

THEME

ADDRESSING GLOBAL CHALLENGES THROUGH NATURAL AND SOCIAL SCIENCE RESEARCH

SUB - THEMES

- Peace, Justice, Poverty Eradication and Social Equity
- Education & Training, Gender Mainstreaming, Empowerment of Youth, Women & People with Disabilities
- Entrepreneurship through SMEs, Green Production & Marketing
- Innovations in Engineering, Science & Technology
- Health, Environment, Energy, Agriculture & Livestock Development

Email: conference2018@kyu.ac.ke

Chartered Public University *KyU is ISO 9001:2015 Certified*



Book of Abstracts, 2018

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DAY ONE: WEDNESDAY, AUGUST 15, 2018

Preliminaries

- Arrival and registration
- Familiarization and visit to conference venue
- Distribution of name tags and conference material
- Welcoming guests on campus
- Corrections on the program
- Make any announcements and changes
- PowerPoint presentations given to ICT staff for presentation

8:00am - 4:30pm: Conference Opening and Keynote Address/Parallel Sessions/Plenary

8:00am - 9.00 am	Registration
9:00am - 9:10am	Chair of Conference /Welcoming Remarks
	Deputy Vice Chancellor (ASA). Prof. Charles O. Omwandho, PhD
9:10am - 9.30am	Opening Remarks Vice Chancellor, Prof. Mary Ndungu, PhD.
9: 30am - 10:00am	Keynote Address: Guest of Honour DAAD Africa Regional Director (Dr.Blumbach)
10:20am - 10:30am	Vote of Thanks
10: 30am - 11: 00pm	Group Photo/Health Break
11.00am - 1.00pm	Parallel Sessions
1.00pm - 2.00pm	Lunch/Health Break
2.00pm - 4.00pm	Parallel Sessions
4.00pm - 4.30pm	Announcements/ Plenary/ Closing
4.30pm	Tea/ Guests Leave at their Own Pleasure.

MID MORNING PARALLEL SESSIONS
11.00AM - 1.00PM

SUB-THEME	ENTREPRENEURSHIP / SME/ GREEN PRODUCTION/ MARKETING
Venue	Academic Boardroom 1
Chair	Dr. Hannah Wambugu
Rapporteur	Mr. Patrick Mwangi

- 1) Munyua, C. (KarU). **Influence of Fiscal Asymmetric Decentralization on Poverty Extermination in Kirinyaga County.**
- 2) Kimutai, A.K. (MU). **Flexibility Idiosyncratic Deals and Organizational Citizenship Behaviour among Life Insurance Agents: A Moderated Model of Perceived Organizational Justice.**
- 3) Kimemia, M. (KyU). **Youth Empowerment through Recycling of Textile Products in Kenya.**
- 4) Ndolo, J¹ and Njagi, E². (¹MKU, ²SEKU). **Green Supply Chain Strategy in Kenyan Tea Sector: A Review and Future Research Agenda.**
- 5) Omillo-Okumu, F¹ and Omukaga, J². (¹UoE, ²UoK). **Does Gender Matter in Agro-Food Manufacturing Sector? Perceptions of Micro and Small Scale Food Processors in Kenya.**

SUB-THEME	HEALTH
Venue	Academic Boardroom 2
Chair	Dr. Samuel Mburu
Rapporteur	Mr. Mark Webale

- 1) Nason, B. V. (SPU). **Strengthening the Management of Community-Based Healthcare Centers for the Realization of Universal Healthcare: A Case of Muumandu Community-Based Health Center, Machakos County, Kenya.**
- 2) Waithaka, P. N. (UoN). **Antimicrobial Properties of Actinomycetes Isolated from Menengai Crater in Kenya.**

- 3) Njenga P. W. (UoN). **Purification and Cytotoxic Tests of Four Antimicrobial Compounds Isolated from Actinomycetes from the Soils of Menengai Crater, Kenya.**
- 4) Mwanasiti, B¹, Ndung'u, M², Ekesi, S¹, Bhanu, K.R.M³, Srinivasan, R⁴ and Torto, B¹ (¹ICIPE, ²JKUAT, ³BCRL, ⁴AVRDC). **Cowpea Volatiles Enhance Sex Pheromone Attraction in *Maruca Vitrata* (Fabricius) in a Wind Tunnel.**

SUB-THEME	AGRICULTURE AND ENVIRONMENT
Venue	Academic Boardroom 3
Chair	Dr. Godwil Munyekenye
Rapporteur	Mr. Lenny Chimbevo

- 1) Rutto, D.K.L. (UoE). **Effect of Nitrogen Fertilizer on Growth, Quality and Yield of Mrenda (*Corchorus Olitorius*) Morphotypes in Kenya.**
- 2) Simotwo, J.C. (JKUAT). **Optimal Control for Efficiency and Reliability in the Storage of Perishable Goods.**
- 3) Kwamboka, A.O and Kimemia, M. (KyU). **Determinant of Age as A Demographic Segmentation Practice on Consumer Choice of Ready to Wear Clothes in Kenya.**

SUB-THEME	INNOVATION / ICT/ APPLIED SCIENCES
Venue	Lecture Room 29
Chair	Dr. Dennis Muchangi
Rapporteur	Mr. Josphat Karani

- 1) Okelo, N. B. (JOOUST). **On Norm Inequalities and Orthogonality of Commutators of Derivations.**
- 2) Munyao, R.M and Wasike, J.M. (KyU). **Intelligent Decision Support (IDS) in Software Risk Management Based on Data Mining, Rough Sets and Decision Theory.**

SUB-THEME	EDUCATION AND TRAINING
Venue	Lecture Room 30
Chair	Dr. Grace Kiiru
Rapporteur	Mr. Joseph Karomo

1. Kaindi, I. J. (KU). **Curriculum Implementation: Garment Design by Draping and in Public Institutions of Higher Learning in Nairobi County, Kenya.**
2. Wanjala, F.M. (KU). **Efficiency of the Laws on the Safety of Learning Institutions in Kenya.**
3. Barasa, R.S. (KAFUCO). **Teaching Gendered Identity Construction through Children's Literature in Kenya: A Review of Ezekiel Alembi's Works.**

AFTERNOON PARALLEL SESSIONS
2.00PM- 4.00PM

SUB-THEME	ENTREPRENEURSHIP / SME/ GREEN PRODUCTION/MARKETING
Venue	Academic Boardroom 1
Chair	Dr. Robert Gitau
Rapporteur	Ms. Ivy Murimi

- 1) Kimemia, M. (KyU). **Hindrances to Growth of Apparel Industry in Kenya: A Review.**
- 2) Kiwiri, F.W. (KyU). **Effect of End Users Involvement in Performance of Economic Stimulus Projects of Fish Farming: A Case Study in Kirinyaga County, Kenya.**
- 3) Ogwe, S.L. (PIU). **Competitive Strategies Adopted by Private Universities in Kenya.**
- 4) Okebiro, G.N., Ogutu, M. and Kirui, S.C. (TUC). **Modern Slavery and Injustice for Kenyan Female Youths Employed in Middle East Countries.**

- 5) Mwangi, P. and Wasike, J.(KyU). **Adoption of E-commerce Housing Sector: Kenyan Perceptive.**

SUB-THEME	HEALTH
Venue	Academic Boardroom 2
Chair	Dr. Immaculate Marwa
Rapporteur	Mr. John Mwangi

- 1) Maina, E. and Butto, D. (KyU). **Risks and Existing Health Services for Men Having Sex with Men in Kilifi Town, Kenya.**
- 2) Mwangi, J. (PU). **Risk Factors Associated with Tungiasis in Ganze Sub-County and Kilifi North Sub-County in Kilifi County.**
- 3) Mwangi, J^{1.}, Mecha, E.^{2.}, Muriu, S.¹ Omwandho, C. O.³ (PU¹, UON², KyU³). **Tungiasis Infection: Bacterial Secondary Infection and Associated Risk Factors in Kilifi County.**
- 4) Mecha, E.^{1,2}, Omwandho, C. O.A.^{2,3}, Cong Sui¹, Hans-R. T¹ and Lutz K.¹ (1JLU, ²UoN, ³KyU). **Epithelial to Mesenchymal Transition in the Pathogenesis of Endometriosis.**

SUB-THEME	AGRICULTURE AND ENVIRONMENT
Venue	Academic Boardroom 3
Chair	Mr. Samuel Kagoiyo
Rapporteur	Ms. Lucy Kamau

- 1) Kirimi, I. (KyU). **Environmental Auditing in Improving Environmental Management in Kenya.**
- 2) Chimbevo, M.L.¹, Munyekenye, G.O¹, Gicharu, G.K.², Oshule, P.S³ and Essuman, S³ (¹KyU, ²TUM, ³MKU). **The Roles of Parasitosis, Clinical and Biochemical Parameters in Diagnosis and Monitoring Trypanosoma Brucei Rhodesiense Infections in Vervet Monkey (Chlorocebus aethiops) Model.**

- 3) Agwata, O. (KMFRI). **The Effect of Dietary Vitamin “E” On The Growth and Survival of the Nile Tilapia (Oreochromis Niloticus) Cultured Under a Semi-Intensive System.**
- 4) Okebiro, G.N. (TUC). **Climatic Change Impact on Water and Environmental Degradation for Sustainable Flamingo Bird’s Sanctuary in Lake Nakuru Ecosystem.**

SUB-THEME	INNOVATION/ICT/ APPLIED SCIENCES
Venue	Lecture Room 29
Chair	Dr. Jotham Wasike
Rapporteur	Ms. Rose Munyao

- 1) Habimana, Y. (MU). **A Conceptual Model for a Real-Time Disease reporting Big Data Analytics System combining Open Clinic and DHIS2.**
- 2) Ogwe, S.L. and Ouma, T.J.(PU). **Byod Security Model for Secure Adoption of Wireless Network Devices for Private Universities in Kenya.**
- 3) Kinuthia, W. H¹ and Njeru, P.M². (¹KyU, ²KU). **Digestion of Kitchen Waste for Production of Compost and Low-Use Biogas to promote Reuse and Recycling among Low and Middle Income Urban Dwellers in Kenya.**

SUB-THEME	EDUCATION AND TRAINING
Venue	Lecture Room 30
Chair	Dr. David Kabata
Rapporteur	Mr. Ephantus Mwangi

1. Otieno, E.O. (JOUST). **Relevance of Formal Education in Rural Youth Participation Community Development Projects in Turkana County-Kenya.**
2. Nguchara, N.W. (KyU). **University Students’ Perception on Influence of “Ideal”Media Body Image.**
3. Murage, L.M. (KarU). **Social Challenges: A Barrier to University Students’ Academic Achievements.**

DAY TWO: THURSDAY, AUGUST 16, 2018

Preliminaries

- ❖ Arrival and registration
 - ❖ Make any announcements
 - ❖ PowerPoint presentations given to ICT staff for presentation
- 8:00am – 4:00pm: Conference Opening and Keynote Address/ Plenary.

