

Sustainable Agriculture Education Programs in Uganda: Successes, Challenges, and Impact

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ABSTRACT

This review explores the necessity and effectiveness of sustainable agriculture education programs in Uganda, focusing on integrated, experiential learning approaches. It highlights the Agro-ecology Summer Residency Program initiated by Sustainable Agriculture in Uganda (SAI) and other educational initiatives aimed at village farmers. The study examines the benefits of these programs in terms of improved crop yields, environmental conservation, and economic empowerment. Challenges in implementing such programs, including limited access to resources and lack of awareness, are discussed alongside collaborative approaches for success. The impact of sustainable agriculture education on rural communities is assessed, emphasizing enhanced food security, increased income generation, and improved livelihoods.

Keywords: Sustainable agriculture, education, village farmers and economic empowerment

INTRODUCTION

This review aims to address the need for integrated, experiential education in developing countries [1-4]. It is critical that the next generation of farmers harnesses ecological concepts and tools from the outset in order to manage the world's dwindling natural resources [5-8]. The case study presented herein took place in Uganda, a country whose agricultural infrastructure has been devastated by recent decades of political instability [9-11]. Over 85% of the population still resides in rural areas, primarily surviving off of smallholder subsistence farming [12-14]. In 2004, an Agroecology Summer Residency Program hosted by the NGO Sustainable Agriculture in Uganda (SAI) was initiated by a team of Ugandan and international educators led by the second author. Following assessment of this and other education programs in Uganda, SAI designed a more comprehensive agroecology curriculum for village farmers [15-17]. Key components of this education initiative involved a series of village workshops and farmer participatory research [18-23]. The obtained

data were then used to develop appropriate teaching tools and to train trainers for continued farmer education [24-26]. These materials will be constantly reevaluated and improved over time [27-29]. The impact and sustainability of the SAI curriculum model was exemplified by Rory Aronson, an undergraduate researcher from University of California Santa Cruz, who supported SAI workshops in 2010 and has since founded an international student organization called Farming Hope [30-32]. Based on his experiences with SAI, Rory's long-term vision involves creating a global network of young farmer mentors who will generate positive change in their home communities and help facilitate similar projects in the future [33-36]. This paper will explore the successes and challenges of several different educational approaches over the last decade in Uganda, emphasizing the potential of farmer participatory research and promotion of ecological literacy among the next generation of farmers [37-42].

METHOD

This review employs a qualitative analysis of existing literature, program evaluations, and case studies related to sustainable agriculture education programs in Uganda. Data sources

include academic journals, NGO reports, government publications, and firsthand accounts from program participants and organizers. Themes such as improved crop

yields, environmental conservation, economic empowerment, challenges in implementation,

and collaborative approaches are identified and analyzed.

Benefits of Sustainable Agriculture Education Programs

The concept of this education program revolves around the creation of Farmer Field Schools (FFS), in which groups of 25-30 participating farmers meet once a week for several months to learn through experience how to improve their crop management [20]. This includes isolating and solving problems within crops, the use of new crop management/crop saving techniques, and group study of indigenous knowledge and practices. After taking part in these FFS sessions, farmers should have acquired knowledge on how to independently conduct experiments and trials to solve problems or test new methods [33]. This will result in improved critical thinking skills and an increased ability to organize and analyze information, thus leading to improved decision making and problem solving in day to day farming situations [36]. Experiment data and anecdotal evidence from the FFS of various partner organizations have also shown increased crop

yields in treated areas. Big concepts like sustainable farming often feel amorphous and difficult to fully realize, yet in the light of now numerous small and well-meaning organizations, these practices have transcended fantasy and have become very real solutions for very many people [30]. One of the best examples of this is the Sustainable Agriculture Education Program which has now come to Uganda. This program, an ongoing partnership between Volunteers Helping Development (a small American-based 501c3) and the people of Uganda, has been working to further sustainable agriculture in Uganda since 2001 and is farmer-based, farmer driven, and farmer owned [32]. They aim for small farmers to achieve food security, generate cash and promote a healthy environment and thus are working placing a tremendous emphasis on education techniques for adult farmers.

