UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

Directorate of Research, Partnerships and Innovation
in conjunction with the **Directorate of Postgraduate Studies**

2nd TRANS-DISCIPLINARY

RESEARCH SYMPOSIUM 2026

Book of

Abstracts



THEME

Research, Innovation, Engagement and Pedagogy

Wednesday 4th – Friday 6th November 2026

Uganda Christian University, Main Campus, Mukono

HW Health and Well-being
BTL Business, Trade, Law and Economic Development
FWE Food, Water and Energy Value Chains
TIS Technology, Innovation and Sustainable Communities
FCE Faith, Education and Community Empowerment

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COMING SOON UCU Institutional Animal Care and Use Committee (UCU-IACUC)

UCU-IACUC is completing the final stage of accreditation by the Uganda National Council for Science and Technology. Once accredited, it will be one of only three accredited IACUCs in Uganda, providing ethical review and oversight of research involving animals for researchers in Uganda and their international partners.

UCUREC CHAIRPERSON
Dr. Edward Kibikyo Mukooza
+256 772 957 345
emukooza@ucu.ac.ug

UCUREC MANAGER · HEAD, BIOETHICS UNIT
Mr. Osborn Ahimbisibwe
+256 775 737 627
oahimbisibwe@ucu.ac.ug ·
ucurec@ucu.ac.ug

NATIONAL REGULATOR
UNCST
+256 414 705 500
info@uncst.go.ug

Book of Abstracts

2nd Trans-disciplinary Research Symposium 2026

Theme: Research, Innovation, Engagement and Pedagogy

Dates	Wednesday 4th – Friday 6th November 2026
Venue	Nkoyoyo Hall, breakout rooms and Agape Square, Uganda Christian University, Main Campus, Mukono
Hosted by	Directorate of Research, Partnerships and Innovation (DRPI), in conjunction with the Directorate of Postgraduate Studies, supported by the Research Monitoring Committee
Compiled by	The Scientific Committee, UCU Research Symposium 2026
Abstracts	62 accepted abstracts: 3 featured plenary papers, 26 oral papers, 29 posters and 4 innovations
Enquiries	scientific@ucu.ac.ug

Suggested citation

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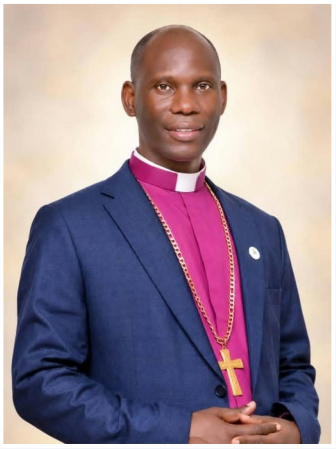
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WELCOME

Principal Dignitaries

The 2nd Trans-disciplinary Research Symposium is held under the patronage of the following principal dignitaries and symposium leadership.



GUEST OF HONOUR

Rt. Rev. Prof. Grace Lubaale

Bishop of Busoga Diocese



VICE CHANCELLOR

Prof. Aaron Mushengyezi

Uganda Christian University



KEYNOTE SPEAKER AND CHIEF DISCUSSANT

Prof. Augustus Nuwagaba

Deputy Governor, Bank of Uganda



CHAIRPERSON, ORGANISING COMMITTEE

Prof. Robert Basaza

Symposium Organising Committee



SYMPOSIUM COORDINATOR

Prof. Elizabeth Balyejusa Kizito

Director, Research, Partnerships and Innovation



DIRECTOR, POSTGRADUATE STUDIES

Prof. Kukunda Elizabeth Bacwayo

Uganda Christian University

FOREWORD

Messages

MESSAGE FROM THE VICE CHANCELLOR

It is my great pleasure to welcome you to Uganda Christian University for the 2nd Trans-disciplinary Research Symposium, held under the theme “Research, Innovation, Engagement and Pedagogy”. I warmly welcome our Guest of Honour, the Rt. Rev. Prof. Grace Lubaale, Bishop of Busoga Diocese; our Keynote Speaker and Chief Discussant, Prof. Augustus Nuwagaba, Deputy Governor of the Bank of Uganda; our distinguished keynote speakers, moderators and panellists; our partners from government, industry, the Church and civil society; and every researcher and student who has come to share their work.

At Uganda Christian University we speak of “A Complete Education for A Complete Person”. Research is central to that promise. A university that teaches without enquiring soon has little new to offer, and research that never reaches the community serves only itself. This symposium brings both together: rigorous enquiry, answerable to the real needs of our society.

The five sub-themes, from health and well-being to faith, education and community empowerment, cover the questions that shape the lives of the people we serve. This book presents 62 accepted abstracts: three featured plenary papers, 26 oral papers, 29 posters and four innovations. Together they show the breadth of scholarship in our faculties and schools, and the growing confidence of our postgraduate students. I am especially pleased by the trans-disciplinary spirit of this gathering, where economists, engineers, theologians, health scientists and educators learn from one another.

I thank the Directorate of Research, Partnerships and Innovation and the Directorate of Postgraduate Studies, the Research Monitoring Committee, and the Organising Committee and its sub-committees for the work that has gone into this symposium.

I encourage you to engage openly, to question generously, and to leave with new collaborations that outlast these three days. May God bless your deliberations, and may the knowledge shared here serve our communities, our nation and the Church.



Prof. Aaron Mushengyezi
Vice Chancellor, Uganda Christian University

MESSAGE FROM THE DIRECTOR, RESEARCH, PARTNERSHIPS AND INNOVATION

On behalf of the Directorate of Research, Partnerships and Innovation (DRPI), I welcome you to the 2nd Trans-disciplinary Research Symposium. Building on our first symposium, this year's gathering has grown in scope and ambition, bringing together 62 accepted abstracts across five sub-themes, as well as keynote addresses and plenary panels that link our research to policy and practice.

The symposium is a key part of how the University fulfils its research mandate. It gives our researchers a platform to present their work, to receive critical feedback from peers and practitioners, and to build partnerships that turn findings into solutions. The theme, "Research, Innovation, Engagement and Pedagogy", reminds us that good research should also strengthen our teaching and reach the communities beyond our campus.

I wish to recognise, in a special way, our partners in the Directorate of Postgraduate Studies, under the leadership of Prof. Kukunda Elizabeth Bacwayo, with whom we have organised this symposium. Their partnership has brought the energy of our postgraduate community to the programme, most visibly in the Postgraduate Research Showcase and the judged poster and innovation session. I also thank the Research Monitoring Committee for its support.

My sincere thanks go to the Scientific Committee and the reviewers who assessed every submission, and to the session chairs, moderators and rapporteurs who will guide our discussions. To every author: thank you for sharing your work. Starting this year, and going forward, we intend to publish the accepted works in the UCU Research Monograph Series. I therefore encourage every author to develop their abstract into a full paper and to submit it within the deadlines that will be communicated. I also encourage you to use the networks formed here to seek collaborative funding.