8:00am- 8:30 am	Registration
8:30am- 8:40 am	Welcoming Remarks Deputy Vice Chancellor(ASA): Prof. Charles O. Omwandho, PhD
8: 40am -9:30am	Keynote Address: Guest of Honour Prof. Nick Wanjohi, PhD.
9.30am- 10:30am	Parallel Sessions
10:30am-11:00am	Health Break
11.00am- 1:00am	Parallel Sessions
1.00pm – 2:00pm	Lunch/Health Break
2.00pm- 4.00pm	Parallel Sessions

MORNING PARALLEL SESSIONS

9.00AM – 11.00PM

SUB-THEME	ENTREPRENEURSHIP / SME/ GREEN PRODUCTION/ MARKETING
Venue	Academic Board 1
Chair	Prof Pius Odunga
Rapporteur	Mr. Ken Kanyingi

- 1) Muigai, R.G. (KyU). **Effect of Credit Risk on Financial Performance of Commercial Banks in Kenya.**
- 2) Elingit, R. O. (KSU). **Emotional Intelligence and Organizational Performance.**
- 3) Obaga, B.K. (TUC). **Gender Mainstreaming Interventions in the Public Sector of Kenya.**

- 4) Muchiri, M & Wasike, J.(KyU). **Effect of Corporate Social Responsibility on Performance of Commercial Banks Listed in Nairobi Stock Exchange.**
- 5) Kiaritha, H¹, Herman M, H², Njenga, N³ (1KNP, 2NNP, 3KyU). **Effect of Competition from Commercial Banks on the Financial Performance of SACCOs in the Banking Sector in Kenya.**

SUB-THEME	HEALTH
Venue	Academic Boardroom 2
Chair	Mr. Dennis Butto
Rapporteur	Mr. Kenny Kamau

- 1) Kuria, M.W. (KyU). **Assessing Genetic Diversity in Nine Kenyan Populations of *Strychnoshenningsii* (Gilg.) as Revealed by RAPD and ISSR Markers.**
- 2) Hassan, J¹, Kiptoo, M², Borus, P³, Wandabwa, C. K⁴, Karani, L. W⁵., Kithinji, M⁶ and Wangai, L. N⁷ (1KEMRI, 2SEKU, 3KEMRI, 4JKUAT, 5KSU, 6Caring Hearts, 7KyU) **Vaccine-related Poliovirus Shedding in Trivalent Polio Vaccine and Human Immunodeficiency Virus Status: Analysis from Under Five Children.**
- 3) Marwa, N. I¹, Mtshali, N. G² (1KyU, 2UKZN). **Contextual Antecedent Conditions in the Management of Chronic Comorbid Diabetes and Hypertension in Primary Health Care Settings in Kenya.**
- 4) Yitambe, A. (KU). **Socio -Ethical Issues in Caesarean Section Birth in Africa.**

SUB-THEME	INNOVATION/ ICT / APPLIED SCIENCES
Venue	Academic Board 3
Chair	Dr. Irene Okello
Rapporteur	Ms. Irene Mwangi

- 1) Nyabuto, W. M. (PAUSTI). **Voltage Stability Analysis on Shore-to-Ship Power Connected System – Case Study Mombasa Area Network.**
- 2) Lao, H¹, Kivunge, B², Muthoka, G³, Kimani, P⁴ (1UoK, 24KU, 3KyU,). **On the Number of Cyclotomic Cosets and Cyclic Codes over Z13.**

- 3) Mwangi, P. and Wasike, J. (KyU). **Embracing Innovative Technology for Low Cost Housing. A Kenyan Perceptive.**
- 4) Vundi, Z. (JKUAT). **Impact of Technology and Innovation on Economic Development in Kenya.**

SUB-THEME	EDUCATION AND TRAINING
Venue	Lecture Room 29
Chair	Dr. David Njoroge
Rapporteur	Mr. Gideon Mwangi

1. Njoroge, D. (KyU). **Relationship between Training and Development and Employee Productivity.**
2. Kibetu, D. K¹, Mwangi, J.M². (¹CU, ²Galaxy Geo Consultancy, Embu). **Assessment of Forest Rehabilitation and Restocking Success along Mt. Kenya East Forest Reserve using Remote Sensing Data.**
3. Gate, N. (KyU). **Factors Influencing Students Achievement in Technical Education Programmes in Kenya: A Case of Kirinyaga University, Kirinyaga County, Kenya.**

MID MORNING PARALLEL SESSIONS
11.00AM - 1.00PM

SUB-THEME	ENTREPRENEURSHIP / SME/ GREEN PRODUCTION/ MARKETING
Venue	Academic Boardroom 1
Chair	Dr. Mary Maina
Rapporteur	Mr. Martin Muchiri

- 1) Chemitei, L.J. (GU). **An Assessment of the Role of Strategic Management on Innovations of Small and Medium Enterprises in Nakuru Town.**
- 2) Elingit, R. O., Rading, C and Onyango, T. (KSU). **Empowering Staff with Disabilities and Organizational Performance.**

- 3) Douglas, J. and Wasike, J. (KyU). **Small and Medium Enterprises Credit Access and performance through Technological Integration.**
- 4) Kiura, F.K. (KyU). **Influence of Education and Access to Credit on Economic Empowerment of Women in Kirinyaga County.**

SUB-THEME	HEALTH
Venue	Academic Boardroom 2
Chair	Prof. Laura Wangai
Rapporteur	Mr. William Gitau

- 1) Kimani, K. & Okumu, C. (KyU). **Determination of Body Mass Index and Waist Circumference in Type II Diabetes Mellitus in Patients at Thika Level 5 Hospital.**
- 2) Marwa, N. I¹, Mtshali N. G² (1KyU, 2UKZN). **Management of Chronic Comorbid Conditions Model: Context -Informed for Primary Health Care Settings in Kenya.**
- 3) Maina, P. (SPU). **Health Effect of Biomass Fuel Pollutants to Women and Children in Kieni.**

SUB-THEME	INNOVATION /ICT/ APPLIED SCIENCES
Venue	Academic Boardroom 3
Chair	Mr. Jeremiah Kinyanjui
Rapporteur	Mr. Geoffrey Muthoka

- 1) Kirori, Z. and Wasike, J.(KyU). **A Window-Based Approach to Training Deep Neural Networks for Predictive Sequence Modeling.**
- 2) Kimemia, N.D.(MU). **Effect of Graphite Dispersed Titanium Dioxide Solid Solar Cell Composition on the Generated Potential (Voc).**
- 3) Musyoka, S. (UoE). **Oil Production Potential of Fast Growing Phytoplankton Species from Lake Naivasha and University of Embu Reservoirs.**

- 4) Muthee, D.W. (KU) **The Role of Electronic Media in Promotion and Perpetuation of Indigenous Knowledge in Kenya. The Case of Inooro FM Radio Station, Kiambu County, Kenya.**

SUB-THEME	EDUCATION AND TRAINING
Venue	Lecture Room 29
Chair	Mr. Stephen Maina
Rapporteur	Mr. John Douglas

1. Amukuzi, M. (RU). **Influence of Media Training on Competence of Journalists in Kenya.**
2. Shikhuyu, J & Mwangi, E. G. (KyU). **State of E-Learning in Kenyan Universities: A Case of Kirinyaga University.**

AFTERNOON PARALLEL SESSIONS

2.00PM - 4.00PM

SUB-THEME	ENTREPRENEURSHIP / SME/ GREEN PRODUCTION/ MARKETING
Venue	Academic Board 1
Chair	Dr. Agnes Ndinda
Rapporteur	Mr. Elly Munde

- 1) Wambugu, H. (KyU). **Determinants of Shoppers' Recycling Behaviour of Green Secondary Packaging.**
- 2) Mutiso, A. (KyU). **Effect of Receivable Management on Performance of Small Scale Manufacturing Companies in Kiambu County, Kenya.**
- 3) Odunga, P. (KyU). **Total Impact of Tourism on the Economy of Rwanda (2014).**
- 4) Butali, P¹ and Njoroge, D². (1GUC, 2KyU). **Training and Development and Organizational Performance: Moderating Effect of Organizational Commitment.**

SUB-THEME	HEALTH
Venue	Academic Board 2
Chair	Mr. Lenny Chimbevo
Rapporteur	Ms. Irene Mutuku

- 1) Muiga, M. (KyU). **Student's Attitude Towards Condom Use in Kirinyaga University.**
- 2) Githang'a, J.W.(KU). **Effects of Relaxation Exercise and Sleep Environment Modification on Sleep Quality among Institutionalized Elderly in Nairobi City, Kenya.**

CLOSING CEREMONY

VENUE: MAIN HALL

4:00pm - 4:10pm	Remarks from the Chair, Conference Organizing Committee: Way Forward DVC(ASA), Prof. Charles O. Omwandho, PhD.
4:10pm - 4:15pm	Closing Remarks Vice Chancellor, Prof. Mary W. Ndungu, PhD.
4:15pm - 4:30pm	Certificates
4:30pm - 4:35pm	Vote of thanks by Representative of Participants
4.35 pm - 4.40 pm	Vote of thanks from KyU
4.40pm-	Tea & Guests Leave at their own Pleasure

SUB - THEME: HEALTH

Antimicrobial Properties of Actinomycetes Isolated from Menengai Crater in Kenya.

Waithaka, P. N¹, Mwaura, F.B¹, Wagacha, J. M¹, Gathuru, E. M², Githaiga, B.M²

¹University of Nairobi, Egerton University², Kenya.

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Abstract

A study was carried out to isolate and screen actinomycetes for antimicrobial activity from Menengai Crater in Kenya. The study area was sub-divided into regions A, B, C and D based on land terrain. Actinomycetes were isolated using starch casein agar (SC), Luria Bertani agar (M1) and starch nitrate agar (SN). Primary screening for antagonism was carried out using perpendicular method while secondary screening was done using agar disk technique. Extraction of antimicrobials was carried out using ethyl acetate. Sensitivity testing of crude extracts against *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia faecalis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella typhi*, *Xanthomonas campestris*, *Erwinia carotovora*, *Candida albicans*, *Alternaria alternate* and *Fusarium oxysporum* was carried out using agar well technique. Biochemical tests and carbon source requirements were used to characterize selected antimicrobial producers. M1 was the best agar medium for isolation of actinomycetes. The number of actinomycetes from regions A, B, C, and D in the crater varied significantly ($F=27.50$ $P=0.000$). Of the 156 actinomycetes isolates, 20 were positive for both primary and secondary antimicrobial activities. There was no significant difference in the zones of inhibition in primary screening for antagonistic properties against test pathogens ($F=1.6957$, $P=0.0838$). Zones of inhibition after secondary screening varied significantly ($F=2.4473$ $P=0.0089$). Likewise, there was a significant difference ($F=6.6046$ $P=0.001338$) in the zones of inhibition after exposing the pathogens to ethyl extracts of selected antagonistic actinomycetes. There is need to purify and characterize further the antimicrobials obtained from this study.

Keywords: *Actinomycetes, Antimicrobials, Crater, Menengai, Metabolites, Sensitivity.*

Purification and Cytotoxic Tests of Four Antimicrobial Compounds Isolated from Actinomycetes from the Soils of Menengai Crater, Kenya.

Waithaka, P N¹, Mwaura, F.B.¹, Wagacha, J. M¹, Gathuru E. M², Githaiga, B. M².

¹University of Nairobi, ²Egerton University, Kenya.

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Abstract

This study compared metabolite yields of four actinomycetes namely PAN 30, PAN 37, PAN 41 and PAN 154 isolated from Menengai crater, Nakuru Kenya using liquid and solid-state fermentation. The study also sought to determine retention factors of the extracted metabolites, their minimum inhibitory concentration, minimum bactericidal and fungicidal concentrations using selected bacterial and fungal pathogens in addition to determining their lethality using brine shrimp lethality test. The yield of metabolites was compared by determining their weights after complete evaporation of the extracting solvent. Cytotoxicity test was carried using brine shrimp lethality tests. Data obtained was analyzed using students't-test and ANOVA. Solid state fermentation gave higher yield than liquid state fermentation ($P = 0.005$). Although there were differences in retention factors produced by thin layer chromatography (TLC) and bio autography, the difference was not statistically significant. The MIC, MBC and MFC for metabolites extracted from PAN 30, PAN 37, PAN 41 and PAN 154 were equal. Lethal concentration of metabolites was calculated from results of brine shrimp lethality test using regression and probit analysis. The LC_{50} for antimicrobials were PAN 30 (1.8168 ± 0.47), PAN 37 (3.4269 ± 0.56), PAN 41 (3.4269 ± 0.45) and PAN 154 (4.9397 ± 0.41). Antimicrobials exhibited a single spot on TLC sheet and had antagonistic properties to *Staphylococcus aureus*.

Keywords; *Actinomycetes, Antimicrobials, Bioautography, Cytotoxicity, Fungicidal and Bactericidal.*

Cowpea Volatiles Enhance Sex Pheromone Attraction in *Maruca Vitrata* (Fabricius) in a Wind Tunnel.

Mwanasiti, B¹, Ndung'u, M², Ekesi, S¹, Bhanu, K.R.M³, Srinivasan, R⁴, Torto, B¹

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Abstract

Host plant volatiles are known to play a key role in male attraction to sex pheromones in Lepidopteran insects. We explored this phenomenon in a Kenyan population of the legume pod borer *Maruca vitrata*, a serious pest of cowpea, *Vigna unguiculata*. Analysis by gas chromatography coupled to mass spectrometry (GC/MS) identified the known pheromone component (*E,E*)-10,12-hexadecadienal and two additional components, namely isomers (*Z,E*)- and (*E,E*)-9,11-tetradecadienyl acetate in the gland extract of calling females, which were confirmed with authentic standards. In dual choice wind-tunnel assays, more males were attracted to host plant volatiles combined with virgin females over air controls, as well as over females and host plant alone. Synthetic standards of the three female gland components elicited electroantennographic responses from males, and in wind tunnel assays, a blend of the three components combined with the previously identified major cowpea volatile component 1-octen-3-ol, moderately enhanced male attraction. These results suggest that like in other Lepidopterans, males of *M. vitrata* also use a combination of host plant volatiles and sex pheromones for mate finding.

Keywords: *Cowpea, Volatiles, Pheromone, Sex, Maruca Vitrata, (Fabricius), Wind Tunnel*

Student's Attitude towards Condom Use among Students in Kirinyaga University.

Muiga, M.