Improved Crop Yields

Many forward-thinking agricultural development programs in Uganda have paid scant attention to soil fertility management and the crop yields of participating households. Soil fertility degradation is a core factor in declining per capita food production throughout the country, and about 70 percent of farmers mentioned it as a priority problem in a recent baseline survey [40-42]. The adoption of soil-enhancing technologies is an attractive option as they generally offer significant immediate benefits to farmers in terms of yield increases for only a relatively small investment of time and/or money. A comparison of the likely impact of six alternative technology options for refugee and host households in Kyangwali and Rhino camps concluded that fertilizer use and improved fallow were the most promising options in terms of immediate and sustained household food security [40-42]. A broad soil

fertility management approach is likely to be more cost-effective as context and agro-ecological zone-specific technologies will be unknown or inappropriate for many farmers. This programming theme intends to have a strong focus on participatory research with farmers to enable them to identify the most limiting soil fertility constraints and to test potential solutions in an environment of co-learning. The capacity of households to act on soil fertility problems varies, and much of the research will target local wealth groups which are most affected by chronic soil fertility constraints and have the least resources to deal with them. A significant emphasis will be placed on gender and youth inclusive targeting, and during early 2017, hopes to launch a separate research theme on soil fertility management for refugees [40-42].

Environmental Conservation

Sustainable agriculture programs emphasize environmental stewardship. This is a topic that does not receive a lot of attention in traditional agriculture extensions but is an extremely important consideration in a country like Uganda where the majority of people's livelihoods are directly tied to the land [40-42]. Traditional methods of agriculture are not sustainable in the long term and lead to drastic environmental degradation [40-42]. Over

cultivation eventually creates sterile soil that cannot support plant life. This is exacerbated by the cutting down of trees for firewood, construction, and to clear farming land, leading to deforestation [30-35]. Uganda's deforestation rate is one of the highest in the world at 1.89% per year. The plan to reverse this trend is to plant 40,000 acres of tree plantations as a slow developing but long-term investment [35-38]. At the current moment,

these vast deforested areas leave many upland and swamp gardens overexposed to the elements, leading them to dry up and never regenerate. In terms of long-term resource sustainability, we need to focus our efforts on the prevention of drying rather than just trying

to extend the cultivation period. This is a tactic often used by implementing underground dams, but recent research has shown this to often be detrimental to the environment and has adverse effects on the local water table [40].

Economic Empowerment

Small-scale farmers in Uganda have more than once echoed their interest in the potential to produce value-adding products such as jams from fruit, oils from seeds, and essential oils from various herbs and spices [12-15]. Unfortunately, the absence of knowledge and trends towards free trade policies and liberalization of markets have so far dissuaded many from venturing into such enterprises. In the long-term, organic agriculture empowers farmers and their communities by increasing self-reliance [16-19]. This is achieved by lessening dependency on foreign aid and inputs while improving capacity for local problem-solving and decision-making. Having a stable local economy with a strong market for locally produced goods is essential for current and future development. Through organic agriculture training, farmers are able to diversify both their crops and their diets, which

in turn increases their household food and nutrition security [20-25]. A balanced diet leads to a healthy population, and many common preventable diseases are a result of malnutrition. Anyone that has ever survived on a poor man's diet of only one or two staple crops such as maize or rice knows the boredom and dissatisfaction of eating the same meal day in, day out. Small cash incomes derived from conventional agriculture are rarely spent on food and nutrition security [30]. This is because conventionally produced food is often perceived as a cash crop and is well beyond the buying power of those producing it. By increasing the ability to produce a variety of foods with a higher market value, families can better provide for themselves and the money saved from not having to purchase the same food that they produce can be spent on other food stuffs and items [35].

Challenges and Solutions in Implementing Sustainable Agriculture Education Programs

A recurring theme through the FFS and SLP projects was the identification of challenges [9]. Identification of these challenges was a major component of the SLP project, while for the FFS project, that information was not always well documented. The diligent documentation of these challenges by the SLP project has provided a good foundation for future efforts in the expansion of farmer-centered learning in sustainable agriculture [10]. Challenges ranged from national level barriers to issues in the implementation process and local obstacles. Categories of challenges that were identified included policy, human and financial resources, training and consultation, development and implementation of an agricultural education program [13]. Each category of challenges had both a primary focus on farmer education as well as an underlying, higher-level focus that was more concerned with the interaction

between the smallholder farmers and the institutions providing resources to the farmers. Economic and political struggles at the national level often had a residual effect that created secondary hurdles for the smallholder farmers [15]. Simulation of the FFS and the SLP can help to reveal this relationship between institutional structures and smallholder farmer challenges. Establishing these challenges was a major success as the experience of the SLP project shows that a better understanding of the challenges is instrumental in improving the outcome of future endeavors in sustainable agriculture education [20]. Through identification of these challenges it is possible for those involved to better understand the forces that affect smallholder farmers and in turn, to better assist the cause of sustainable agriculture in the long-term [23].