The findings and recommendations from all sessions will be brought together in the Symposium Synthesis and Communiqué on Friday. I invite you to contribute actively, so that this symposium leaves a lasting mark on research at Uganda Christian University and beyond.

You are most welcome.



Prof. Elizabeth Balyejusa Kizito
Director, DRPI, and Symposium Coordinator

MESSAGE FROM THE DIRECTOR, POSTGRADUATE STUDIES

It is a pleasure to welcome you, on behalf of the Directorate of Postgraduate Studies, to the 2nd Trans-disciplinary Research Symposium, which we are proud to host together with the Directorate of Research, Partnerships and Innovation.

Postgraduate research is where much of a university's new knowledge begins. Our master's and doctoral students spend years asking careful questions about health, business, food and energy, technology, faith and education, and about the communities in which they live. This symposium gives them what every researcher needs: an audience, honest critique and the chance to learn from peers, supervisors and practitioners. I am delighted that so many of the papers, posters and innovations in this book come from our postgraduate students and their supervisors.

The theme, "Research, Innovation, Engagement and Pedagogy", speaks directly to postgraduate training. Good supervision is itself a form of pedagogy, and the best student research does not end on a library shelf but reaches policy, practice and community life.

I wish to recognise, in a special way, Dr. Godwin Awio, who ably represented the Directorate on the Organising Committee and stepped in to chair the Scientific Committee on many occasions. His commitment, together with that of our reviewers, supervisors and staff, made the Postgraduate Research Showcase possible. I also thank our colleagues in the Directorate of Research, Partnerships and Innovation, under the leadership of Prof. Kukunda Elizabeth Bacwayo, for a generous and productive partnership.

To our students: present with confidence, listen carefully to the feedback you receive, and use these three days to build networks that will outlast your programmes. To supervisors and guests: thank you for investing your time and expertise in the next generation of researchers.

You are all most welcome.



Prof. Kukunda Elizabeth Bacwayo
Director, Postgraduate Studies

MESSAGE FROM THE CHAIRPERSON, ORGANISING COMMITTEE

On behalf of the Symposium Organising Committee, I welcome you to the 2nd Trans-disciplinary Research Symposium. Since August, the Committee has met every Friday to turn an idea into the programme in your hands, from the call for abstracts and peer review to the venues, speakers and logistics.

This work was carried by our sub-committees, and I wish to recognise their chairpersons by name:

- The Scientific Committee, chaired by Prof. William S. Kisaalita, which managed the call for abstracts, the review process and the scientific programme.
- The Events Management Committee, chaired by Dr. Fred Kakooza, which planned the sessions, venues, protocol and hospitality.
- The IT, Media and Public Relations Committee, chaired by Ms. Teopista Agutu, which led publicity, the symposium website and communications, and coordinates our team of Masters of Ceremonies.
- The Finance and Procurement / Logistics Committee, chaired by Mr. Hamilton Mbokureeba, which handled budgeting, procurement and the online submission system.
- The Oversight Committee, which kept our preparations on track.

I thank each chairperson and every member of these committees, the secretariat and rapporteurs, and the staff of the Directorate of Research, Partnerships and Innovation and the Directorate of Postgraduate Studies. Their commitment, often beyond their regular duties, has made this symposium possible.

Plenary sessions take place in Nkoyoyo Hall, and the parallel sessions in Nkoyoyo Hall and Maari Block. Posters, innovations and exhibitions are in Agape Square throughout the symposium. Please keep to the published times, so that delegates can move between rooms, and visit the posters during the judged session on Thursday afternoon.

We hope you find the symposium rewarding, and we look forward to your contributions.



Prof. Robert Basaza
Chairperson, Symposium Organising Committee

About the Symposium

Uganda Christian University hosts its 2nd Trans-disciplinary Research Symposium from Wednesday 4th to Friday 6th November 2026 at the UCU Mukono Campus, under the theme "Research, Innovation, Engagement and Pedagogy". The symposium provides a platform for capacity building, knowledge sharing and collaborative problem-solving around Africa's unique challenges and opportunities.

Over three days, delegates take part in an official opening and keynote address, eight plenary sessions, ten parallel paper sessions, a judged poster and innovation session, and a synthesis plenary that feeds into the Symposium Communiqué. This book presents the 62 abstracts accepted for presentation, grouped by format and sub-theme.

SUB-THEMES

	Sub-theme	Code	Where it is presented
1	Health and Well-being	HW	Sessions 1A, 2A · Maari Block, Room M-2
2	Business, Trade, Law and Economic Development	BTL	Sessions 1B, 2B · Maari Block, Room M-7
3	Food, Water and Energy Value Chains	FWE	Sessions 1C, 2C · Maari Block, Room M-1
4	Technology, Innovation and Sustainable Communities	TIS	Session 2D · joins Session 2B, Maari Block, Room M-7
5	Faith, Education and Community Empowerment	FCE	Sessions 1E, 2E · Maari Block, Room M-5

ACCEPTED ABSTRACTS

Sub-theme	Oral	Plenary	Poster	Innovation	Total
Health and Well-being	5	1	4	0	**10**
Business, Trade, Law and Economic Development	3	0	8	0	**11**
Food, Water and Energy Value Chains	9	1	5	0	**15**
Technology, Innovation and Sustainable Communities	1	0	8	4	**13**
Faith, Education and Community Empowerment	8	1	4	0	**13**
Total	**26**	**3**	**29**	**4**	**62**

HOW TO READ THE ABSTRACT CODES

HW-O01 Oral paper: sub-theme code, O, and number. Presented in a parallel session on Thursday.

FWE-P04 Poster: sub-theme code, P, and number, with a board number (PB-01 to PB-36) in Agape Square.

PL-01 Featured paper presented in Plenary VI, Friday 09:00, Nkoyoyo Hall.

IN-03 Innovation stand (IN-03, IN-04, IN-06 and IN-08), Agape Square.

Programme at a Glance

DAY ONE
Wednesday 4 November
Opening, Keynote, Plenaries and Cocktail

08:00	Arrival and registration
09:00	**Official Opening Ceremony**
09:50	**Official Opening by the Guest of Honour**
10:10	Group photograph
10:30	Health break
11:00	**Keynote Address: Prof. Augustus Nuwagaba**
11:30	Tour of exhibitions, innovations and posters
12:00	**Plenary I: Panel Discussion**
13:00	Lunch
14:00	**Plenary II: Health and Well-being**
15:00	**Plenary III: Food, Water and Energy**
16:00	Evening tea
17:00	Cocktail, networking and entertainment

DAY TWO
Thursday 5 November
Keynotes, Papers, Posters and Innovations

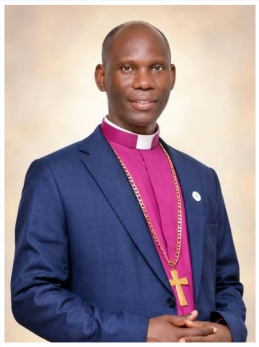
08:30	Devotion and recap
09:00	**Plenary IV: Technology, Innovation and Sustainable Communities**
10:00	**Plenary V: Business, Trade, Law and Economic Development**
11:00	Health break
11:30	Parallel Session 1 (1A–1C, 1E)
13:00	Lunch
14:00	Parallel Session 2 (2A–2E)
15:30	Evening tea
16:00	Poster Session and Innovation Walk-through
17:00	Close; rapporteurs' meeting

DAY THREE
Friday 6 November
Featured Research, Synthesis and Closing

08:30	Devotion and recap
09:00	**Plenary VI: Featured Research**
10:30	**Plenary VII: Faith, Education and Community Empowerment**
11:30	Health break
12:00	**Plenary VIII: Synthesis**
13:00	Lunch
14:00	**Closing Ceremony: Communiqué, Awards, Official Closing**
15:30	Evening tea
16:00	Departure

Plenary sessions are in Nkoyoyo Hall. Parallel sessions are in Nkoyoyo Hall and Maari Block (Rooms M-1, M-2, M-5 and M-7). Posters, innovations and exhibitions are in Agape Square (tent).