Kirinyaga University, Kenya.

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Abstract

Background

Condoms offer dual protection to 90% effectiveness against sexually transmitted infections (STIs) and unintended pregnancies. Majority of university students are aged between 17-24 years and are sexually active with sexual debut calculated at 15 years for adolescents between the ages of 15-24 years contracting STIs and unwanted pregnancies which in turn affect their academic and social lives. The objective of this

study was to establish the attitude of students towards condom use. The study used a descriptive research design with quantitative approach. Sample size was proportionately calculated according to the school population then convenient sampling method was used to select samples and measures of central tendencies conducted to analyze responses. Majority (87%) of respondents indicated that there was no need for condom use if they trusted their sexual partners. 51% of the respondents used a family planning method. 42 % of respondents had a negative attitude towards condom use in cases where both partners had undergone HIV test. 56% felt that condom reduces sexual pleasure.

Keywords: *Student's Attitude, Condom Use, University.*

Contextual Antecedent Conditions in the Management of Chronic Comorbid Diabetes and Hypertension in Primary Health Care Settings in Kenya.

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Abstract

Non- Communicable Diseases (NCDs) emerges as a global burden, despite the efforts being put in place by World Health Organization (WHO) and other health related organizations. There is evidence that people with diabetes type 2 usually have more than one co-existing chronic conditions often including, hypertension being the leading condition yet healthcare systems are inadequately prepared to manage chronic comorbid conditions such as diabetes and hypertension.

This study explored the antecedent or causal conditions relevant to the management of chronic comorbid diabetes and hypertension in Nandi County rural settings.

Qualitative focused ethnography was used to collect data within the community and grounded theory method used for data analysis using the paradigm model. Purposeful sampling was used to select informants based on experience and expertise related to management of comorbid diabetes and hypertension. Data was collected through triangulation of participant observation, interviews, focus group discussion and document analysis. Interviews were tape recorded and transcribed verbatim and a series of coding was conducted leading to emergence of categories and core phenomenon of study.

Results showed that management of chronic comorbid diabetes and hypertension in primary health care commenced as a result of contextually relevant actions and interactions taken to supervise the situation. These include: low literacy level on comorbid diabetes and hypertension; preventable high hospital admission; delays in

seeking medical help, high premature mortality cases, lack of default tracing system and poor control levels in comorbid diabetes and hypertension. It was observed that patients with comorbid diabetes and hypertension require comprehensive, long term and timely interventions to improve health outcome and quality of life.

Keywords: *Diabetes, Hypertension, Antecedents, Comorbid, Management, Control Level*

Management of Chronic Comorbid Conditions Model: Context -Informed for Primary Health Care Settings in Kenya.

Marwa, N. I¹; Mtshali, N. G².

¹ Kirinyaga University, Kenya; ²University of KwaZulu Natal, South Africa.

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Abstract

Comorbidity of non-communicable diseases, poses a new global challenge to health systems. Management of chronic conditions requires comprehensive care provision to those at risk and affected. The management process has to be cognizant of the cultural differences, attitude, beliefs and practices of the community, patients and health care providers.

This study explored and analyzed current approaches to management of chronic comorbid diabetes and hypertension among adults in selected primary health care settings in Kenya and developed context informed model to guide management of chronic comorbid conditions in primary care settings.

The study adopted a constructivist, qualitative approach and a combination of focused ethnography and grounded theory research designs towards development of context informed model. Ethnography design was used in data collection through participant observation; structured interviews, document analysis and focus group discussion. The study used constant comparative method in the field to ensure rich data collection. Study sites comprised; seven health care facilities in Nandi county, Kenya and 40 informants. Data was analyzed using the three phases Open, axial and selective coding as presented in Strauss and Corbin substantive model.

We developed a model for management of chronic comorbid conditions presented as: concepts of the model; the context, political commitment; integrated health service delivery; guiding principles and expected outcomes. Several basic assumptions in management of chronic comorbid conditions also emerged. This model is a new addition to management of chronic comorbid conditions, particularly in primary care settings, and further in-corporates a devolved health care service provision, aimed at achieving quality of life and informed patients.

Keywords: *Diabetes, Hypertension, Management, Comorbidity, Model, Culture.*

Roles of Parasitosis Clinical and Biochemical Parameters in Diagnosis and Monitoring *Trypanosoma Brucei Rhodesiense* Infections in Vervet Monkey (*Chlorocebus Aethiops*) Model.

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Abstract

This study investigated the role of clinical symptoms, blood and cerebrospinal fluid (CSF), parasitosis, hematocrit, white blood cells (WBCs) and protein concentration in diagnosis of trypanosomiasis in Vervet Monkeys (*Chlorocebus aethiops*) infected with *Trypanosoma brucei rhodensiense* (KETRI 2537) and treated with Berenil and Melarsoprol. The pre-patent period was 3.75 ± 0.17 days. At the onset of parasitaemia fever, increased respiratory and pulse rate, splenomegaly, lymphadenopathy and wasting ($4.05 \pm 0.77\%$) were observed. Other classical symptoms such as raised hair coat and skin rashes, changes of eyes and teeth, stiffness of joints, muscle tremors, ataxia and abnormal posture, edema of genitalia, lethargy, somnolence, pallor of mucus membranes and change of demeanor were not observed. Arise in parasitaemia to a peak level of 8.15 ± 0.03 approximately 14.17 ± 0.27 -day post infection (DPI) was observed. After institution of Berenil treatment at 31.50 ± 0.27 DPI, parasitaemia dropped to undetectable levels 12.14 ± 0.17 days later (43.42 ± 4.2 DPI). Trypanosomes relapse in the blood occurred 145.60 ± 5.29 DPT with Berenil and cleared after Melarsoprol treatment at 171 ± 2.77 DPI (136 ± 1.77 day of post treatment (DPT) with Berenil). Hematocrit decreased significantly after infection and after Berenil treatment, returning to normal after Melarsoprol treatment. WBC counts increased significantly with fluctuations to >5 cell/mm³ by 17.50 ± 1.77 DPI even after Berenil treatment dropping to levels <5 cell/mm³ at 224.68 ± 4.67 DPI (86.5 ± 2.47 DPT with Melarsoprol). Total CSF protein concentration increased >25 mg/dL at 17.50 ± 1.77 DPI even after Berenil treatment reaching a peak at 49.24 ± 3.07 DPI (17.74 ± 3.02 DPT with Berenil). Melarsoprol treatment led to a decrease in total CSF protein concentration though still above the pre-infection level even at the end of the study period. Parasitosis, clinical and biochemical parameters are indicative of trypanosome infection.

Keywords: *Roles Parasitosis, Clinical and Biochemical Parameters, Diagnosis, Trypanosoma Brucei Rhodesiense, Infections, Vervet Monkey (ChlorocebusAethiops) Model.*

Risk Factors associated with Tungiasis in Ganze Sub-County and Kilifi North Sub-County in Kilifi County.

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Abstract

Tungiasis is an endemic, but neglected health problem in Kenya, especially to the poor communities, who cannot afford to build permanent houses with cemented floor. The infestation is associated with many risk factors, including lack of enough water, due long distances and living with domestic animals. Many organizations including AHADI Kenya have come up with initiatives to provide shoes to school going children in an effort of eradicating jiggers; however, the rate of tungiasis infection is on an upward trend in Kilifi County. This study was done with an aim of assessing risk factors associated with tungiasis in rural area (Ganze) and urban area (Kilifi North) with a view of identifying whether they have any difference. It was a cross sectional study that employed semi-structured questionnaire and observational checklist to collect quantitative data from 108 respondents in 4 villages in Ganze sub county (rural setup) and 76 respondents from 4 villages in Kilifi North sub county (urban setup) who were infested by tungiasis. The tungiasis infestation rate was divided into two groups; those who had up to five *tunga penetrans* lesions were grouped as lowly infested, while those who had above five lesions were grouped as heavily infested. From the findings, it was clear that tungiasis infestation rate is high in rural area than urban areas and school classrooms floors were a major contributing factor to the prevalence. It was also evident that, 62.5% of schools in urban setup in Kilifi have cemented floors as compared to 8.7% in rural areas. The nature of floor showed very high significance association to tungiasis infestation rate having a (p-value = $2.2e^{-16}$). The study also established that 70.4% of Ganze respondents were living with domestic animals under one roof as compared to 48.7% in Kilifi North. To live with these domestic animals showed much significance association with tungiasis infestation rate having a (p-value = $2.906e^{-05}$). Contrary to expectation, shoes wearing does not show much significant association to infestation rate, (p-value = 0.2356). However treatment of tungiasis infection in both areas with neem tree and other local tree extracts showed a very significance association of tungiasis treatment methods with tungiasis level having a (p-value $1.488e^{-05}$). The study therefore, recommends that all school classroom floors be cemented to drastically reduce breeding sites and subsequently lower tungiasis infestation levels. The residents should also be enlightened on the need to continue using local methods like neem trees leaves extract to contain the vice. It is concluded that having schools that do not have cemented floor is the major cause of tungiasis.

Keywords: Risk Factors, Tungiasis, Ganze, Kilifi County.

Effects of Relaxation Exercise and Sleep Environment Modification on Sleep Quality Among Institutionalized Elderly in Nairobi City, Kenya.

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Abstract

Stress is a factor in reducing efficacy of treatment to poor sleep quality in the elderly. Inadequate sleep is thus a common side effect of stress. To effectively manage stress, ability to relax and create a sleep inducing environment is paramount. Given the negative impact of stress on health, many types of stress management therapies have been recommended for the elderly in order to decrease stress and promote well-being. This study assessed the effectiveness of Progressive Muscle Relaxation (PMR) exercise and sleep environment modification on sleep quality of the elderly in a home for the aged in Nairobi County, Kenya. The study adopted an experimental pre-test post-test control group design. A total of 46 participants were randomly selected to create experimental and control groups with 23 participants in each group. Data was collected using Pittsburgh Sleep Questionnaire Index (PSQI) questionnaires. The variable was assessed at pre-test and post-test. A total of 43 (93.5%) participants successfully completed the two-month intervention programme. In the experimental group, PMR exercise was performed in 45 minutes' sessions, three times weekly for two consecutive months and participants used sleep masks during the entire intervention period. The control group, however, continued with their normal routine activities through the intervention period. Data was analyzed using Statistical Package for Social Sciences (SPSS). Results showed a statistically significant difference at $p \leq 0.05$ between the pre-test and post-test scores on sleep quality, $F=10.902$, $p=.002$. Thus PMR and use of sleep masks were effective intervention measures in the elderly with poor sleep quality. We recommend that the intervention be expanded in communities with larger population of the elderly.

Keywords: *Effects of Relaxation, Exercise, Sleep, Environment Modification, Institutionalized Elderly, Kenya.*

Effect of Dietary Vitamin "E": The Growth and Survival of the Nile Tilapia (*Oreochromis niloticus*) Cultured under a Semi-Intensive System.

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Abstract

This study investigated the effect of vitamin E (α -Tocopherolacetate or α -TA) on growth and survival of Nile tilapia (*Oreochromis niloticus*) juveniles and estimated the dietary requirements of this micronutrient for their growth and survival. An isoenergetic and isonitrogenous basal feed was prepared at 35% crude protein (CP) from which diets of various levels of vitamin E were derived. Four test diets had varying α -TA concentrations as follows; diet 1, 0mg/Kg; diet 2, 100mg/Kg; diet 3, 300mg/Kg and diet 4, 500mg/Kg of α -TA. To find out how growth and survival were affected by the α -TA concentration levels, the respective diets were administered in three replicates in cages that were placed in concrete tanks. The Nile tilapia juveniles were fed at 4% of their wet body weight per day for 70 days. The feed was given at 9 am and at 3pm respectively. Diet 4 containing the highest amount of α -TA was associated with significantly higher growth ($p > 0.05$) and survival compared to other diets in the study while diet 1 without α -TA registering the lowest growth and survival rates.

Key words: *Dietary Vitamin "E", Growth, Survival, Nile Tilapia (Oreochromis niloticus), Semi-Intensive System.*

Assessing Genetic Diversity in Nine Kenyan Populations of *Strychnos henningsii* (Gilg.) as revealed by RAPD and ISSR Markers.

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Abstract

Strychnos henningsii (Gilg.) is an endangered medicinal plant in Kenya due to over exploitation for medicinal purposes. To understand the levels of genetic variation across populations and geographical regions of this species, we assessed the genetic diversity in nine Kenyan populations of *Strychnos henningsii* using Random amplified polymorphic DNA (RAPD) and inter-simple sequence repeat (ISSR) Markers.

A total of 270 samples from nine (9) populations of *S. henningsii* were collected. Genetic variation within and among populations were evaluated using inter-simple

sequence repeat (ISSR) and randomly amplified DNA polymorphism (RAPD) markers. 10 primers of both RAPD and 10 ISSR were used.