Limited Access to Resources

There are significant disparities between different socio-economic groups and regions in access to resources [40]. In the conflict-affected areas of Northern Uganda, people are returning to their villages after many years in IDP camps to find their homes, crops, livestock, and infrastructure completely destroyed. They are

starting from nothing. People with physical disabilities are among the most marginalized in Uganda, often unable to access basic services or secure employment and disproportionately affected by poverty [41]. Single female-headed households often face greater hardships than other families and have less access to and

control over resources. Uganda is a poor country with limited access to resources such as arable land, water, appropriate technology, and knowledge [42]. Many people's livelihoods are supported by small plots of land where crop production is increasingly unsustainable. Pressure on the land in densely populated areas is leading to severe soil degradation and deforestation [40]. This undermines future productivity and perpetuates the poverty trap. Changes in land use and land tenure systems

have, at times, had negative impacts on the poor. For example, the promotion of cash crops has sometimes resulted in the displacement of subsistence farmers to less fertile land or marginalized people losing access to land. Insecurity over rights to land is a barrier to long-term investment in land and the adoption of sustainable land management by smallholders [7].

Lack of Awareness and Knowledge

Informal education methods can also be effective in reaching a wide audience. Drama and songs are a tradition in Uganda and are a way to spread new ideas, mobilize communities, and help to visualize development strategies [1-5]. A pilot radio drama developed by an NGO in Mt. Elgon to promote reforestation was quite successful, and the demand for reruns was high [6-9]. Both farmers and local organizations listened regularly, and the entertaining format helped to create more positive attitudes towards tree planting [10]. This experience suggests that educational entertainment can be an effective way to reach myriad audiences with complex and often unfamiliar ideas. Most people

in Uganda lack understanding of the connections between environmental management and agricultural productivity. Knowledge may come from school or extension, but the lack of successful examples makes it difficult for people to grasp the ideas [11]. Most tries at agroforestry have resulted in failure, often due to the fact that the trees chosen were not suited to the land or to the needs of the people [7]. This created a negative perception about tree planting and has made it difficult to convince people to try again. Successful examples need to be widely publicized in order to increase awareness and convey the potential benefits [8].

Collaborative Approaches for Success

Various actors - government entities, NGOs, private sector stakeholders - need to work together in order to promote sustainable agriculture practices through education [9-11]. This collaborative effort is vital due to the complexity of issues intertwined with agriculture and the multidimensional nature of agriculture education. A starting point for success involves an overall vision and plan that articulates clear and thorough goals, benefits, and outcomes of sustainable agriculture for society at large to understand and use as a rationale to support agricultural and educational change [12-16]. This can be done through policy changes, programs, and educational efforts, but it requires a long-term view and sustained effort to be successful [20-26]. Looking for shared interests between divergent groups and institutional points of entry for integrated efforts that can advance the interests of all parties is crucial towards building mutually beneficial alliances and addressing issues of sustainability in Uganda through education [27-30]. Implementing sustainable

agriculture educational programs needs to be taken one step at a time. Often a shotgun approach is used in development where projects are initiated in a piecemeal fashion without a larger strategy for their integration and some tangible outcome [31-35]. What tends to result is inefficient use of resources, failure to sustain the efforts, and little demonstrable change in agricultural practices [36-38]. Steps need to range from eliciting basic awareness and concern for the plight of the environment and poor in agriculture, to providing teachers with resource materials and training, curriculum development, advocacy on behalf of agricultural education, and policy changes to integrate sustainable agriculture concepts throughout formal and non-formal educational systems [39-40]. The most successful educators and programs in sustainable agriculture will be those that are proactive and can work with others to take control and affect changes in the educational system [40].