Guest of Honour and Chief Discussant



Rt. Rev. Prof. Grace Lubaale

Bishop of Busoga Diocese, Church of Uganda

Guest of Honour, Official Opening of the Symposium · Wed 4 Nov, 09:50 – 10:10 · Nkoyoyo Hall

Rt. Rev. Prof. Grace Lubaale was consecrated and enthroned as the fourth Bishop of Busoga Diocese, Church of Uganda, on 14 December 2025. A theologian and development studies scholar, he holds a PhD (2010) and an MA (2005) in Development Studies from Uganda Martyrs University, an MA in Theology (2008) from Uganda Christian University, and a BA with Education (2001) from Makerere University. Before his election, he was an Associate Professor at Kyambogo University, where he headed Teacher Education and Development Studies (2013–2021) and served on the University Council. Ordained deacon in 2008 and priest in 2009, he served as Associate Chaplain at St. Luke's Chapel, Mulago Hospital (2011–2019), and as Canon of Education and Training at All Saints' Cathedral, Kampala. His research examines the contribution of higher education to Uganda's development and the growth of Pentecostal churches and its implications for the Anglican Church.



Prof. Augustus Nuwagaba

Deputy Governor, Bank of Uganda

Keynote Address and Lead Discussant, Plenary I · Wed 4 Nov, 11:00 – 11:30 · Nkoyoyo Hall

Address: *"Research, Innovation and Scholarly Engagement as Drivers of Social Transformation"*

Prof. Augustus Nuwagaba is a Ugandan economist, academic and public policy expert, appointed Deputy Governor of the Bank of Uganda in February 2025. He studied social sciences at Makerere University and holds an MSc from the London School of Economics, a PhD in Economics from Makerere University, and an MBA focused on monetary policy and the competitiveness of commercial banks. A long-serving academic at Makerere University, he is also Managing Consultant of REEV Consult International, through which he has led development assignments for the World Bank, the European Union, UNDP and other partners and governments. His work centres on poverty eradication and inclusive growth, macroeconomic and fiscal policy, financial inclusion, and governance and accountability. Having moved from research and consultancy into economic governance, he brings first-hand experience of how research and innovation can drive social transformation, the subject of his keynote address.

Keynote Speakers



Prof. Nelson Ssewankambo

School of Medicine, College of Health Sciences, Makerere University

Plenary II: Health and Well-being · Wed 4 Nov, 14:05 – 14:30 · Nkoyoyo Hall

Prof. Nelson K. Ssewankambo (MBChB, MMed, MSc, FRCP, LLD (Hon)) is a physician, academic, mentor and medical researcher. He is Professor of Medicine at the School of Medicine, Makerere University College of Health Sciences, and a former Principal of the College. He has been at the forefront of HIV/AIDS research and has published extensively, with more than 300 articles authored or co-authored. He is a Fellow of the Uganda National Academy of Sciences (FUNAS) and of the Royal College of Physicians.



Dr. Brian E. Isabirye

Commissioner, Renewable Energy Department, Ministry of Energy and Mineral Development (MEMD)

Plenary III: Food, Water and Energy Value Chains · Wed 4 Nov, 15:05 – 15:30 · Nkoyoyo Hall

Dr. Brian E. Isabirye (PhD) is the Commissioner, Renewable Energy Department, at the Ministry of Energy and Mineral Development (MEMD), Uganda. He leads the Ministry's efforts towards the sustainable use and development of renewable energy resources for the social, environmental and economic benefit of Ugandans. Dr. Isabirye leads in identifying and supporting the policy environment for renewable energy market advancement and solutions, technology deployment, capacity building and financing, and data, information and awareness for informed decisions. He is a Director on the Board of the Uganda Electricity Distribution Company Limited (UEDCL) and a member of several energy steering and advisory committees in Uganda and elsewhere.



Prof. Dorothy Okello

Dean, College of Engineering, Design, Art and Technology (CEDAT), Makerere University

Plenary IV: Technology, Innovation and Sustainable Communities · Thu 5 Nov, 09:05 – 09:30 · Nkoyoyo Hall

Prof. Dorothy Okello holds a BSc (Makerere University), an MSc (University of Kansas) and a PhD (McGill University) in Electrical Engineering, and is Dean of the College of Engineering, Design, Art and Technology (CEDAT), Makerere University. She is a Fellow of the Uganda National Academy of Sciences (FUNAS) and Past President (2016–2018) of the Uganda Institution of Professional Engineers, the first woman to hold the office. Her research covers smart infrastructure, affordable and inclusive telecommunication solutions, and resilience innovation. She founded the Women of Uganda Network (WOUGNET), which supports women's access to and use of ICTs, and has received numerous awards for her work.

Mr. Kenneth Muhangi

Executive Director, KTA Advocates



Plenary V: Business, Trade, Law and Economic Development · Thu 5 Nov, 10:05 – 10:30 · Nkoyoyo Hall

Mr. Kenneth Muhangi holds an LLM in International Commercial Law from the University of South Wales, an LLB (Hons) from Uganda Christian University and a Diploma in Legal Practice from the Law Development Centre. He is a Partner at KTA Advocates, with expertise in technology law, data protection and privacy, artificial intelligence, genetics, drones and airspace, intellectual property, telecommunications law and the Fourth Industrial Revolution. He is also Executive Director of the Center for Law, Policy and Innovation Initiative and of the Carbon Markets Association Uganda, and a Director of the Alliance for Digital Trade, E-mobility and Couriers.