A total of 136 loci and 96 loci were revealed by RAPD and ISSR primers respectively, all of which were polymorphic. Kitui population was the most polymorphic with 75 (55.15%) and Baringo the least polymorphic with 35 (25.75%) loci detected using by RAPD primers. ISSR markers showed Ngong population as the most polymorphic with 51 (53.12%) and Baringo as the least polymorphic with 28 (29.17%) loci detected. Population specific loci 25 and 13 were also revealed by RAPD and ISSR markers respectively which might have contributed to specific population traits. A higher molecular variance was revealed among populations ($p > 0.001$) than within populations RAPD analysis showed 54% polymorphism among populations and 46% within populations while ISSR markers showed 58% among populations and 41% within populations. According to Nei's unbiased genetic distance matrix, the most genetically close populations were Jilore and Baringo with the highest genetic identity (0.9796) and the lowest genetic distance (0.0206) as revealed by RAPD primers. ISSR markers indicated that Taveta and Marsabit were the most genetically close with the highest genetic identity (0.8803) and the lowest genetic distance (0.1275). Clustering analysis based on Nei's similarity matrix grouped the nine population into two groups; Cluster I included Kitui, Taveta, Karura, Marsabit, Ngong, Nyeri, and Narok) while Cluster II included Baringo and Jilore. These results were also supported by principal coordinate analysis.

These findings indicate that both markers can be used in determining the genetic diversity of *S. henningsii*. We suggest an urgent need for conservation of existing natural populations along with extensive domestication of this species for commercial purpose.

Keywords: *S. Henningsii*, RAPD, ISSR, Genetic Diversity, Polymorphism.

Vaccine-Related Poliovirus Shedding in Trivalent Polio Vaccine and Human Immunodeficiency Virus Status: Analysis from Under Five Children.

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Abstract

Poliomyelitis is an acute viral infection caused by poliovirus and transmitted via the fecal-oral route. The causative agent is one of the three serotypes of poliovirus (serotypes 1, 2, 3) that differ slightly in capsid protein. Prolonged vaccine-related poliovirus shedding in human immunodeficiency virus (HIV) positive individuals

has been linked to possible reservoir for reintroduction of polioviruses after eradication. The study sought to estimate the duration for vaccine-related poliovirus shedding among potentially and HIV-infected persons.

Poliovirus excretion was studied following vaccination of children aged ≤ 59 months with human immunodeficiency virus status after national immunization days. Medical records were reviewed to identify the childrens' HIV status, demographic and immunization data. Sequential stool samples were collected at site 2nd, 4th and 8th weeks after trivalent oral poliovirus vaccine (tOPV) was administered. To isolate suspected polioviruses and non-polio enteroviruses, characterize poliovirus subtypes by intratypic differentiation and Sabin vaccine derived poliovirus, real time polymerase chain reaction was applied. Shedding for ≥ 24 weeks was defined as long-term persistence.

The mean age of the study population was 28.6 months, while the median age was 24 months. Of the children recruited, majority were in the 25–48 months ($n = 12$; 46.2%) age category. All the HIV-positive children ($n = 10$) had mild symptomatic HIV status and shed vaccine-related polioviruses between weeks 2 and 4 respectively. No participant shed polioviruses for ≥ 6 weeks.

It was evident that mildly symptomatic HIV+ children sustain capacity to clear vaccine-related poliovirus. The oral poliovirus vaccine-2 (Sabin like) that was detected in one HIV-infected child's stool 6 weeks after the national immunization days was predominantly non revertant. There was no evidence of prolonged poliovirus shedding among the participants enlisted in the study. Further studies are desired to further corroborate these findings.

Keywords: Poliomyelitis, Poliovirus, Poliovirus Shedding, HIV, Immunization, Vaccination, Real Time Polymerase Chain Reaction.

Health Effect of Biomass Fuel Pollutants on Women and Children health in Kieni Constituency Nyeri County, Kenya.

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Abstract

It is estimated that 3 billion people worldwide rely on wood, stubble, dung and leaves for cooking. Burning biomass fuels on open fires and use of inefficient stoves release many harmful pollutants. Inhaling these pollutants result in excess respiratory morbidity and mortality in women and children, thus more than 1.6 million children die annually in the developing countries from the consequences of

exposure to biomass fuel smoke. The objective of this study was to determine the effect of biomass pollutants on women and childrens' health, and access to best improved, most efficient and affordable cook stove plus key policy interventions that can motivate use of cook stoves. The study also sought to establish attitudes and perceptions based on cook stove adoption and household cooking characteristics. A descriptive approach was embraced through observation, case study and survey methods to collect data. The study was conducted in 2013 in Kieni Constituency, Nyeri County. Data was collected from 90 women respondents sampled across Kieni East Constituency. A control group comprised 90 men from the same households who were not directly exposed to biomass smoke. Results showed that 73.3% of respondents cooked indoor with 52.4% of their cooking places having no ventilation at all, 42.9% poorly ventilated and only 4.8% having proper ventilation. 90% of respondents had poor impression of ordinary cook stoves and reported knowledge that respiratory and eye complications are caused by exposure to smoke. All the respondents (100%) were willing to use better cooking technology such as improved cook stoves. (84%) of women interviewed reported inability to afford improved stove. Results showed 80% of rural women cooked indoors using biomass fuel with no ventilation, 40% reported cases of respiratory complications, eye infection, asthma and lung problems affecting them and their children. Household poverty is a key factor affecting women's attitude and perception on either adoption or embracing new technologies. Innovations and incentives can increase rural households' access to modern energy sources and can significantly reduce negative health impacts. Use of improved cook stoves significantly reduces levels of indoor air pollution. There was a strong positive correlation 0.69 between use of biomass fuels and incidence of respiratory diseases. Improving household access to modern energy sources and shifting to cleaner and more efficient carbon accredited smoke free cook stoves can reduce significantly the negative health impacts and this can be done through increasing awareness of the health effects of indoor biomass cooking smoke to women. Policy interventions can help reduce morbidity and mortality associated indoor pollution.

Keywords: *Biomass Pollutants, Women, Children, Diseases, Cooking Stoves, Altitude.*

Epithelial to Mesenchymal Transition (EMT) in Pathogenesis of Endometriosis

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Abstract

Epithelial-mesenchymal transition (EMT) is characterized by loss of epithelial and acquisition of mesenchymal cell phenotype. The aim of this study was to assess the epithelial phenotype in pathogenesis of endometriosis by performing IHC studies with epithelial and mesenchymal markers. We compared endometrium with and without endometriosis to peritoneal, ovarian and deep infiltrating endometriosis (DIE) with two structural (keratin-18, -19), one membrane-associated (mucin-1) and one mesenchymal protein (vimentin) to analyze the epithelial and mesenchymal phenotype of endometrial glands and endometriotic lesions. Quantitation with the HSCORE showed no differences for keratin-18 (K18), keratin- 19 (K19) and mucin-1 (MUC1) between endometrium with and without endometriosis. Also, K18 expression was not different between endometrium and endometriotic lesions. In contrast, K19 and MUC1 were significantly decreased in the endometriotic lesions compared to endometrium. However, all three proteins were found in almost every endometrial and endometriotic gland or cyst and in nearly all epithelial cells. Protein expression of vimentin was lower in the endometriotic lesions compared to endometrium, especially in the ovary. Expression of the epithelial markers in nearly all glands and epithelial cells in endometrium endometriotic entities clearly indicates no loss of epithelial cell phenotype. Additionally, the reduced expression of vimentin in the endometriotic lesions, suggests no shift of the epithelial phenotype to mesenchymal one. We propose that EMT is not a main factor in the pathogenesis of endometriosis.

Keywords: *Epithelial, Mesenchymal Transition (EMT), Pathogenesis, Endometriosis*

Determination of Body Mass Index and Waist Circumference in Type II Diabetes Mellitus in Patients at Thika Level 5 Hospital.

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Abstract

Diabetes mellitus is a universal health problem due to its excess mobility and mortality. It is a condition of great concern globally due to its chronic nature, severity of complications and means to control. BMI provides a simple numeric measure of a person's body mass for a given height. Waist Circumference is one practical tool that assesses abdominal fat. A high waist circumference or a greater level of abdominal fat is associated with increased risk for chronic diseases like Type II diabetes, high blood pressure and heart disease. The purpose of this study was to determine the body mass index and waist circumference in Type II diabetes mellitus patients attending Thika Level 5 hospital in relation to age, gender and social economic status. A descriptive cross sectional study design was employed. The study targeted patients' of ages 36-60 years, with a study sample of 117 diabetic patients. Weight and height were measured using a weighing machine and height meter respectively and BMI calculated. A tape measure was used to take the waist circumference. There was no strong relationship between the body mass index and waist circumference in patients with type II diabetes mellitus. We recommend that new ways of evading sedentary lifestyle and exercising should be embraced.

Key words: BMI, WC, Type II Diabetes Mellitus

**Risks and Existing Health Services for Men Having Sex with Men in
Kilifi Town, Kenya.
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Abstract

Homosexuals and especially men who have sex with men, face numerous health risks and limited options for health services due to associated stigma and discrimination from the general population. Understanding these risks is important in designing health promotion and behavior change interventions for this key population group. The objective of this study was to determine health risks among homosexuals and to establish health promotion and management services for Men having Sex Men (MSM) in Kilifi Town, Kenya. A descriptive cross-sectional study and snowballing sampling technique was used to reach MSM. 69.4% of respondents did not use condoms during their last sexual act. There was high prevalence of multiple sexual partners and drug abuse among the study participants. There was limited access to health services with government facilities the only available option for 87% of the respondents. 63.9%, of the respondents had experienced some form of discrimination when they last went for health services. This study recommends policy formulation ; health services partnerships and advocacy for homosexuals' sexual reproductive health to improve health status of men who have se with men in Kilifi town.

Keywords: *Bisexuality, Heterosexuality, Lesbian, Men, Sex*

Tungiasis Infection: Bacterial Secondary Infection and Associated Risk Factors.

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Abstract

Tungiasis is an inflammatory skin disease caused by a female ectoparasitic called *Tungapenetrans*. The disease is mainly endemic in low-income communities in Africa and Latin America. Although a number of studies have been done to elucidate pathogenesis of tungiasis, there is no study done that directly aimed at determining correlation between bacterial super-infection and its associated risk factors in tungiasis infection. This cross-sectional study was carried out in Kilifi North Sub County and Ganze sub- County, Kilifi County. A total of 84 respondents participated in the study. The gravid jigger from respondents body parts were mechanically extracted by use of sterile needles. From the cavities left, two sterile swabs were collected with the intention of doing both anaerobic and

aerobic culture. Swabs for anaerobic culture from each individual were inserted into carybrair transportation media. Both swabs were then carried with cool box to the laboratory within four hours for aerobic and anaerobic cultures. For aerobic culture, blood agar, and Macconkey agar were used, while for anaerobic culture, chocolate blood agar was used. Various biochemical analyses were carried out to identify isolated organisms. Questionnaires were used in collecting data on risk factors that leads to tungiasis. The data from questionnaires was then correlated with bacterial isolates from the culture. The findings showed that most common pathogenic bacterial species isolated were *Staphylococcus aureus* (25.8%). Interestingly, no anaerobic isolate was isolated. In association with risk factors, most of those respondents who had bacterial isolates were extracting jiggers by use of thorns that are not sterile with a (P-Value= 0.0425). It was also evident that treatment of jiggers with local methods like Mkirifi and Mtupa leave extracts lower the rate of bacterial super-infection (P- value = 0.0009553). However, distance to water and living with animals under one roof had no much significance. The study recommends that regular sensitization meetings should be done by public health department to community to discourage residents from using thorns and unsterile sharp object as a way of jigger treatment, however, they should be encouraged to use local tree extracts. It is also recommended that further research should be done to identify compounds found in local trees that are acting as a bactericidal or bacteriostatic to pathogenic organisms. The study concludes that bacterial super infection in tungiasis comes as a result of using un sterile thorn and sharp objects.

Keywords: Tungiasis Infection, Bacterial Secondary Infection, Associated Risk Factors.

**SUB - THEME: INNOVATIONS IN ENGINEERING, SCIENCE &
TECHNOLOGY**

On Norm Inequalities and Orthogonality of Commutators of Derivations.

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Abstract

Studies on commutators and their norm inequalities have been considered by several mathematicians and interesting results have been obtained in special cases. However, generalization in infinite dimensional remains interesting. Thus assuming it is a complex separable Hilbert space and $B(H)$ the algebra of all bounded linear operators on H . In this paper, we give considerable generalizations of the inequalities for norms of commutators of normal operators. Moreover, orthogonality and norm inequalities for commutators of derivation are also established.