Impact of Sustainable Agriculture Education Programs on Rural Communities

Enabling farmer self-assessment and goal setting has led to a greater awareness of the potential benefits of changes in farming practice

with respect to household food security [1-5]. The project has been an effective stimulus for participatory support work with farming

families, as the Agenda trials have provided a very visible model of the potential benefits of sustainable agriculture strategies. In non-Agenda villages, resource-poor farmers have seen Agenda farmers with improved food security as a 'visible positive externality' [8]. This has been a key factor in convincing some of the more doubtful farmers in the village that with additional support, sustainable agriculture

Enhanced Food Security

Beyond this basic level of food security, the program has made significant differences in enhancing the food consumption and utilization of participants [10]. This has been achieved by increasing productivity and income from agricultural activities in sustainable ways, enabling households to consume more homegrown produce and to diversify their diets [10]. Increases in land productivity have been achieved through the introduction of new farming techniques, technologies, and inputs, e.g. the System of Rice Intensification (SRI) and the use of treadle pumps [11]. In Northern Uganda, the introduction of SRI for rice farming has led to decreases in rice production costs, higher rice yields, and increased household income, enabling participants to consume greater quantities of homegrown rice and to sell any surplus, thus increasing overall community food security [14]. On a basic level, the program has improved the food security status of participants, particularly during the dearth period. By training participants in

Increased Income Generation

The current low levels of financial capital generation in rural communities in Uganda often hinge on the sub-division of agricultural land to uneconomic levels, resulting in low farm incomes [20]. In some communities where population pressures are great, people have been forced to farm on very marginal lands, which often leads to increased food insecurity [21]. The SPEAR program aims to break this spiral by involving farmers in learning to make their farming systems more sustainable, which may increase their immediate production and level of income and foundational capital [25]. By focusing on enablers for change (collaboration, innovation, empowerment, and learning) and strategies to develop more sustainable systems

Improved Livelihoods and Quality of Life

The stability and sustainability provided by income generated through sustained agricultural activities is another key advantage [8]. Traditional farming methods often rely on the input of labor with inconsistent, if any,

strategies can, in fact, improve their livelihoods [9]. A limited number of case study examples examining changes to agricultural practice and their effects on food security will be briefly discussed. A more detailed paper examining these issues is being developed from a PhD thesis on Agenda adoption and food security in two communities [9].

income-generating activities (IGAs) and helping those IGAs start up with micro-credit financing, participants are able to avoid distress strategies during times of food shortage, ensuring that food consumption quantity does not fall too low nor the quality deteriorate [15]. This basic benefit has been recognized by members of the community who have observed that the program participants are more likely to have enough food to eat compared to non-participants [16]. The mixed methods case study research conducted provides rich, detailed evidence of the ways in which the SASA program enhanced food security for program participants and their communities [19]. The study used key informant interviews, focus group discussions, and the analysis of secondary data (household food security scores for the entire community) to build a comprehensive understanding of the different dimensions of food security and the ways in which these are affected by the program [20].

of farming and natural resource management, we expect to be functioning against all of the capital assets. This is an oversimplified model of change within the African context [26]. The reality is that enabling factors are intricately linked to the exclusion of the poor and other vulnerable groups from involvement in institutions and decision-making processes concerning natural resources. With a better understanding of how people can be enabled to exit poverty traps, a large body of research will be built around the SPEAR framework, examining issues such as gender, HIV/AIDS, or land tenure and how they affect the opportunity structure for particular social groups to improve their livelihood [30].

monetary returns [9]. To the point where the more labor-intensive a traditional method of farming is, the more it tends to perpetuate the cycle of poverty [10]. With cash crops and other sustained agricultural practices, income is

often more consistent and can be put towards any number of needs to improve the quality of life [14]. This may include education for household members or improved healthcare. In a study done by the International Fund for Agricultural Development (IFAD), 79% of interviewed sustainable farmers in Swaziland and Lesotho reported an increased ability to pay for school fees for their children [16]. Households involved in sustainable agriculture practices not only improve food security and generate income, but are also able to improve

their general quality of life [20]. According to a study conducted in Central America, households participating in sustainable agricultural projects that worked with cash crops and staple food production were "able to diversify production and increase their income... leading to a positive impact on living standards." The ability to diversify crops is a key advantage of sustainable practices when compared to traditional slash and burn or clear-cut farming methods, as these are often essentially mono-crop in nature.