Rt. Rev. George Turyasingura

Bishop of East Ruwenzori Diocese



Plenary VII: Faith, Education and Community Empowerment · Fri 6 Nov, 10:35 – 11:00 · Nkoyoyo Hall

Rt. Rev. George K. Turyasingura has been Bishop of the Diocese of East Ruwenzori, Church of Uganda, since 2018. He holds a Master of Arts in Theology and Development (2021), a Bachelor of Divinity (2013) and a Diploma in Theology (2007) from Uganda Christian University, and a Certificate in Theology from Bishop Tucker Theological College, Mukono (1997). Ordained deacon in 1998 and priest in 1999, he served as Principal of Kyabenda Divinity College (1999–2007), Parish Priest of Kabuga, Canon and Sub-Dean of St. Stephen's Cathedral, and Diocesan Secretary and Chairperson of the House of Clergy (2014–2018). He has chaired the Uganda Bible Society in Kamwenge Zone and served as a District Election Overseer for the Inter-Religious Council of Uganda. His research examines the Church's role in socio-economic transformation, including church workers' livelihoods in the Diocese of East Ruwenzori.

PLENARY VI · FRIDAY 6 NOVEMBER · 09:00 – 10:30 · NKOYOYO HALL

Featured Research Presentations

Three papers were selected for presentation to the full symposium. Each has 15 minutes, followed by questions to all three presenters. Moderator: Dr. Martin Kizito, Senior Lecturer, UCU.

PL-01
FEATURED

Appropriate Renewable Energy Technologies and Systems for a Sustainable Food Supply – A Community Research Approach

Dr. Jan Bekkering (Hanze University of Applied Sciences, Netherlands) *(presenting author)*

Plenary VI · Fri 6 Nov, 09:05 – 09:20 · Nkoyoyo Hall · Sub-theme: Food, Water and Energy Value Chains

PL-02
FEATURED

Toothbrushing Is Not Enough? Dental Caries and Unmet Treatment Needs Among First-Year University Students in Uganda

Arabat Kasangaki *(presenting author)*

Co-authors: Margaret Wandera, Josephine Mawerere and Beatrice Zalwango

Plenary VI · Fri 6 Nov, 09:20 – 09:35 · Nkoyoyo Hall · Sub-theme: Health and Well-being

Background: Toothbrushing is central to oral disease prevention, but reported hygiene practices may not reflect clinical oral health or treatment needs. Dental caries and unmet treatment needs among Ugandan secondary school students raise concerns about continuity of oral healthcare into university.

Objective: To assess dental caries burden, treatment needs and reported oral hygiene practices among first-year students at Uganda Christian University (UCU), and identify implications for oral health service planning across the secondary school–university transition.

Methods: A cross-sectional study was conducted among 425 first-year UCU students using questionnaires and clinical oral examinations. Data covered oral hygiene, dental attendance, caries experience, gingival health and treatment needs. Caries experience was measured using the decayed, missing and filled teeth (DMFT) index. Descriptive statistics summarised findings.

Results: All participants reported brushing their teeth, and 422 (99.3%) used toothpaste. Fluoride toothpaste use was reported by 375 (88.2%), while 42 (9.9%) were unsure of its fluoride content. Despite these practices, 313 (73.6%) had experienced dental caries, with a mean DMFT of 3.67. Untreated decay affected 63.8%, approximately 79% required treatment, and 52.3% needed prompt or immediate care; 20.7% required no treatment. Gingival disease affected 84 (19.8%) students, and nearly one in five had never visited a dentist.

Conclusion: Dental caries and unmet treatment needs were common among UCU first-year students despite widespread reported toothbrushing. Together with evidence of untreated caries among Ugandan secondary school students, these findings support strengthening school-based prevention and access to treatment before university entry. Accessible oral health assessment, referral and treatment services at university entry could facilitate earlier detection and management. A coordinated oral health continuum from school through university may help address persistent treatment gaps; its feasibility and effectiveness should be evaluated.

Keywords: Dental caries; untreated decay; oral health; treatment needs; secondary school; university students; Uganda

PL-03
FEATURED

Christian Ethics, Servant Leadership, and Firm Level Tax Compliance in Sub Saharan Africa: A Conceptual Framework

Richard Asiimwe *(presenting author)*

Plenary VI · Fri 6 Nov, 09:35 – 09:50 · Nkoyoyo Hall · Sub-theme: Faith, Education and Community Empowerment

Introduction/Purpose: Strengthening firm-level tax compliance remains a significant challenge in Sub Saharan Africa, where conventional approaches have largely emphasised enforcement, deterrence,

and institutional factors. Although tax morale and ethical considerations have received scholarly attention, the relationship between Christian ethical orientation, organisational leadership, and corporate tax behaviour remains insufficiently theorised. This paper develops a conceptual framework explaining how Christian ethical orientation relates to firm-level tax compliance and how servant leadership moderates this relationship.

Methods: The paper adopts a conceptual research approach grounded in critical theoretical analysis and integrative synthesis of literature on Christian ethics, servant leadership, and tax compliance. Drawing on Christian ethical principles and established organisational leadership scholarship, the study identifies relevant constructs, examines their theoretical relationships, and develops two propositions explaining firm-level tax compliance.

Results/Findings: The conceptual analysis produces two propositions. (i) Christian ethical orientation, reflected in stewardship, justice, honesty, and accountability, is proposed to be positively associated with firm-level tax compliance through accurate reporting, timely filing, and full payment of tax obligations. (ii) servant leadership, characterised by humility, service, stewardship, and moral responsibility, is proposed to strengthen this relationship by reinforcing ethical commitments in organisational decision making. These propositions represent theoretical expectations rather than empirically tested findings.

Discussion/Conclusion: The framework extends tax compliance scholarship by integrating Christian ethical theory with servant leadership and organisational fiscal behaviour. It positions tax compliance not merely as a response to regulatory enforcement but also as an expression of organisational moral responsibility. The paper highlights the potential importance of ethical leadership in strengthening voluntary compliance and provides a foundation for future empirical research and leadership development initiatives in Sub-Saharan Africa.

Keywords: Christian ethics; servant leadership; firm-level tax compliance; tax morale; organisational ethics; Sub Saharan Africa

PARALLEL SESSIONS · THURSDAY 5 NOVEMBER

Oral Presentations

Twenty-six oral papers are presented in two parallel sessions on Thursday (Session 1, 11:30 – 13:00; Session 2, 14:00 – 15:30). Each paper has 15 minutes: 12 to present and 3 for questions. Slot times are the same in every room so that delegates can move between rooms.

Sub-theme 1 Health and Well-being

HW · THURSDAY 5 NOVEMBER · 11:30 – 13:00

Session 1A: Mental Health, Well-being and Health Promotion

Maari Block, Room M-2 · Chair: Prof. Kukunda Elizabeth Bacwayo

HW-O01
ORAL

Beyond Mental Illness: Mental Health and Well-Being Among Adolescents and Young Adults in Uganda—Evidence, Determinants, Gaps, and Priorities for Action

Godfrey Mugisa *(presenting author)*
Co-authors: Cosmas Goodluck, Michael Nangulu, Judith Nakyanzi, Isaaya Missinga, Francis Byaruhanga, Maiga Ayub Hussein

Session 1A · Thu 5 Nov, 11:35 – 11:50 · Maari Block, Room M-2

Introduction: Uganda is one of the world's most youthful nations (median age 15.9 years), yet evidence on mental health and well-being among adolescents and young adults remains fragmented and illness-focused. This narrative review synthesised evidence on the burden, determinants, help-seeking barriers, interventions and evidence gaps, and identified priorities for action.