Keywords: *Commutator, Norm inequality, Orthogonality, Derivation*

**Intelligent Decision Support (IDS) in Software Risk Management Based on Data
Mining, Rough Sets and Decision Theory.**

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Abstract

Risks are intrinsic to any project and risk-taking is a necessary component of any process of decision making. High risks from software projects threaten healthy development of any Nation because of the complex nature of projects. For sustainable development, we should focus on risk assessment and risk decision. Assessment of risks in most of the software projects has been done qualitatively ignoring the risk decision. Attempts at risk decisions have been based on individuals' rational opinions hence subjective. Previous reports have shown limited evidence on successful use of DSSs in practice. To address this anomaly, this study proposes intelligent decision support that provides more objective, repeatable, and observable decision - making support for software risk management. Software risk managers will be supported in gathering and analyzing evidence, identifying and diagnosing problems, proposing possible courses of action and evaluating such proposed

actions. IDS is based on data mining, rough sets and decision theories which improve decision making in uncertain conditions. Risks will be looked at as identifiable and quantifiable possible events or factors from which negative or positive consequences may occur. The main sources of data will be a set of secondary data collected over time and knowledge of domain expert (s). The techniques used in this paper will provide efficient algorithms for finding hidden patterns in software risks and generate sets of decision rules to support decisions in software risks management.

Keywords: *Software Risks, Risk Decision-making, Data Mining, Rough Set Theory, Decision Theory, Intelligent Decision Support.*

A Window-Based Approach to Training Deep Neural Networks for Predictive Sequence Modeling.

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Abstract

Innovations in machine learning have stimulated extensive research interests in applied computational intelligence in the backdrop of enormous amounts of data generated in different fields of application. By its nature, such data is overwhelming and mostly go to waste due to capacity and scale restrictions of traditional statistical data modeling as well as legacy machine learning techniques. The specialized area of deep machine learning potentially holds the key to unlocking the door to modern applied computational intelligence. Presently, it is becoming progressively possible to process high volumes of data whether static or arriving in streams of varying velocities using deep learning models. Applications are innumerable many ranging from time series data modeling, signal processing, image analysis, natural language processing to object recognition among others. The critical area of predictive data modeling requires efficient and carefully selected algorithms and models for effective and accurate predictions. In this paper, we present a novel deep machine learning Neural Network for predictive tasks based on a fixed size window of time steps, tested on a well-known data set on customer arrivals to an airline. At the core of the architecture is a Multi-Layer Perceptron – a classical deep learning Neural Network optimized on a number of dimensions that include training algorithm, batch size, number of iterations, loss function among others. We finally present the experimental

results and make conclusions on its applicability to such class of computational problems.

Keywords: *Deep Learning, Predictive Sequence Modeling, Time Series Data Analysis, Multi-Layer Perceptron, Deep Learning Optimization, Fixed Window.*

Voltage Stability Analysis on Shore-to-Ship Power Connected System – Case Study Mombasa Area Network.

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Abstract

The shore to ship power connection is a technology that has been recommended as a way to reducing emissions from marine vessels which have increased in numbers due to rapid growth in international trade. This involves shutting down onboard diesel generators in ships and supplying electricity from an existing shore grid to the ships. This interconnection to existing network has raised concerns to system operators and regulators regarding the system's stability. Present day power systems are being operated closer to their stability limits due to economic constraints, environmental and regulatory changes. Maintaining a stable and secure operation of a power system is therefore an important and challenging issue. Voltage instability in a power system can lead to partial or total voltage collapse resulting in interruption of service to customers. It occurs when a disturbance or an increase in load demand or alteration in system results in an uncontrollable and continuous drop in system voltage. This study analyzed voltage stability of a power system interconnected to off-shore load. A dynamic model of the Kenya coastal power network was developed and used to carry out transient and long-term voltage stability analysis under normal and contingency conditions.

Keywords: *Off-shore, Shore to Ship Power Connection, Voltage Stability.*

Effect of Graphite Dispersed Titanium Dioxide Solid Solar Cell Composition on the Generated Potential (V_{oc}).

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Abstract

Energy is globally recognized as one of the most fundamental inputs to social and economic development. Most energy sources are serious pollutants resulting to serious negative effects on the environment. To overcome this challenge, presence of abundant sunshine has been exploited through use of solar cells to generate this vital resource through photovoltaic cells. However most photovoltaic cells are silicon based hence are expensive. This study reports on the fabrication of a cost effective and environmental friendly solar cell using titanium oxide (TiO_2) and I_2/ KI (dispersed in graphite- C_x) layers in their solid form to provide an alternative source of clean energy. TiO_2 was preferred due to its photo generation property when excited with radiation and chemical stability over a wide pH range. Photo excited electrons were replenished by iodine/iodide complex and graphite facilitated their migration. The mixtures at varying ratios were made into pellets and their electrical properties investigated. The design involved preparation of various ratios of titanium dioxide: graphite /iodine/KI mixtures in each layer. Optimization was achieved by varying the mass of constituent materials while maintaining the others constant to obtain the highest current-voltage outputs. The optimum electricity generation was observed at the ratio of $TiO_2/ C_x: I_2: KI$ as 0.4: 0.3: 0.17: 0.01 g respectively. The KI enhanced solubility and evenly dispersion of iodine in graphite and its mass was held constant at 0.01g in all the cells fabricated. The optimal thicknesses of the photo active layer and that of the electronegative layer were found to be 2.00 and 1.00 mm respectively. An open circuit voltage (V_{oc}) of 0.979V and a short circuit current density (J_{sc}/cm^2) of $12.037\mu A$ was observed, giving efficiency (η) of 0.006% and a Fill factor (FF) of 0.64. No corrosion effects were observed because the medium for charge carrier migration was in dry solid state and hence suitable for photovoltaic application. A solar cell was successfully fabricated and characterized.

Keywords: *Effect, Graphite Dispersed Titanium Dioxide, Solid Solar Cell Composition, Generated Potential.*

On the Number of Cyclotomic Cosets and Cyclic Codes Over \mathbb{Z}_{13} .

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Abstract

Let \mathbb{Z}_q be a finite field with q element and $x^n - 1$ be a given cyclotomic polynomial. The number of cyclotomic cosets and cyclic codes has not been done in general. Although for different values of q the polynomial $x^n - 1$ has been characterised. This paper will determine the number of irreducible monic polynomials and cyclotomic cosets of $x^n - 1$ over \mathbb{Z}_{13} . Factorization of $x^n - 1$ over \mathbb{Z}_{13} into irreducible polynomials using cyclotomic cosets of 13 modulo n will be established. The number of irreducible polynomials factors of $x^n - 1$ over \mathbb{Z}_q is equal to the number of cyclotomic cosets of q modulo n . Each monic divisor of $x^n - 1$ is a generator polynomial of cyclic code in F_{q^n} . This paper will further demonstrate that the number of cyclic codes of length n over a finite field F is equal to the number of polynomials that divide $x^n - 1$. Finally, the number of cyclic codes of length n , when $n = 13k$, $n = 13^k$, $n = 13^k - 1$, $(k, 13) = 1$ are determined.

Keywords: *On The Number of Cyclotomic Cosets , Cyclic Codes Over \mathbb{Z}_{13} .*

Embracing Innovative Technology for Low Cost Housing: A Kenyan Perceptive.

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Abstract

In the recent past, all sectors of the economy have been evolving and this has been mainly brought up by adoption of new technology. Although, many of the Kenyan economic sectors have been adopting technology, the housing sector has lagged behind in adopting technology. This paper seeks to investigate how technology innovation can be used to reduce cost of securing houses given that a lot of time and money is spent when looking for residential or commercial houses. The study thus aims at providing solution to some of the challenges being experienced today.

Keywords: *Innovation Technology, Residential, Commercial Houses, Cost Reduction.*

SUB - THEME: ENTREPRENEURSHIP, GREEN PRODUCTION & MARKETING

Flexibility Idiosyncratic Deals and Organizational Citizenship Behaviour among Life Insurance Agents: A Moderated Model of Perceived Organizational Justice.

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Abstract

This study determined the moderating effect of perceived organizational justice on the relationship between flexibility i-deals and organizational citizenship behaviour (OCB) among tied life insurance agents in Kenya. Standard multiple regression and moderated regression analysis were used to test the hypotheses from data collected from 498 employees and 48 managers. Results showed a positive relationship between flexibility I-deals and OCB ($\beta = 0.426$, $\rho < .05$) and a moderating effect of perceived organizational justice ($\beta = 0.223$, $\rho < .05$). One of the major research limitations for the study was its cross-sectional nature of data collection that weakened the author's claim of causality between the variables in focus. However, the study extends understanding of OCB and idiosyncratic deals through the moderating effects of perceived organizational justice (POJ). Organizations should grant their employees flexibility I-deals for display of OCB. These I-deals provided intrinsic motivation of the employees in displaying OCB in the organizations. The exchange relationship between employees and their employers get enhanced by motivating reciprocation through OCB. This is the first report of a linear relationship involving the moderating effect of POJ on the relationship between flexibility i-deals and OCB.

Keywords: *Organizational Citizenship Behaviour, Idiosyncratic Deals, Perceived Organizational Justice, Life Insurance.*

**Influence of Media Training on the Competence of Journalists in Kenya:
Perceptions of Standard Group Limited Managers and Senior Journalists.**

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Abstract

A number of researches have indicated that training institutions have failed to impart skills and knowledge to students that would be transferred to the industry upon graduation and employment, hence the quality of journalists graduating is wanting. The purpose of this study was to investigate the influence of media training on the competency of journalists in Kenya. Curricula were sampled from selected Kenyan universities and adequacy of training material investigated. Non-probability sampling procedure involving purposive and snow-ball sampling methods were used to identify the 9 participants comprising media managers and senior journalists in one media organization. Data was analysed thematically and presented in a narrative form in accordance with the themes. According to the SG media managers and senior journalists, journalists trained in Kenya lack practical skills required in the job market. Consequently, media houses are recruiting graduates in other disciplines such as English, Medicine, and Law while others have resorted to re-training the new recruits.

It is recommended that media training institutions, regulators and other stakeholders should revamp existing curricula with the view to making them competency based.

Keyword: *Influence of Media, Journalists, Perceptions Standard Group Limited, Managers and Senior Journalists*

Youth Empowerment through Recycling of Textile Products in Kenya.

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Abstract

Global statistics show that growth of apparel market from 2012 to 2017 is on upward trend. It is thus estimated that apparel market increased by approximately 5.46 percent in 2017 compared to 2016. Fast fashion has thus taken Centre stage with improved global economic levels. Consequently, millions of metric tons of used clothes and textiles are available annually especially from the developed nations. While the majority of these clothes end up in landfills, a considerable size is exported

to markets in developing countries. When the apparels and clothing are worn out, they cause environmental pollution on disposal. Textiles particularly present problems in landfill as synthetic products do not decompose, whilst woolen garments decompose and produce methane, which contributes to global warming. However, recycling of these apparels and textiles can be used not only to solve the problems of environmental pollution, but also to provide an economic opportunity for millions of jobless youths in the developing world as well as clearing and forwarding from our houses. In Kenya, recycling industry is developing fast. This study sought to establish ways through which the youth in Kenya could take advantage of this large resource to create employment, the source of used clothes used as raw materials in the recycling industry, items made from recycled clothes and finally the movement of these products in the market. Results showed that the recycling industry in Kenya is dominated by handcrafts, skills men and women and that they are mainly done on small scale. Most of the enterprises sampled in this study were family owned and employed less than 20 people. Items produced included *Ciondos* (local Kenyan baskets), dusters, moppers, pupils' school bags and floor mats. These products are sold in local supermarkets and open-air markets by vendors around the cities and major towns in the Kenya. Prices depended on quality, size of items and target market. Most enterprises reported making between Ksh. 20,000 and Ksh. 40,000 monthly depending on production. It is recommended that the government through the ministry of youth should empower entrepreneurs through training on new technology, financing and provision of tools and equipment to support recycling industry.

Keywords: *Textile Products, Textile Recycling, Youth Employment, Empowerment Postconsumer Waste.*

Green Supply Chain Strategy in Kenyan Tea Sector: A Review and Future Research Agenda.

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Abstract

The concept of green supply chain and implementation of green supply strategy has attracted attention from both industry players and academicians as well in the recent past. The overwhelming contribution of the tea sector to Kenyan economy necessitates tea processing and farmers to embrace green supply chain concepts as it

seeks to build sustainable tea value chains. This concept paper seeks to discuss the green supply chain strategy implementation, opportunities and challenges in the Kenyan Tea sector as well as future research directions academicians are likely to take. It is postulated with that proper adoption and implementation of green supply chain strategy, the Kenyan tea sector would achieve great levels of profitable sustainability.