CONCLUSION

Sustainable agriculture education programs in Uganda have demonstrated significant benefits, including improved crop productivity, environmental stewardship, and economic empowerment of rural communities. However, challenges such as limited access to resources and lack of awareness persist. Collaborative approaches involving government, NGOs, and private sector stakeholders are essential for the

success and scalability of such initiatives. Despite challenges, sustainable agriculture education plays a crucial role in enhancing food security, increasing income generation, and improving overall quality of life in rural Uganda. Ongoing research and evaluation are necessary to refine program strategies and maximize their impact on agricultural sustainability and rural development.

REFERENCES

1. Bulhan Samanya, Tom Mulegi, Ramadhan Badru Malinga, Hussein Muhaise, Wallen Atwijukire (2023). Examining the Influence of Regulatory Governance on Service Quality in Bwera District Hospital, Kasese District, Western Uganda. *IAA Journal of Management*. 10(2):17-31.
2. Bulhan Samanya, Tom Mulegi, Ramadhan Badru Malinga, Hussein Muhaise, Wallen Atwijukire (2023). Exploring the Impact of Decentralization on Service Quality at Bwera District Local Government Hospital in Kasese District. *IAA Journal of Management*. 10(2): 1-16.
3. Asanairi Bwambale, Tom Mulegi, Samanya Bulhan. (2024). The Effect of Laissez-Faire Leadership Style on Academic Performance of Primary School Pupils in Selected Primary Schools in Kasese District. *IAA Journal of Education* 10(1):23-28.
4. Asanairi Bwambale, Tom Mulegi, Samanya Bulhan. (2024) The Effect of Transactional Leadership on Academic Performance of Primary School Pupils in Social Studies in Munkunyu Sub County Kasese District. *IAA Journal of Education* 10(1):17-22.
5. Asanairi Bwambale, Tom Mulegi, Samanya Bulhan. (2024) The Effect of Transformational Leadership on Academic Performance of Primary School Pupils in Social Studies in Munkunyu Sub County Kasese District. *NEWPORT INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN HUMANITIES AND SOCIAL SCIENCES* 4(2): 25-31.
6. Habimana Theogene, Tom Mulegi and Niyompano Hosee (2017). The contribution of financial ratios analysis on effective decision making in commercial banks *International Journal of Management and Applied Science* 3(6): 33-40
7. Tom Mulegi (2022). Evaluation of the Skill Mix of Health Professionals in Government Regional Referral Hospitals in Uganda. *International Digital Organization for Scientific Research*. 7(1): 43-68.
8. Tom Mulegi. (2022). An Overview of Performance of Health Workers in Uganda. *IDOSR JOURNAL OF HUMANITIES AND SOCIAL SCIENCES* 7(1): 113-124.

