possible factors of motivation to be considered under Uganda's NARO context. This is presented below categorized as either hygiene or motivators. Their possible behaviors will be confirmed as we undertake tests of these variables at a later stage of the study.

##### **4.1: Hygiene Factors**

(i) Company policies have been reflected in all the documentations.

This factor has attracted the highest number of items that include strategic plan for human resource development, succession plan, mentoring program for scientists, operating budget and sufficiency of funds, recruitment policy and ability to attract and retain staff. Institutionalization of incentives, governance and management, organizational culture, performance evaluation and reward system, adequacy of resources, obligation to generate periodic research reports, transparency, fairness in staff appraisals, equal opportunity, and gender equality have also been highlighted.

(ii) Supervision

Items raised under supervision include: involvement of researchers in decision making, fair appraisal systems, addressing complaints raised by researchers, participatory leadership, staff discipline, team work, feedback, and support to subordinates. Others identified are: equity in allocating resources, and adequacy of qualified supervisors.

(iii) Remuneration

This factor is listed in all documentations and broken down into numerous items. These are poor service conditions, need for health insurance, salary and retirement packages, inadequate compensation, and provision of commuter, housing and loan facilities.

(iv) Job Security

This factor is mentioned with few items attached mainly fear for job loss and job insecurity.

(v) Working conditions

There is a generalization of the need by researchers to have good working conditions. Key among the items mentioned is: outdated research infrastructure, timely release of funds, staff mobility to areas of operation, conducive working environment and; insufficient funds given to research infrastructure and equipment renewal.

##### **4.2 Motivators**

(i) Recognition

This motivation factor has been highlighted throughout the reviewed documentation. Key items identified under this factor include: tangible rewards to researchers, award for achievement, and; recognition of scientists.

(ii) Work itself

The major motivation challenges that have been highlighted include flexibility, meeting expectations, meaningful work, sense of belonging, challenging work, work content, self-drive, freedom and work overload.

(iii) Career development

This factor has been identified as a challenge to improvement of research performance and as an opportunity for growth.

## 5. Conclusion

The review of these specific papers has enabled us to explore and gain an insight of motivational factors in SSA's agricultural research context. These factors have also been conveniently categorized as either hygiene or motivators under Herzberg's two factor theory for further analysis under Uganda's agricultural research context.

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