Keywords: *Value Chain, Sustainability, Green Supply Chain Strategy, Operations.*

Total Impact of Tourism on the Economy of Rwanda (2014).

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Abstract

The primary objective of this study was to evaluate the economic impact of tourism and assess the strength of tourism inter-industry linkages in Rwanda's economy for the year 2014. The input-output/SAM models were used to estimate the impacts and linkages of tourism in terms of output production, employment generation, labour income earnings and total value creation. The economic models identified and quantified the linkages between different sectors of the economy and linkages with other countries. Relationships between expenditure and output, income and employment (direct, indirect or induced) were described by multipliers. Data was sourced from EORA multi-region input-output table (MRIO) database and the Rwanda Tourism Satellite Account for the year 2014. All impacts have a starting point in the economy, defined as the direct effect. The direct effect sets off iterations of indirect (inter-industry production) and induced (labour) spending. The common multipliers computed were associated with output, income, value addition and employment in the economy for the year 2014. Multipliers were classified into their various multiplier effects: initial effects, production and consumption-induced effects.

About \$286 million worth of internal tourism demand in the economy created 72,000 jobs (13% of economy-wide employment) \$195 million in labour income (6.4% of national labour income), \$381 million in total value addition (6.8% of national total value) and \$803 million in output (7.3% of national output). In this report, internal tourism expenditure (a portion of internal tourism consumption) was used as a basis for calculating relevant multipliers and associated effects. Further studies are recommended to re-estimate the multipliers by considering internal tourism

consumption in its entirety. A more robust methodology such as Computable General Equilibrium (CGE) model could be considered for further analysis.

Keywords: *Tourism Satellite Account, Input-Output Table, Social Accounting Matrix, Economic Contribution, Structural Linkages, Rwanda*

Effect of Receivable Management on Performance of Small Scale Manufacturing Companies in Kiambu County in Kenya.

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Abstract

The manufacturing sector has been identified as a key pillar to achievement of economic development of any country. The small scale manufacturing companies in particular have attracted attention of Kenya government as a key source of employment and economic stability. Small scale companies are however faced with problems which threaten their success and survival due to their small size. In this regard the government of Kenya has committed a lot of resources to facilitate success of these entities but there is evidence to the effect that they do not grow to become middle or large scale companies as anticipated by the government. In line with these failures, this study sought to assess the effect of goods receivable management on performance of small scale manufacturing companies in Kiambu County, Kenya. Descriptive cross-sectional survey design using both quantitative and qualitative data was used to guide the study. Primary data was collected with the help of self-administered questionnaires from a sample of randomly selected six small scale food processing firms. Two hypotheses were tested using spearman's correlation and Kruskal-wallis tests. The study established that the sampled firms had challenges in implementing goods receivable management practices. A weak positive relationship was observed between credit standard, credit terms, collection efforts and profitability, while a weak negative relationship was observed between credit selection and profitability. Monitoring of receivables had a strong positive relationship with profitability. It is recommended that these firms should engage qualified, full time credit managers to support their operations and potentially facilitate growth of their firms to middle or large scale enterprise.

Keywords: *Effect of Receivable Management, Performance, Small Scale Manufacturing*

Empowering Staff with Disabilities and Organizational Performance.

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Abstract

People with disability are likely to experience challenges that may affect their output at work. In order to avoid this, there is need to put in place support mechanism to build confidence and enhance work output of disabled employees. This study assessed methods put in place by employers to enhance work output of disabled employees. An online literature survey was undertaken to determine mechanisms put in place by employees to enhance work output of disabled employees. It was observed that accessibility, wellbeing and institutionalization of vibrant empowerment performance are critical to work output of disabled employees.

Keywords: *Empowering Staff, Disability, Organizational Performance.*

An Assessment of the Role of Strategic Management on Innovations of Small and Medium Enterprises in Nakuru Town.

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Abstract

Strategic management scholars have long emphasized the importance of innovation for a firm's competitive advantage and performance. Firms can use innovation strategically to achieve competitive advantage in responding to changing market and customer demands to achieve superior performance. This study analyzed online data on innovation and strategic management. Results showed that strategic management of innovation is an important component of a firm's strategy. An innovation can be a new product or service, a new production process technology, a new structure or administrative system, or a new plan or program pertaining to organizational members. Strategic management of innovation is concerned with using appropriate strategic management techniques and measures such that the impact of the firm's innovation activities for firm growth and performance is maximized. We recommend that small and medium enterprises be actively involved in strategic management of processes, administrative services and innovation to facilitate positive growth.

Keywords: *Strategic Management, Innovations.*

Emotional Intelligence and Organizational Performance.

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Abstract

Emotional Intelligence is the capacity to be aware of, control, and express one's emotions, and to handle interpersonal relationships judiciously and empathetically. It is a strong predictor of service performance of employees in the work place. It has been observed that employees who perform well in their organization usually stayed longer in these organizations. This study examined emotional intelligence on organizational performance. The study used desktop research in which online journals on the themes emotional intelligence on peace and performance were reviewed. Results showed that individuals with high emotional intelligence contribute to high performance and delivery of quality services hence a peace catalyst unlike their counter parts with low emotional intelligence and whose services may be inferior, do not often accept corrections, usually source of conflict and are associated with reduced organizational performance. Continuous empowerment programs on emotional intelligence is recommended to all employees as a means to boosting interpersonal relationships, peace initiatives and overall organizational performance.

Keywords: *Emotional Intelligence, Organizational Performance.*

Training, Development and Organizational Performance: The Moderating Effect of Organizational Commitment.

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Abstract

Human resource is an important asset in an organization. Organizations invest in human resources through training and development to achieve optimal outputs. The purpose of this study was to find out the impact of human resource training on organizational performance. Survey research design was employed in this study. The study was carried out in three companies namely Kenya Power, KenGen and Mumias Sugar Company and descriptive survey design was adopted. A study population of 361 respondents was sampled and questionnaire used for data

collection. Results showed that training of employees and commitment have a significant effect on organizational performance.

Keywords: *Employee Performance, Organizational Commitment and Training and Development.*

Relationship between Training and Development and Employee Productivity

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Abstract

Human capital is an important resource to achieve organizational competitive advantage. Thus, organizations should invest in tailor-made training programs to make their employees competent enough to sustain competitive performance. It is however observed that many organizations do not invest in employee training and often resort to cutting training budgets during economic slowdown. This study investigated the relationship between training and development on the one hand and employee productivity and organizational performance on the other. A review of 80 previous studies with a sample size of 10,004 respondents was undertaken. Results showed a positive correlation between training and development and employee productivity and organizational performance($r=0.6$) and that 36% of the variation in employee productivity and organizational performance can be explained by human resource training and development. It is recommended that training be based on the actual needs of individual employees that employee participation in all the stages of training is critical and training and development should be a diverse continuous activity and that commensurate budgetary allocation should be made.

Keywords: *Employee Productivity, Organizational Performance, Training and Development*

Gender Mainstreaming Interventions in the Public Sector of Kenya.

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Abstract

Gender mainstreaming is essential to a country's sustainable development. Effective mainstreaming can be achieved through a number of strategic and prioritized interventions within the supported sector, programme or project. The objective of this study was to establish gender mainstreaming interventions used in the public sector in Kenya. A critical review of literature on gender mainstreaming interventions was undertaken. Results showed that gender mainstreaming interventions lead to more effective and efficient service delivery hence such interventions should be employed, to enhance productivity.

Keywords: *Gender Mainstreaming, Interventions, Public Sector, Kenya.*

Effect of Competition from Commercial Banks on the Financial Performance of Saccos in the Banking Sector in Kenya.

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Abstract

Kenya has a long history of co-operative development characterized by strong growth, thus making significant contribution to the economy. Co-operatives are recognized by the government as a major contributor to national growth and development as they are found in almost all sectors of the economy and account for more than thirty percent of the National Domestic Saving. Commercial banks in Kenya have staged a stiff competition to the Co-operatives through provision of unsecured personal loans. The Co-operatives consequently devised competitive strategies to counter competition through reducing loan processing period and increasing loan repayment period. This has increased productivity, job creation and improved national economic growth and development. This study sought to establish whether competition from commercial banks affect financial performance of Savings and Credit Co-operatives (SACCOs) in Kenya. The study adopted a descriptive survey and quantitative research design. The target population was Co-

operatives in the banking sector in Kenya. Stratified sampling and simple random sampling were used. A Likert scale questionnaire was used to gather primary information and a secondary data collection sheet was used in gathering information regarding financial performance of the SACCOs. Information was sorted, coded and input into the statistical package for social sciences (SPSS) version 21.0 for production of graphs, tables, descriptive statistics and inferential statistics. There was a positive relationship between competition from commercial banks and financial performance of SACCOs in the banking sector in Kenya, correlation coefficient of 0.647 p-value of 0.000. The study concluded that competition from commercial banks is statistically significant in explaining financial performance of SACCOs in the banking sector in Kenya. We recommend that SACCOs should effectively manage competition from banks to improve their financial performance and to further stir up national economic growth to eradicate poverty.

Key Words: *Economic Development, Economic Growth, Savings, Credit Co-Operatives, Competition, Financial Performance.*

Effect of Credit Risk on Financial Performance of Commercial Banks in Kenya.

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Abstract

Commercial banks play a vital role in the modern-day economies. The core business of the banking sector worldwide is creation of credit to deserving and deficit units of the economy, a role that also happens to be the main income generating activity for the banks. This activity comes with huge risks; both to the lender and the borrower. Banks are particularly subjected to a wide array of risks in the course of their operations. These risks generally fall into three categories namely: financial, operational, and environmental. Of these risks experienced, credit risk is of great concern to banking management and regulators as this can easily lead to bank failure. This study is seeking to investigate the effect of credit risk on financial performance of commercial banks in Kenya. The study will operationalize credit risk through capital to risk weighted assets, asset quality, loan loss provision as well as loan to advance ratios while financial performance will be measured by return on equity (ROE). Secondary data will be extracted from audited financial statements of all the

44 commercial banks under the purview of Central Bank of Kenya (CBK) for the 10-year period covering 2008 to 2017. The study will adopt longitudinal research design using an in-depth analysis of entities over a lengthy period of time. Regression analysis will be used to estimate the relationship between the independent and dependent variables. The F and t ratios will be used at 95% confidence level to determine the significance or otherwise of the overall model and the respective coefficients of the independent variables respectively. Findings of the study will be useful to academicians and management of commercial banks as well as policy formulators.

Keywords: *Credit Risk, Financial Performance, Commercial Banks.*

Determinant of Age as a Demographic Segmentation Practice on Consumer Choice of Ready to Wear Clothes in Kenya.

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Abstract

Segmentation is division of a large market into smaller homogeneous market targets on the basis of common needs and/or similar lifestyles. Demographic analysis can cover whole societies, or groups defined by criteria such as age, nationality, religion, and ethnicity. In order to overcome the stiff competition of ready to wear clothes, businesses ought to understand their market characteristics. This study sought to fill the existing knowledge gap by focusing on age as demographic segmentation practice on consumer choice of ready to wear clothes. The study focused on the influence of age on consumer choice of ready to wear clothes in Kenya. A descriptive survey design was used to obtain in-depth information from respondents and purposive sampling used to select ready to wear shops from the three cities in Kenya namely: Nairobi, Mombasa and Kisumu. A sample of 83 respondents from ready to wear entrepreneur shops were selected from the three cities. It was observed that older consumers are less responsive to fashion change hence affecting their readiness to consume ready to wear clothing. It is recommended that ready to wear clothes entrepreneurs should engage in population market survey to optimize their sales. There was a significant relationship between age and consumer choice of ready to wear clothes as shown by a regression coefficient of 0.605.

Keywords: *Age, Demographic Segmentation, Consumer Choice, Ready to Wear Clothes.*

Hindrances to the Growth of Apparel Industry in Kenya: A Review.

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Abstract

Kenya's textile sector is a significant contributor to the country's economic growth. However, liberalization of Kenya's economy at the beginning of 1990s ushered in great competition from imported clothing. The purpose of this study was to evaluate the challenges that hinder growth of apparel industry in Kenya. A review of secondary data, on studies related to impact of the various challenges on the Kenyan textile sector was undertaken. The reviewed studies included published reviews and research papers in journals, university level dissertations, theses and published books. The words used to search the literature included apparel, apparel industry, apparel sector, development, Kenya, Kenya cotton farming, impact on apparel industry, apparel import and exports. It was established that inadequate supply of skilled labor and raw materials restrict growth of this industry. Thus, if spinning, weaving, knitting, dyeing and finishing can be done locally, production process becomes cheaper. The prospect of this industry relying on local produce of cotton fabric is low unless urgent interventions are made. There is therefore a need for the government to support growth of this industry by subsidizing production of cotton by local farmers and instituting appropriate taxes on imported fabrics.