Methods: We conducted a structured, evidence-informed narrative review of Uganda-based literature published between January 2015 and August 2026, identified through PubMed/MEDLINE, publisher databases and national policy repositories. The thematic synthesis drew on 28 sources: 22 empirical studies, four intervention studies, one national meta-analysis and one national census analysis.

Results: The mental health burden was substantial and varied widely across groups. Depression prevalence ranged from 7.8–7.9% in the general population, through 14.0–21.5% among in-school versus out-of-school adolescents and 26.9–34.1% among university students and poverty- or conflict-affected adolescents, to 56.0–67.6% among adolescent girls and young women at high HIV risk and refugee or displaced youth. Anxiety rose from 3.8% in the general population to 26.1–27.5% among vocational-training and conflict-affected youth. Suicidal ideation ranged from 14% to 32% among school-going adolescents and university students, and reached 66.3% among displaced youth. Poverty, food insecurity, trauma, violence, school exclusion and rising substance use were recurring determinants, while stigma, low mental health literacy and mistrust of services persisted as barriers to help-seeking. Randomised trials showed that tele-support psychotherapy, sport-for-protection and school-based interventions improved engagement and symptoms, yet positive mental health remained almost unmeasured and no nationally representative, repeated-measures survey exists for this population.

Conclusion: Mental health challenges among Ugandan adolescents and young adults are substantial, heterogeneous and shaped by social and structural conditions. Uganda should strengthen youth mental health surveillance, targeted prevention and evidence-based interventions, integrate mental health into education and social protection, and measure positive well-being to support a prevention-focused approach.

Keywords: adolescent mental health, youth well-being, Uganda, determinants, help-seeking, narrative review

HW-O02
ORAL

Academic Demands and Mental Well-being of Upper Primary Learners in Uganda: A Study of Government and Private Schools in Mukono

Municipality

Faith Mbabazi *(presenting author)*

Co-authors: Ellen Asiimwe, Denis Onzima Ruhama, John Semakula, Christabella Aceng, Kukunda Elizabeth Bacwayo

Session 1A · Thu 5 Nov, 11:50 – 12:05 · Maari Block, Room M-2

This study investigated how academic expectations, prolonged study hours, and participation in co-curricular activities relate to the emotional, psychological, and social well-being of upper primary learners in government and private schools in Mukono Municipality, Uganda. An explanatory sequential mixed-methods design was employed. Quantitative data were collected from 232 Primary Six and Seven learners in four selected schools using structured questionnaires, while qualitative data were obtained from seven purposively selected teachers and school administrators through interviews. Learners were selected using stratified and simple random sampling procedures. Quantitative data were analysed using descriptive statistics and multiple linear regression in SPSS version 23, while qualitative data were analysed thematically. The regression model explained 24.4% of the variation in learners' mental well-being scores ($R^2 = .244$). Length of time spent on academic activities ($\beta = .219$, $p = .001$) and co-curricular activities ($\beta = .347$, $p < .001$) were statistically significant predictors of mental well-being scores. However, high academic expectations ($\beta = .101$, $p = .111$) were not statistically significant. The findings also indicated variations in the associations between academic demands and learners' emotional, psychological, and social well-being across government and private schools. Qualitative findings highlighted examination-related pressure, prolonged study schedules, fatigue, emotional distress, reduced concentration, and limited opportunities for rest and social interaction. The study concludes that the amount of time learners spend on academic activities and their participation in co-curricular activities are significantly associated with their mental well-being. These findings highlight the need for schools to balance academic demands with adequate opportunities for rest, recreation, and psychosocial support. Although the study was limited to four schools in Mukono Municipality, it provides useful insights for promoting school practices that support both academic achievement and the emotional, psychological, and social development of upper primary learners.

Keywords: Academic demands, mental well-being, upper primary learners, academic expectations, co-curricular activities, government and private schools, Uganda

HW-O03

ORAL

Changes in Breast Self-Examination Knowledge, Beliefs and Practices following a Health Belief Model-Guided Digital Health Education Intervention among Women at Uganda Christian University, Mukono

Faith Sebuliba *(presenting author)*

Session 1A · Thu 5 Nov, 12:05 – 12:20 · Maari Block, Room M-2

Background: Breast cancer remains a major public health concern in Uganda, where limited breast-health knowledge and delayed recognition of breast changes may hinder timely clinical assessment. Although breast awareness and prompt help-seeking are important, routine breast self-examination (BSE) has not been shown to reduce breast cancer mortality. Evidence on theory-guided digital breast-health education in Ugandan universities remains limited.

Purpose: To assess changes in BSE knowledge, attitudes, Health Belief Model (HBM) constructs, self-efficacy, practice frequency and technique accuracy following a digital health education intervention among women at Uganda Christian University, Mukono, and explore its usability, acceptability and cultural relevance.

Methods: A single-group pretest–posttest mixed-methods design will recruit female students and staff aged 18 years and above through consecutive sampling. The five-month intervention will combine face-to-face education, breast-model demonstrations, web-based resources, USSD and SMS reminders. HBM constructs will guide educational content addressing perceived susceptibility, severity, benefits, barriers, cues to action and self-efficacy. In-person baseline and follow-up assessments will measure knowledge, attitudes, beliefs and reported BSE practices using structured questionnaires. Technique accuracy will be assessed using standardized breast-model checklists. Paired statistical tests will examine changes, while purposively selected participants will contribute to focus group discussions analyzed thematically.

Expected outcomes: Improvements in BSE knowledge, attitudes, HBM constructs, self-efficacy, practice frequency and demonstrated technique are anticipated. Findings will also provide insights into the usability, acceptability and cultural relevance of digital breast-health education. Technique

accuracy will represent educational skill acquisition rather than screening effectiveness. Without a comparison group, observed changes cannot be attributed solely to the intervention. Findings may inform future controlled studies and accessible breast-health education programmes.

Keywords: Breast self-examination; Health Belief Model; Digital health education

HW · THURSDAY 5 NOVEMBER · 14:00 – 15:30

Session 2A: Health Systems, Digital Health and Public Health

Maari Block, Room M-2 · Chair: Dr. Edward Kibikyo Mukooza

HW-O04
ORAL

Assessing the Availability, Functionality, Barriers and Facilitators of Palliative Care Units in Ugandan Hospitals and Health Centre IVs

Dr. Edward Mukooza *(presenting author)*

Co-authors: Mwesigwa Donald Mark, Irumba Christina Lisa, Kirungi Gloria, Ahern Lacy N., Namisango Eve, Muwanga Moses, Zalwango Joyce, Sisk L. Mathew, Tumwakire Emire and Olaro Charles

Session 2A · Thu 5 Nov, 14:05 – 14:20 · Maari Block, Room M-2

Background: Palliative care (PC) is essential for patients with life-threatening illnesses, yet access remains limited in Uganda. This study assessed the availability and functionality of PC services and explored barriers and facilitators to establishing PC units in Ugandan health facilities.