9. Jovita Nnenna Ugwu, Tom Mulegi, Mbabazi Asiat, Chidinma Esther Eze . (2023). Prospects and Challenges of Sustainable Development in Africa. IDOSR JOURNAL OF COMMUNICATION AND ENGLISH. 8(1): 6-12.
10. Rachel Okwaja Puche and Eric Mabonga Ugwu Jovita Nnenna, Mbabazi Asiat, Tom Mulegi, Eze Chidinma Esther, Aleke Jude Uchechukwu.(2023). Mentorship and Increased Participation of Women in Politics: A Review. NEWPORT INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN HUMANITIES AND SOCIAL SCIENCES. 3(2):10-13.
11. Rachel Okwaja Puche and Eric Mabonga Ugwu Jovita Nnenna, Mbabazi Asiat, Tom Mulegi, Eze Chidinma Esther, Aleke Jude Uchechukwu. (2023). The Impacts of Teaching Strategies and Skills for Effective Learning of English Language in Cameroon. NEWPORT INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN HUMANITIES AND SOCIAL SCIENCES. 3(2):6-9.
12. Rachel Okwaja Puche and Eric Mabonga Ugwu Jovita Nnenna, Mbabazi Asiat, Tom Mulegi, Eze Chidinma Esther, Aleke Jude Uchechukwu (2023). The Benefits of Emotional Intelligence to Healthcare in Nigeria. NEWPORT INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN HUMANITIES AND SOCIAL SCIENCES. 3(2):1-5
13. Rachel Okwaja Puche and Eric Mabonga Ugwu Jovita Nnenna, Mbabazi Asiat, Tom Mulegi, Eze Chidinma Esther, Aleke Jude Uchechukwu(2023). Evaluation of Factors that Affect Teachers' Job Satisfaction and the Impact on Student Academic Performances. NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN EDUCATION 3(3):6-9
14. Rachel Okwaja Puche and Eric Mabonga Ugwu Jovita Nnenna, Mbabazi Asiat, Tom Mulegi, Eze Chidinma Esther, Aleke Jude Uchechukwu , (2023). Effect of Cultural Values on Character Formation: Implication for Education. NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN EDUCATION 3(3):1-5.
15. Mulegi Tom and Eleanor Kirahora Barongo Usman Bappi (2023). Examination of the level of governance in Gombe local government, Nigeria. IDOSR JOURNAL OF BANKING, ECONOMICS AND SOCIAL SCIENCES. 8(1):60-74.
16. Tom Mulegi, Usman Bappi and Bulus Jonah Saidu (2023). An Assessment of the Effect of Motivation and Affirmative Action on Employee's Performance in Gombe Local Government, Nigeria. IDOSR JOURNAL OF BANKING, ECONOMICS AND SOCIAL SCIENCES. 8(1):50-59.
17. Mulegi Tom and Eleanor Kirahora Barongo Usman Bappi. (2023). Examination of the level of community development in Gombe local government, Nigeria. IDOSR JOURNAL OF ARTS AND MANAGEMENT. 8(2): 48-62.
18. Tom Mulegi and Lubaale G. Barongo E. K., Busingye J. D. (2023). Gendered Economic Gap in Uganda: Education Attainment and Women's Access to and Land Ownership in Bunyoro Sub-region. IDOSR JOURNAL OF ARTS AND MANAGEMENT 8(2): 1-10.
19. Mulegi Tom and Barongo Kirahora Eleanor Rukundika Francois, Mwaniki Roseann (2023). Evaluation of the effect of Education service interventions on re-integration of ex-combatant children in Haute-Kotto Prefecture of the Central African Republic. NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN EDUCATION (NIJRE) 3(2): 120-131.
20. Tom Mulegi and Lubaale G. Barongo E. K., Busingye J. D. (2023). Gendered Economic Gap in Uganda: Education Attainment and Women's Access to and Land Ownership in Bunyoro Sub-region. IDOSR JOURNAL OF ARTS AND MANAGEMENT 8(2):1-10.
21. Mulegi Tom and Barongo Kirahora Eleanor Rukundika Francois, Mwaniki

- Roseann. (2023). The effect of Health service interventions on reintegration of ex-combatant children in Haute-Kotto Prefecture of the Central African Republic. NEWPORT INTERNATIONAL JOURNAL OF RESEARCH IN EDUCATION (NIJRE) 3(2):108-119.
22. Mulegi Tom and Barongo Kirahora Eleanor Rukundika Francois, Mwaniki Roseann (2023). The influence of the family support interventions on reintegration of ex-combatant children in HauteKotto Prefecture of the Central African Republic (CAR). NEWPORT INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN HUMANITIES AND SOCIAL SCIENCES (NIJCRHSS) 3(1):24-34.
23. Mwaniki Roseanne and Eleanor Kirahora Barongo Tom Mulegi, Ndagire Laila. (2023). A situational analysis of Access to and utilization of sexual and reproductive health services under decentralization in Kampala, Uganda. INOSR HUMANITIES AND SOCIAL SCIENCES. 9(1):31-50.
24. Mwaniki Roseanne and Eleanor Kirahora Barongo Tom Mulegi, Ndagire Laila (2023). Social, economic and cultural factors that influence access and utilization of sexual and reproductive health services under decentralization In Kampala, Uganda. INOSR HUMANITIES AND SOCIAL SCIENCES. 9(1): 15-30.
25. Barongo Eleanor Kirahora and Tom Mulegi (2023). Empowerment and Participation of Women in Community Development in Lower Local Governments: A Case of Makindye Division, Kampala, Uganda. INOSR ARTS AND HUMANITIES 9(1): 48-61.
26. Mwaniki Roseanne and Eleanor Kirahora Barongo Tom Mulegi, Ndagire Laila (2023). Assessment of the level of knowledge and awareness of women on sexual and reproductive health services (SRH) under decentralization in Kampala Uganda. INOSR ARTS AND HUMANITIES 9(2): 35-47
27. Jovita Nnenna Ugwu, Tom Mulegi, Mbabazi Asiati, Chidinma Esther Eze (2023). Challenges Confronting Community Newspapers in Meeting Aesthetics Standards. IDOSR JOURNAL OF COMMUNICATION AND ENGLISH 8(1): 1-5
28. Jovita Nnenna Ugwu, Tom Mulegi, Mbabazi Asiati, Chidinma Esther Eze. (2023). Barriers to Women Leadership. IDOSR JOURNAL OF ARTS AND HUMANITIES 9(1): 6-10.
29. Tom Mulegi (2015). Skills and motivation of work performance of health professionals in government regional referral hospitals in Uganda: presented at the Canadian International Conference on Advances in Computer Science, Humanities and Education, April 1-2, 2015, Dubai, UAE.conference paper. <http://hdl.handle.net/20.500.12306/1304>.
30. Olaide Olutola Fagbolu, Azizi Wasike. (2019). Model for Translation of English Language Noun Phrases to Luganda. London Journal of Research in Computer Science and Technology. 19(3), 1-14.
31. Vincent Kayindu, Zahara Faridah Kiggundu, Azizi Wasike (2023). Religion as a Correlate of Administrative Staff's Adoption of Information and Communication Technology (ICT) In Primary Schools of Bukomansimbi District, Uganda. International Journal of Advance Research and Innovative Ideas in Education. 9(4), 1220 – 1228.
32. Vincent Kayindu, Zahara Faridah Kiggundu, Azizi Wasike. (2023). Administrative Staff's Age and Their Adoption of Information and Communication Technology (ICT) In Secondary Schools, Kampala District, Uganda. International Journal of Advance Research and Innovative Ideas in Education. 9(4), 1229 – 1235.
33. Barongo E. K, Busingye J. D., Tom Mulegi, Lubaale G (2023). Gendered Economic Gap In Uganda: Education Attainment and Women's access to, and Land ownership in Bunyoro Sub-Region. Idosr Journal of Arts and Management. 8(2), 1-10.