Keywords: *Challenges, Growth, Apparel Industry, Kenya, Review.*

Determinants of Shoppers' Recycling Behaviour of Green Secondary Packaging.

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Abstract

Kenya aspires to become a middle-income economy by 2030, hence the government through NEMA is working extra hard to have a clean environment before then. There have been widespread plastic bags littering the country, hence plastic waste issues have attracted widespread concern and attention in Kenya for the last five years. This has rekindled the idea of green marketing right from product/service design, packaging to distribution through retail outlets. A lot of research has been done on effects of characteristics of primary packaging on purchase behavior in both developed and developing countries. However, from the accessible literature, there is no quantitative tests to show the factors driving post-purchase behavior in respect to recycling of packaging by shoppers in Kenya. This study investigated the effects of packaging characteristics and information processing on shoppers' recycling behavior of green secondary packaging. Shoppers personal characteristics were controlled, and the study adopted a survey design where a sample of 600 supermarket shoppers in three Nairobi metropolitan towns of Kiambu, Ruiru and Thika were interviewed using structured questionnaires. Results were analyzed using regression analysis method, and showed that, size had a positive and significant effect on post-purchase behavior towards green secondary packaging recycling behavior, (coefficient 0. 0.503 p-value = 0.000) and that graphics and price also have positive significant effect in recycling (Coefficient 0.264, p-value 0.000) and (Co-efficient 1.282, p-value= 0.000) respectively. Brand name and logo had positive but insignificant effect on recycling behavior while technology related attributes (durability) had positive and significant effect on the recycling behavior (Coefficient 1.143, p-value = 0.000). Information processing also had positive and significant effect on recycling behavior (Coefficient 0.605, p-value 0.000) and all consumers' individual characteristics except for the gender (Coefficient -0.040, p-value 0.171) had positive and significant effect on recycling behavior. Knowledge generated in this study is important to the business community in Kenya and the Kenya government in that, manufacturers and retailers can use it to plan their marketing strategies in order to promote the green marketing agenda, while the government through NEMA can use it when developing policies to guide waste disposal. Based on the results, it is concluded that green secondary packaging, an intervention by NEMA has

contributed to acceptance of recycling of green packaging and it will go a long way in improving the environment in Kenya.

Keywords: *Green Marketing, Packaging, Green Secondary Packaging, Post- purchase Behavior, Recycling.*

Does Gender Matter in Agro-Food Manufacturing Sector? Perceptions of Micro and Small Scale Food Processors in Kenya.

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Abstract

This article is motivated by manufacturing and food security as critical components of the *Big Four Agenda* guiding development by Kenya government today. However, gender asymmetry in the two sectors seems to frustrate the desired achievements. The research question “Does gender influence processing of advantageous food products among micro and small enterprises in Kenya?” guides the study. To answer this question, the study adopted a mix of constructivism and Longwe framework to survey micro and small food manufacturing enterprises registered in county governments of Busia and Nairobi, Kenya. Data was collected using interviews and literature reviews of refereed journals articles, reports and books chapters. Enterprises were sampled by fisher sampling techniques in Nairobi and snowballing in Busia. Heads of enterprises were interviewed using drop and pick semi structured questionnaires. The structured part is on a seven-point likert scale. Of the 132 entrepreneurs interviewed, 130 correctly filled the questionnaires and were there after analyzed using descriptive and inferential techniques. Explanatory study design was applied using both Pearson’s Correlation and Logit regression to determine the effect of gender on manufacturing advantageous foods in Kenya. There were more men-owned food processing enterprises than women-owned. Results also showed inverse correlation between gender and manufacturing advantageous food products. There was no substantive evidence to demonstrate that gender significantly influences manufacturing of advantageous food products ($Wald(1) = 1.339, p = 0.247, sig < .05, 2\text{ tailed}$). However, attitudes indicating gender inequality among micro and small food processing entrepreneurs are still existent. We recommend diffusion of gender equality norms by international and regional actors in developing countries. National and county governments of Kenya should

mainstream gender in food processing policies and programs. Further studies should be done to determine the effect of gender on food manufacturing sector besides food processing in Kenya. Such studies should consider age of women, marital status and effect of parity on food processing sector.

Keywords: *Gender, Micro, Agro-Food Processing, Food Product.*

Enhancing Small and Medium Enterprises Credit Access and Performance through Technological Integration.

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Abstract

Small and Medium Enterprises in Kenya face innumerable challenges that affect their financial performance. Lack of financiers, market information gaps, and poor financial management practices are some of the factors that are likely to affect performance of Small and Medium Enterprises. These challenges can be solved through technological integration of the key market participants especially financiers and suppliers. The purpose of this study was to establish a technological mechanism to bring together SMEs, financiers, suppliers in a single technological platform with a view of improving business access to finance and profitability. A desktop research was applied whereby online papers on the theme of technological integration of market participants and SMEs financing and performance were analyzed. Results showed that technological integration of SMEs and Key market players (Creditors and suppliers) would enable the SMEs to access credit easily, provide perfect information on prices of commodities, promote fair competition, increase profits and minimize opportunity costs. Besides, it would help creditors to assess credit worthiness of SMEs by reviewing their transactions, reduce credit default risk and help creditors and suppliers to access a larger market. We recommend development of an application and an online system tailored to the needs of SMEs, creditors and suppliers in order to harness full benefits of technological integration.

Keywords: *SMEs, Technological Integration, Financial Performance, Creditors, Suppliers.*

**Effect of Corporate Social Responsibility on Performance of Commercial Banks
Listed in Nairobi Stock Exchange.**

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Abstract

The interest on Corporate Social Responsibility (CSR) has risen to great heights within the banking sector within the last decade. Commercial banks have thus increasingly embraced CSR disclosure practice on social, economic and environmental operations. The main focus of this study was to examine the effect of CSR dimensions relating to education and environmental conservation performance of commercial banks listed in the Nairobi Stock Exchange. The paper employed desktop research by reviewing and analyzing audited published financial reports at NSE. The study population was 11 commercial banks listed at NSE as per December 2017. CSR investments were measured using monetary expenditure on social activities. Financial performance was measured using the net profit. Data was analyzed using a multiple regression model. A non-probabilistic sampling design was used as only those banks which engaged in CSR for the period from 2012 to 2017 were listed in the study. The study established that investments in CSR activities are positively related to the financial performance of commercial banks; banks which consistently invested in CSR had higher financial performance; and employed better customer loyalty. It was observed that CSR programs build bank's reputation; hence increased market share which consequently leads to high financial performance. The study recommends that commercial banks and other institutions should consistently invest in activities that considers the interest of all stakeholders, and that businesses should invest highly in education programs for the disadvantaged groups, environment, and social empowerment through gender mainstreaming as that results in high financial performance.

Keywords: *Corporate Social Responsibility, Commercial Banks, Education, Environment, Social Empowerment Financial Performance.*

Relationship between End Users Involvement and Performance of Economic Stimulus Projects in Kenya: A Case Study of Fish Farming Projects in Kirinyaga County, Kenya.

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Abstract

Economic Stimulus Programme (ESP), an initiative by the Kenyan Government in 2009 ,to provide impetus for economic recovery, growth and renewed opportunities was launched to encourage expenditure of public funds in the Country through different projects.It was implemented through 2009/2010 budget entitled “*Overcoming today’s challenges for a better Kenya tomorrow*” at a cost of Ksh 22 Billion (260 million US\$). Fish farming was one of the ESP projects at a cost of Ksh 1.12 billion (Ksh 8 million per constituency) which was expected to have maximum benefits in terms of improved livelihood due to increased demand for fish in the world. The purpose of this paper was to determine influence of end users involvement in performance of ESP fish farming projects in Kirinyaga County, Kenya .The study aimed at establishing relationship between end users involvements and performance of projects. The study was guided by the following objectives; to determine relationship between initial planning, resource plans, training planning and marketing planning involvements of end users and performance of fishing farming projects. Data was collected using questionnaires, coded and analyzed using SPSS version 22. Correlation to determine relationship between dependent and independent variables was done. The study established that 41.5% of end users did not experience improved livelihood and that 45.5% of end users were not able to meet fish farmers’ basic needs, for example fish food. Out of all the dug ESP fish ponds, only 33.8% were operational; meaning 66.2% had been abandoned by farmers. It was evident that end users were not involved at the initial planning of the projects, as 79% of end users did not have enough information concerning ESP projects. Lack of end users initial project involvement was revealed as one of the major factors that affected performance of the projects, since most of them got in to it without understanding its anticipated direction. Respondents,(73.6%) agreed that resources including fingerings, feeds, liners, fertilizers, lime and trainings were provided, but described as inadequate for the intended pilot period of six months. It was also evident that that respondents did not understand the market state of the fish/fish products. The study concludes that user involvement in all processes of economic stimulus projects in Kirinyaga County is key to its success.

Keywords: End Users, Economic Stimulus Programme, Fish Farming.

SUB - THEME: AGRICULTURE AND ENVIRONMENT

Effect of Nitrogen Fertilizer on Growth, Quality and Yield of Mrenda (*Corchorus Olitorius*) Morphotypes in Kenya.

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Abstract

Production of Mrenda (*Corchorus olitorius*) in Kenya has been low due to poor production agronomic practices such as incorrect fertilizer application and poor quality seeds among others. Observations from the Mrenda growing areas showed that there is high unmet demand for the crop in local and export markets. Yields have remained low at 2-4 tons/instead of expected yield of 5-8 tons/ha. The objective of this study was to determine the effect of Nitrogen fertilizers on growth, quality and yield of Mrenda (*Corchorus olitorius*) morphotypes. Seed samples were planted at two sites at University of Eldoret, Chepkoilel farm and Kenya Agriculture and Livestock Organization, Kitale farm using RCBD design with three replicates and three levels of Nitrogenous (N) fertilizer rates of 0, 60, and 120kg/ha. Data was collected on five tagged plants per plot and plant heights, branching at main stem, pod count and fresh leaf yields determined and analyzed using computer package GENSTAT and means separation done using DMRT at $p < 0.05$. Application of nitrogen fertilizer led to significant variance ($p < 0.05$, with highest effect by 120kg/ha rate with tallest plants being 90.11 cm and 89.89 cm by Morphotypes GT and BT respectively. Application of 120kg/ha led to highest mean branching/plant at 8.3 and 7.3 and highest mean pod per plant at 22.6 and 21.3 by Morphotypes GT and BT respectively and highest yield weight of 99.20g (Morphotype GT) and 66.80g (Morphotype BS). Application of 0kg/ha (control treatment), showed lowest mean plant leaf weight from all Mrenda morphotypes with Morphotypes GS having 31.55g, BS with 31.66g from both Eldoret and Kitale sites being lowest. Application of 120kg/ha led to highest increases of plant growth and yield of Mrenda. We recommend that farmers use increasing N fertilizer rates for increased quality and yield of Mrenda.

Keywords: Fertilizer, Yield, Mrenda.

Assessment of Forest Rehabilitation and Restocking Success along Mt. Kenya East Forest Reserve using Remote Sensing Data.

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Abstract

The nationwide ban on harvesting of forest products in 1999 was aimed at promoting regeneration of forest resources in Kenya after years of uncontrolled intensive logging. This was followed by massive tree planting programs spearheaded by the Kenya Forest Services (KFS) and other stakeholders. It is estimated that millions of tree seedlings were availed to support the program. One of the heavily affected forests was Mount Kenya Forest Reserve gazetted in 1932. The diverse tree species and its proximity to human settlements has made this important national water tower vulnerable to deforestation and illegal logging. Despite development of a ten year Mt. Kenya ecosystem management plan (2010-2020) to address threats to Mount Kenya's natural resources, comprehensive mapping of degraded areas to inform rehabilitation program has not been carried out along the perceived forest-human activity transition zone. This study seeks to assess the effectiveness of rehabilitation efforts especially restocking after the 10-year ban. This is expected to ascertain the success or failure of such a program and inform on probable causes and advise on the way forward. Geospatial approaches and tools will be integrated in data collection, analysis and presentation. Such tools especially remote sensing datasets and GIS have been applied in forest mapping and have been useful in forest change detection elsewhere.

Key words: *Remote Sensing, Mt.Kenya, Ban, Restocking, KFS.*

Oil Production Potential of Fast Growing Phytoplankton Species from Lake Naivasha and University of Embu Reservoirs.