Methods: A cross-sectional mixed-methods study targeted 428 eligible facilities, of which 398 were contacted and 304 participated (76.4% response rate). Quantitative data were collected through structured electronic questionnaires, while qualitative data were obtained from in-depth interviews with 24 purposively selected facility in-charges. Data were analysed using descriptive statistics and thematic analysis.

Results: Of the 304 facilities surveyed (48 hospitals and 256 Health Centre IVs), 34.9% reported providing PC services, predominantly through combined inpatient and outpatient models. Services were available in all national referral hospitals and all but two regional referral hospitals, with greater concentration in the Western and Central regions. Among 84 facilities assessed for PC unit components, 47 (56.0%) had a trained PC worker, oral morphine, and designated space, while 53 (63.1%) had dedicated PC budgets. Key facilitators included committed health workers, supportive leadership, external partnerships, and essential medicine availability. Barriers included weak institutionalisation, inadequate financing and infrastructure, and staffing shortages.

Conclusion: Although approximately one-third of surveyed facilities provided PC services, substantial functionality gaps persist. Strengthening institutional integration, sustainable financing, workforce capacity, infrastructure, medicine availability, and leadership is essential for expanding accessible, functional PC services in Uganda.

Keywords: Palliative care; service availability; health facility functionality; barriers and facilitators; Health Centre IVs; health systems strengthening; Uganda

HW-O06
ORAL

The influence of conspiracist ideation on vaccine hesitancy in Uganda: Lessons from COVID-19 Vaccination

Prof. Kukunda Elizabeth Bacwayo *(presenting author)*

Co-authors: Richard Sebaggala, Emilly C. Maractho, Solomon Mwije, Mercy Amaniyo, Clare Cheromoi, Evas Kemigisha, Jacqueline Kobusingye

Session 2A · Thu 5 Nov, 14:35 – 14:50 · Maari Block, Room M-2

Introduction / Purpose: The emergence of COVID-19 triggered a global health crisis and an "infodemic" of misinformation and conspiracy theories that undermined public trust in scientific guidance on the virus's origins, severity and vaccines. Driven by fear, intergroup tensions and perceived loss of control, these included claims that the virus was engineered, linked to 5G or biologically targeted. This study investigated the prevalence and associated factors of COVID-19 vaccine conspiracy beliefs in Uganda.

Methods: Data were collected from 1,201 respondents using a dual-mode strategy: an online survey (convenience/snowball sampling) and in-person questionnaires in eight purposively selected districts. The instrument had high internal consistency (Cronbach's alpha = 0.89). Data were analysed using Analysis of Variance, contrast analysis and multivariable regression to adjust for confounders.

Results / Findings: A high prevalence of conspiracist ideation was observed, with 56% of respondents holding 'strong' COVID-19-related conspiracy beliefs. The strength of these beliefs was significantly associated with vaccination likelihood ($\chi^2(3) = 117.65$, $p<0.001$); among individuals unlikely to be vaccinated, 84.4% held strong conspiracy beliefs. Healthcare workers were the most trusted source of vaccine information (62.7%), whereas the government was among the least trusted (24.0%). Men were more likely to endorse conspiracy theories (60.1% vs 52.1% of women), but women who held these beliefs translated them more strongly into vaccine refusal. These beliefs also significantly influenced parental opposition to paediatric vaccination.

Discussion / Conclusion: Conspiracy beliefs were a primary, statistically significant driver of COVID-19 vaccine hesitancy in Uganda. The findings reveal a critical deficit of trust in official institutions, which complicates state-led public health campaigns. Communication strategies should empower trusted messengers, particularly healthcare workers, and directly address the narratives fuelling hesitancy.

Keywords: Pandemic, vaccination, conspiracy beliefs, global health, COVID-19, Uganda

Sub-theme 2 Business, Trade, Law and Economic Development

BTL · THURSDAY 5 NOVEMBER · 11:30 – 13:00

Session 1B: Finance, Inclusion and Economic Policy

Maari Block, Room M-7 · Chair: Dr. Vianney Ahumuza

BTL-O02
ORAL

Who Gets the Light? Digital Financial Inclusion, Gender and Off-Grid Solar Adoption in Rural Uganda

Lorraine Akinyi *(presenting author)*

Session 1B · Thu 5 Nov, 11:50 – 12:05 · Maari Block, Room M-7

Introduction: Energy poverty constrains household welfare in rural Uganda, where grid extension is slow and costly. Pay-as-you-go (PAYGo) solar offers a response, but it is a credit product delivered through mobile money, so eligibility depends on a household's position within the digital financial system. Evidence shows that digital financial inclusion can support renewable energy adoption, but not which dimensions of inclusion matter, or for whom. This gap is salient for rural women, who bear the heaviest burden of energy poverty yet hold weaker mobile-money histories and less control over assets. This study examines the association between digital financial inclusion and off-grid solar adoption in PAYGo markets, and whether it differs by gender, recognising that owning a phone or mobile-money account does not automatically confer effective financial agency.

Methodology: Positioned within critical realism and drawing on Diffusion of Innovations theory and Transaction Cost Economics, the study is the quantitative component of a wider research programme. A probability sample of about 400 households in districts with active PAYGo markets will be surveyed, oversampling female-headed households. Digital financial inclusion is measured as three dimensions (access, usage and capability); solar ownership is the primary outcome. Gender is measured both as household headship and as women's decision-making power over the phone, mobile-money account and energy purchases. PLS-SEM will validate the constructs, and logit and probit models will estimate associations and gender interactions, complemented by analysis of the Uganda National Panel Survey.

Expected Findings: The study will show which dimension of inclusion is most strongly associated with adoption, whether capability matters beyond access or usage, and whether these associations differ for women by headship versus decision-making power.

Anticipated Conclusion: The evidence will inform gender-responsive PAYGo financing under Uganda's Energy Transition Plan and National Financial Inclusion Strategy.

Keywords: digital financial inclusion; off-grid solar; PAYGo; gender; critical realism; rural Uganda

BTL · THURSDAY 5 NOVEMBER · 14:00 – 15:30

Session 2B: Management, Skills and Organisational Performance

Maari Block, Room M-7 · Chair: Dr. Sylvia Nabasumba

BTL-O04
ORAL

Skills Mismatch and Economic Transformation in Uganda: Aligning Business and Financial Competencies with Government Priority-Sector Value Chains

Eva Nalubowa *(presenting author)*

Session 2B · Thu 5 Nov, 14:05 – 14:20 · Maari Block, Room M-7

Purpose: Uganda's ambition to transform its economy into a competitive upper-middle-income country by 2040 is underpinned by the Tenfold Growth Strategy, which focuses on the priority sectors of Agro-Industrialisation, Tourism Development, Mineral-Based Development, and Science, Technology and Innovation (ATMS) to drive economic transformation. However, the effectiveness of these interventions depends, in part, on the availability of appropriately skilled human capital. A persistent mismatch between skills supplied by education and training institutions and competencies demanded by employers may constrain business productivity, investment, and participation in value chains, while

contributing to unemployment. This study examines the mismatch in business and financial competencies within the ATMS' value chains. It explores how demand-driven skills identification and enhancement can support education and training institutions to develop curricula that equip learners with competencies required to contribute to Uganda's economic transformation.