34. Eleanor Kirahora Barongo, Tom Mulegi, Mary Tunde Nalubega (2023). Evaluation of the relationship between Job Safety and Employee Productivity in Public and Private Organizations in Kampala, Uganda. *IAA Journal Arts and Humanities* 10(1), 62-75.
35. Rukundika Francois, Mwaniki Roseann, Tom Mulegi, Eleanor Kirahora Barongo (2023). The effect of Health service interventions on re-integration of ex-combatant children in Haute-Kotto Prefecture of the Central African Republic. *Newport International Journal of Research in Education* 3(2), 108-119.
36. Mary Tunde Nalubega, Tom mulegi, Eleanor Kirahora Barongo. (2023). evaluation of the level of job safety in some selected organizations in kampala, uganda. *Idosr journal of current issues in arts and humanities*. 9(1), 60-73.
37. Robert Mpiira, Patrick Okello. (2020). A Multisectoral Approach To Eradication Of Malnutrition In Vulnerable Groups: A Cluster-Randomized Trial. *Acta Scientific Nutritional Health*. 4(2), 1-7.
38. Ashirafu Masudi Kule, Mugizi Wilson, Kariisa Henry Ampeire, Victor Turiabe. (2012). Teacher characteristics and the Use of ICT in Rural Secondary Schools of Bwera Sub County, Kasese District, Uganda. *Interdisciplinary Journal of Rural and Community Studies*. 3(2), 30-40.
39. Sudar Rheina Romadhoni, Tatik Suryani. (2023). The relationship of workplace spirituality, job characteristics employee engagement, and employee wellbeing. *Enrichment: Journal of Management*. 12(6), 4780-4787.
40. Ismail Bello, Asmau Isyaku Dutse, Sophia Kazibwe, Muzaare Gerald. (2022). Multinational Corporations, Knowledge and Technology Transfer in Nigeria: An examination of Etisalat Telecommunications Engineering Postgraduate Programme (ETEPP). *International Journal of Research and Innovation in Social Science*. 6(5), 508-513.
41. Gerald Muzaare. (2017). Management of Integrated Development Programmes in Ibanda and Kiruhura districts in Western Uganda. *NIU Journal of Social Sciences*. 2(2), 7-17.
42. Nakate Sylvia, Muzaare Gerald, Katunguka Aaron, Adam Matiko Charles, Mainrad Haule Lembuka, Samanya John, Mutebe Janet. (2019). Job Satisfaction and Organizational Citizenship Behavior (OCB) in Multinational Telecommunication in Uganda. *Journal for Studies in Management and Planning* 5(9), 49-52.

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