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Abstract

The demand for non-renewable fossil fuel has greatly increased in the last few years from 84 million barrels of fossil fuel per day in 1980's to over 100 million barrels per day in 1990. To supplement this demand, research on alternative sources has been going on since 1960's in different parts of the world. Among the alternative sources, phytoplanktons have shown great promise due to their high oil yield in comparison to energy crops. In Kenya, despite the occurrence of highly productive eutrophic lakes, no research has been carried out to assess the potential of phytoplankton species in oil production. This study aimed at identifying and assessing oil production potential of fast growing phytoplankton species in Lake Naivasha, Kenya and a man-made reservoirs at University of Embu. Data was collected from December 2014 to May 2015. During each sampling trip, physico-chemical parameters were measured and water samples collected for phytoplankton species identification, isolation and culturing in the laboratory. Samples were inoculated in phytoplankton growth media and cultured under 14:10 light: dark photoperiod. Fast growing species were identified through screening of accumulated biomass. These species were then cultured for lipid extraction. Results showed that fast growing phytoplankton species in both Lake Naivasha and EUC reservoirs included; *Closteriopsis acicularis* ($0.64 \text{ mg L}^{-1} \text{ d}^{-1}$), *Chlorella saccharophilla* ($0.53 \text{ mg L}^{-1} \text{ d}^{-1}$), *Chlorella vulgaris* ($0.49 \text{ mg L}^{-1} \text{ d}^{-1}$), *Cosmarium contractum* ($0.42 \text{ mg L}^{-1} \text{ d}^{-1}$) and *Scenedesmus ellipticus* ($0.37 \text{ mg L}^{-1} \text{ d}^{-1}$). Oil production potential recorded by *Nannochloropsis* sp, *Chlorella saccharophilla*, *Chlorella vulgaris* and *Scenedesmus ellipticus* was 30%, 10.8%, 8.7% and 5.4% respectively. Nean oil produced by phytoplankton isolates from Lake Naivasha and UoEm reservoirs did not differ significantly ($p < 0.05$). These findings open up an opportunity for further research and incorporation of technology in biofuel production.

Keywords: *Oil Production, Phytoplankton Species, Lake Naivasha, University Embu Reservoirs.*

Environmental Auditing in Improving Environmental Management in Kenya.

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Abstract

This paper seeks to examine environmental auditing as a means to improving environmental management in Kenya. This type of auditing is distinct from environmental accounting, and auditing procedures used by government agencies. A wide range of internal environmental auditing practices have been adopted from verifying company compliance with regulatory standards, to total assessment of how "green" a company is. The study sought to establish the effect of environmental audit quality, on risks of human exposure to environmental problems. The research method used consisted of studying reviewing relevant literature and documentations in the field. Results revealed three important observations; nearly all companies that have carried out environmental audits intend to continue the practice in the future, that Kenyan companies have a more reactive approach to environmental auditing than foreign owned companies and that accounting profession is only slightly involved in environmental audit due to the fact that this type of audit is an activity that is not mandatory. Environmental auditing uniqueness appears to rise from the breadth of subjects covered in the process, the range of measurements and different types of data collected as well as skills required to undertake an environmental audit, rather than the techniques employed. It was observed that while companies subscribe to the policy of being environmentally friendly, only few engage in environmental audits.

Keywords: *Environmental Audit, Environmental Management, Auditors, Accounting Regulations.*

SUB - THEME: EDUCATION AND TRAINING

University Students' Perception on the Influence of the "Ideal" Media Body Image on Choice of Clothing in Kenya.

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Abstract

This study examined university students' perception of their body appearance in relation to media portrayal of 'ideal body image'. Students spend time on social and mainstream media where they observe, like and share the images portrayed as ideal by the media. The unrealistic body images portrayed as 'ideal', lead to actions which results in depression, low self-esteem and eating disorder. The study was conducted in four universities, namely; University of Eldoret, Kirinyaga University, Egerton University and St. Paul's University, Kenya. A total of 528 study respondents, was randomly selected to participate in the study. Self-administered questionnaire were used to collect data concerning media influence, body image perception and its influence on the individual body dis/satisfaction and self-esteem. Data was coded and analyzed by Statistical package for Social Science (SPSS Version 21). 68.4% of respondents were depressed when they did not perceive themselves fashionable according to media perceptions of ideal body image but there was a significant difference in relation to students' perception towards their body weight, at $p < 0.05$ level of significance. Majority of the students sampled were not comfortable with their body appearance and were psychologically affected by people's judgment of their body appearance. Media and peer pressure were major influencing factors in students' choice of clothing. It was evident that majority of the students had considered buying body weight loss products to achieve "ideal body image." All the sampled students agreed that trying to achieve the ideal body image is unattainable and it affects their self-esteem and academic performance. There is need for the media to use women of different body sizes during fashion events and advertisements to demystify the "ideal body image" concept to promote positive thinking and create a sense of pride.

Keywords: *University, Perception, Influence, Media Body Image, Clothing in Kenya.*

Curriculum Implementation: Garment Design by Draping and in Public Institutions of Higher Learning in Nairobi County, Kenya.

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Abstract

Clothing is our closest environment, and yet very limited research has focused on how curricula in fashion design programmes are implemented. In particular, Fashion design goes beyond just a designer thinking of a garment, sketching it and sewing it together. Fashion design is an artistic and functional industry that helps to clothe people while incorporating style. All these activities require extensive and intensive training with exposure to practical work in fashion design. This study examined curriculum implementation in garment design by draping in public institutions of higher learning in Nairobi, Kenya. The study was guided by the Activity Theory and Pedagogic Activity System Structure. A cross-sectional survey research design was employed, and five public institutions of higher learning were purposively selected in Nairobi County, namely Kenyatta University, Technical University of Kenya, Kenya Technical Teachers College, Kenya Textile Training Institute and Nairobi Technical Training Institute. Samples comprised five heads of department, 32 teachers, 266 students and 30 fashion designers. Data was collected using questionnaires and interview schedules. Both qualitative and quantitative data analysis techniques were used. Results showed that only a few public institutions of higher learning used garment design by draping. Majority of the teachers were not trained in the area of fashion design. Chi-square tests showed strong correlation between use of 'real' fabric draping for design and pattern development technique taught ($V= 0.646; p < 0.0001^*$) and sources of curriculum ($V= 0.623; p < 0.0001^*$). It was concluded that pattern development technique taught, sources of curriculum and teachers' area of training are associated with the use of 'real' fabric draping for design in public institutions of higher learning.

Keywords: *Garment Design by Draping, Curriculum Implementation, Public Institutions, Higher Learning, Nairobi County, Kenya*

Efficiency of Laws on Safety in Learning Institutions in Kenya.

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Abstract

Compromised safety in Kenyan schools as demonstrated by recent instances of fires, bullying, food poisoning, flash floods and an increase in school dropout rate, is a growing national concern that requires immediate attention. Thus, despite the development of Safety Standards Manual for Schools in Kenya in 2008, safety in schools has continued to deteriorate leading for instance to death of students in dormitory fires. This study sought to analyze the practical efficacy of the laws in Kenya relating to safety in learning institutions and to determine correlation between the laws and actual safety of the learners in these institutions. The study involved a qualitative case study analysis in the context of a secondary education institution. Data was collected from school administration, teachers, and students. Interviews and questionnaire results were transcribed and further thematically analyzed with scholarly support of peer-reviewed works. Results showed that there is limited awareness of safety laws and provisions within the school community. However, factors other than awareness hamper full implementation of the legal safety requirements in learning institutions. This study further raised the issue of safety threats posed by learning institutions to the staff, as well as the surrounding community. Increased legal awareness on implementation of safety requirements in learning institutions will positively impact the perceptions and levels of safety in learning institutions.

Keyword: *Efficiency of Laws, Safety, Learning Institutions in Kenya*

State of E-Learning in Kenyan Universities: A Case of Kirinyaga University.

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Abstract

E-learning is the process of delivering education using Information Communication Technologies (ICTs). Globally, integration of ICT in education has undeniably brought a paradigm shift in learning process. However, adoption of E-learning in Kenya has not been fully realized. Most Kenyan universities are using blended mode

of e-learning. This study investigated the state of e-learning at Kirinyaga University. The target population was drawn from faculty and students in five schools. Proportionate stratified random sampling was used to arrive at a sample size of 5% for students and 50% for lecturers in every stratum totaling 155 students and 40 faculty. Both closed and open ended questionnaires were administered to collect data about the state of e-learning in Kirinyaga University. Data was analyzed using SPSS measures of dispersion and central tendency and presented in form of frequency tables and graphs. Results showed that there is adequate ICT infrastructure, e-learning awareness but training is inadequate. Problems of content organization and management exist, question of plagiarism & ethical usage of e-learning content not addressed, unavailable policies on e-learning platform usage, and lack of adequate user access levels and privileges. The study proposes an E-learning Integration Framework and recommends that Kenyan Universities adopt the framework to fully realize the benefits of e-learning. Routine assessment surveys should be undertaken to ascertain the level at which e-learning platform is impacting on the learning process.

Keywords: *E-learning, University Education, Integration Framework, Adoption, Learning Process.*

Social Challenges: A Barrier to University Students' Academic Achievements.

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Abstract

Students in public universities in Kenya usually experience a myriad of challenges that could affect their studies, relationships and lives. These challenges have led to deferral or discontinuation of studies and in some cases loss of lives due to unbearable social problems. Some of these problems could be isolated and mechanisms of managing them be devised to alleviate the students' concerns. The purpose of study was to assess social challenges' management strategies used by university students to enhance academic performance. The study objectives were to: determine the effects of social challenges on students' academic performance; examine the approaches put in place to mitigate the effects of social challenges, and evaluate students' management skills to social challenges in public universities in Kenya. A total of seven public universities were purposively selected. Descriptive

Survey research design was adopted for the study. Stratified random sampling was used to select a sample size of 384 students from both art and science based degree programmes in the seven public universities. Data was collected using open-ended and close-ended questionnaires for qualitative and quantitative data presentation. Data was analyzed using descriptive statistics and content analysis. Qualitative data was presented using narration while means, percentages and frequency tables were used for quantitative data. Results revealed that (55.7 %) of students sampled in this study lacked adequate skills to manage social problems which in the long run, negatively affect their studies. Social support programmes are recommended to cushion students from adverse impacts of social dynamics.

Keywords: *Academic Achievements, Public Universities, Students, Social Challenges*

Relevance of Formal Education in Rural Youth Participation in Community Development Projects in Turkana County-Kenya.

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Abstract

Socioeconomic factors including formal education, natural resources and how they are governed by culture and central government define the level of development in any community. The levels to which local cultures interact with global cultures also enhance the degree to which people adapt to external influences which would support their positive development. While young people seek more economic opportunities and claim further property rights, their participation in community development projects remains low in comparison to adult participation. The government has thus been implementing various projects and programmes geared towards poverty reduction and boosting food security in Turkana County, Kenya. However, the number of youth taking up responsibility in community development projects is low. This study sought to establish the influence of formal education levels on youth participation in community development projects in Turkana County. Krejcie & Morgan table was used to sample 360 persons drawn from a population of 13848 youth. Stratified sampling was adopted in selecting 45 participants from eight locations in the study area. Purposive sampling was used to include key informants for interview and FGD resulting to a total of 375 respondents. Descriptive and inferential statistics were used to analyze quantitative data and qualitative analysis

on non-numeric data. Pearson Correlation Coefficient was used to establish associations of the study variables. Results revealed that rural youth lacked practical skills, values and attitudes to engage in community projects. It is recommended that deliberate efforts be put in place to support youth education in rural areas to enhance their participation community development projects.

Key words: *Youth participation, Community Development Projects, Formal Education, Socioeconomic Factors.*

Teaching Gendered Identity Construction through Children's Literature in Kenya: A Review of Ezekiel Alembi's Works.

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Abstract

Gender is a construct of socio-cultural contexts. Postcolonial Africa is replete with studies on gender stereotypes and patriarchy. During colonialism, the African woman—unlike her male counterpart—experienced double bondage: patriarchy and colonialism. Recent studies show that these forms of oppression against the African woman have been mutating to date. While it is generally accepted that literature re-defines and fosters gender sensitivity, few studies have sought to understand in what ways children's literature promotes gender formation. This paper was guided by two research questions namely how are female and male characters depicted in the sampled stories and how are gender roles constructed in the stories?. The study is anchored on theories of learning and children's literary theories in analysis of stories. Through purposive sampling, close reading and analysis of stories authored by Ezekiel Alembi, the study examined how literature teaches identity formation to children. The research takes cognizance of influence of formative stage of learning on overall character formation of an individual. It is expected that through apt stylistic strategies and characterization, Alembi uses literature to (de)construct gendered identity to enhance national development.

Keywords: *Gendered Identity, Construction, Children's Literature, Kenya.*