Methods: The study adopts a value-chain mapping approach to examine the ATMS and the business and financial functions required across their respective value chains. Stakeholder consultations with employers, enterprises, industry representatives, and relevant institutions will identify occupational requirements, emerging competencies, and gaps between available and demanded skills.

Findings: The study is expected to identify key areas of skills mismatch and emerging competencies required to support enterprise growth, formalization, financial management, investment, trade, and effective participation in value chains.

Conclusion: The study proposes a demand-driven approach to skills enhancement in which skills requirements are identified based on actual enterprise and value-chain needs rather than solely on existing occupational structures. This approach will strengthen the alignment of curricula with the evolving needs of employers and enterprises, thereby improving productivity and supporting the realization of Uganda's Tenfold Growth Strategy

Keywords: Business and financial competences, skills mismatch, value chain

BTL-O05
ORAL

Experiences of Presenteeism among Middle-Level Administrators in Selected Universities in Uganda

Faith Mbabazi *(presenting author)*
Co-authors: Dr. Henry Majwala, Dr. Mary O. Kagoire

Session 2B · Thu 5 Nov, 14:20 – 14:35 · Maari Block, Room M-7

This study seeks to explore the lived experiences of presenteeism among middle-level administrators in selected Ugandan universities. Presenteeism is conceptualised as employees' physical attendance at work despite health-related or psychological challenges that compromise their ability to perform effectively. Although presenteeism has received increasing scholarly attention internationally, limited empirical evidence exists on how middle-level university administrators in Uganda experience and manage this phenomenon. Specifically, the study will explore the physical, behavioural and psychological manifestations of presenteeism, examine the personal and organisational factors influencing it, and investigate its perceived implications for employee well-being, productivity and service delivery. The study will adopt a qualitative phenomenological design, guided by the Job Demands–Resources Theory and Conservation of Resources Theory. It will be conducted in four purposively selected universities, comprising two public and two private institutions. Middle-level administrators with relevant experience of presenteeism will be purposively recruited, with participant numbers guided by the adequacy and richness of the information obtained. Data will be collected through in-depth interviews, supplemented by key informant interviews with relevant university personnel. Thematic analysis will focus on participants' lived experiences, meanings and interpretations. Ethical safeguards will include informed consent, confidentiality, anonymisation and voluntary participation. The study is expected to illuminate how workload demands, organisational expectations, health challenges, coping strategies and available support systems shape presenteeism. It will also explore perceived consequences for administrative effectiveness and service delivery. Findings are anticipated to contribute context-specific knowledge to human resource management scholarship and inform recommendations for supportive workplace policies, employee well-being, and sustainable institutional performance.

Keywords: Presenteeism, middle-level administrators, employee well-being, organisational support, productivity, universities, Uganda

Sub-theme 3 Food, Water and Energy Value Chains

FWE · THURSDAY 5 NOVEMBER · 11:30 – 13:00

Session 1C: Crops, Food, Nutrition and Value Addition

Maari Block, Room M-1 · Chair: Dr. Rosemary Bulyaba

FWE-O01
ORAL

Genotype-Specific Dormancy-Breaking Strategies in African Eggplant (Solanum aethiopicum): Evidence from Shum and Gilo Groups

Mildred Nakanwagi and Tuhirirwe Jenipher *(presenting authors)*
Co-authors: Elizabeth Balyejusa Kizito

Session 1C · Thu 5 Nov, 11:35 – 11:50 · Maari Block, Room M-1

Seed dormancy is a major physiological barrier limiting the propagation and productivity of Solanum aethiopicum (African eggplant), an indigenous vegetable of high nutritional and economic importance across sub-Saharan Africa. Despite its adaptability and contribution to household food security, uneven and delayed germination continues to constrain seedling establishment and yield potential. This study aimed to determine the comparative effectiveness of mechanical and chemical methods in breaking seed dormancy in two cultivar groups Shum and Gilo representing distinct genetic lineages of S. aethiopicum. Laboratory experiments were conducted at Uganda Christian University from January to April 2025 using gibberellic acid (GA_3) at 300, 500, and 700 mg L^{-1}; potassium nitrate (KNO_3) at 0.25%, 0.75%, and 1.0%; and mechanical treatments (scarification and hot-water soaking). Germination percentage (GP), mean germination time (MGT), and germination vigor index (GVI) were recorded for 14 days under controlled conditions and analyzed using ANOVA and Tukey's HSD tests. Results revealed genotype-specific responses: Shum exhibited significantly higher germination under GA_3 500 mg L^{-1} (GP = 92.5%, MGT = 3.1 days, GVI = 33.5), while Gilo responded best to mechanical scarification (GP = 38.8%, MGT = 8.6 days, GVI = 4.9). Potassium nitrate treatments produced weaker and inconsistent effects across both cultivars. These findings confirm that Shum and Gilo possess distinct physiological and physical dormancy mechanisms, requiring tailored interventions for optimal germination. The study recommends the use of GA_3 500 mg L^{-1} for Shum and mechanical scarification for Gilo as cost-effective, scalable treatments to improve seed germination uniformity and crop establishment. Adoption of these genotype-specific protocols can enhance seed quality, support sustainable African eggplant production, and strengthen local seed systems across East Africa.

Keywords: seed dormancy, germination physiology, indigenous vegetables

FWE-O02
ORAL

Social networks, agricultural extension and technology adoption among smallholder sweet potato farmers in Uganda

Mutyaba John Livingstone *(presenting author)*

Session 1C · Thu 5 Nov, 11:50 – 12:05 · Maari Block, Room M-1

Adoption of improved agricultural technologies by smallholder farmers is essential for raising productivity, enhancing food and nutrition security, and improving rural livelihoods in sub-Saharan Africa. Technology adoption, however, is not determined solely by access to technologies or conventional agricultural extension services; it is also shaped by the social networks through which farmers acquire information, learn from peers, and evaluate the benefits and risks of new practices. This study examines the role of social networks in the adoption of improved sweet potato production technologies among smallholder farmers in Uganda. Drawing on cross-sectional survey data from Kayunga and Kamuli Districts, the study characterizes farmers' access to extension services and social networks and estimates their associations with technology adoption. Descriptive statistics and econometric methods are used to assess the effects of extension access, network participation, information exchange, peer interactions, and farmer characteristics, while controlling for relevant household, farm, institutional, and socioeconomic factors. Particular attention is given to the complementary roles of formal extension and farmer-to-farmer information exchange in overcoming information constraints and reducing uncertainty about improved technologies. The study is expected to show that farmers embedded in stronger, more information-rich social networks and those with greater access to effective extension services are more likely to adopt improved technologies. The findings will inform the design of integrated extension strategies that combine formal advisory services

with farmer networks, peer learning, and locally embedded knowledge systems, thereby accelerating technology diffusion and contributing to sustainable productivity growth and livelihood improvement among smallholder sweet potato farmers in Uganda.

Keywords: technology adoption; social networks; sweet potato; smallholder farmers; farmer-to-farmer learning

FWE-O03
ORAL

Indigenous knowledge of foods and nutritional care among mothers of children five years and below in peri-urban areas of Mukono, Uganda

Phionah Amutuhaire *(presenting author)*
Co-authors: Brenda Nakyewa, Ellen Asiimwe, Mary Nanyanzi, Jonathan Tumwebaze, Elizabeth Balyejusa Kizito

Session 1C · Thu 5 Nov, 12:05 – 12:20 · Maari Block, Room M-1

Indigenous food knowledge encompasses beliefs about locally available foods, their nutritional benefits, and traditional food selection and preparation practices transmitted through families and communities. This study explored mothers' indigenous food knowledge and factors influencing food choices for children under five in peri-urban Mukono, Uganda.

A sequential explanatory mixed-methods design was employed, with quantitative data collected first through a questionnaire survey of 225 mothers, followed by qualitative data collection using two focus group discussions, each involving eight mothers and interviews with two key informants. Quantitative data were analysed descriptively and using regression in Stata. Qualitative data were transcribed, manually coded, and organized into themes to explain and contextualize the quantitative findings. Integration was achieved by interpreting qualitative themes alongside survey results to provide a broader understanding of mothers' indigenous food knowledge and child-feeding practices.

Commonly reported foods included posho, rice, matooke, cassava, beans, and groundnuts. Affordability influenced food choices, with 67% citing it for posho and 69% for beans. Family members were the main reported source of nutrition knowledge, although knowledge gaps persisted. Regression analysis showed significant associations between carbohydrate choice and home-garden food sources ($p = 0.030$), protein choice and land ownership ($p = 0.004$), and fruit and vegetable choice, nutritional understanding ($p < 0.001$), and knowledge sources ($p = 0.035$).

The findings highlight indigenous food knowledge as a valuable child-feeding resource, constrained by knowledge gaps, economic barriers, and food access. Culturally appropriate nutrition education and improved access to affordable indigenous foods should promote dietary diversity, appropriate preparation, adequate portions, and age-appropriate feeding to support children's nutritional needs.

Keywords: Indigenous knowledge; child nutrition; food choice

FWE-O04
ORAL

From farm waste to functional care: Developing a low-caffeine coffee leaf infusion as a complementary product for sickle cell disease management in Uganda

Ajuna Lillian *(presenting author)*
Co-authors: Andrew Napandu, Dr. Sseremba Godfrey

Session 1C · Thu 5 Nov, 12:20 – 12:35 · Maari Block, Room M-1

Introduction/Purpose: Uganda carries one of Africa's highest sickle cell disease (SCD) burdens, with a sickle cell trait prevalence of 13.3% and about 15,000 affected births each year. Blood transfusion and hydroxyurea remain costly and hard to reach for many rural households, and unvalidated herbal remedies are widely used. Meanwhile, coffee farms discard large volumes of leaves and prunings. Coffee leaves are rich in chlorogenic acids, flavonoids, tannins, mangiferin and caffeic acid, which delays sickle haemoglobin polymerisation and limits its oxidation in vitro, yet no study has tested coffee leaves for anti-sickling activity. This project aims to develop and evaluate a low-caffeine coffee leaf infusion as an affordable complementary product for SCD management.

Methods: Leaves from three Robusta varieties grown under uniform management will be collected, authenticated and processed by NaCORI across wet and dry seasons. Four processing methods will be compared (shade versus oven drying, with and without a caffeine-reduction step, since caffeinated

drinks are discouraged in SCD). Prototypes will be profiled for total phenolics, flavonoids, chlorogenic acid, mangiferin and caffeine (HPLC) and antioxidant capacity (DPPH, FRAP). With ethical approval and consent, blood from HbAA and HbSS donors (n=10 each) will be used to test anti-sickling activity and membrane stability against hydroxyurea and saline controls. Safety will be validated with NDA, and the best prototype will undergo sensory, acceptability and willingness-to-pay assessment among people living with SCD and caregivers. Data will be analysed using generalised linear mixed models.

Expected Results: A dose-dependent reduction in sickled cells, improved membrane stability, and a processing route that retains phenolics while lowering caffeine.

Discussion/Conclusion: A validated leaf infusion would turn farm waste into a low-cost, locally made complementary product for SCD care, create income for coffee farmers and lay the foundation for in vivo and clinical studies.

Keywords: Sickle cell disease, coffee leaf, phytomedicine, value addition, antisicking

FWE · THURSDAY 5 NOVEMBER · 14:00 – 15:30

Session 2C: Clean Energy, Household Energy and Resource Recovery

Maari Block, Room M-1 · Chair: Dr. Marion Mugisha

FWE-O05
ORAL

Effect of Soaking and Short-Cooking-Time Varieties on Household Energy Use and Women's Workload: Comparison between Field and Laboratory Cooking Times

Kwikiriza Mbabazize and Miria Ariho *(presenting authors)*

Co-authors: Rosemary Bulyaba, Martin Mutambuka, Barnabas Kiiza, Maina Gakenia Wamuyu

Session 2C · Thu 5 Nov, 14:05 – 14:20 · Maari Block, Room M-1

Introduction: Iron deficiency affects 32% of women of reproductive age in Uganda, and iron-biofortified beans are a major dietary source of iron. However, long cooking times raise fuel use and women's workload, which limits consumption. This study assessed the effect of soaking and short-cooking varieties on household energy use and women's workload, and compared field and laboratory cooking times.

Methods: A survey of 747 women bean farmers in Uganda's eight major bean-producing districts was combined with field Kitchen Performance Tests (KPTs) on Narobean 1, 2, 3 and 6 and local varieties, using charcoal and firewood, and with Mattson Bean Cooker tests (20- and 24-pin drops). Cooking time was measured from boiling until the women declared the beans ready. Data were analysed with Pearson's regression.

Results: Soaking beans for six hours reduced cooking time by up to 50 minutes per meal. Cooking time fell by 37–47% across the biofortified varieties and by 36% in local varieties, with Narobean 3 and Narobean 6 cooking fastest in seven of the eight districts. Soaking cut charcoal use by 31% per 1 kg meal, and short-cooking varieties saved about UGX 1,730 per week (23% of weekly charcoal expenditure). Mattson Cooker times explained 48% (20-pin) and 60% (24-pin) of the variation in charcoal KPT times and 41% and 39% for firewood, making the laboratory test a useful but partial predictor. Yet 83% of households never soak beans; households with heavier time and energy burdens were less likely to soak.

Conclusion: Soaking and short-cooking varieties offer low-cost ways to reduce fuel use and women's workload, and should be promoted.

Keywords: Bean soaking; Cooking time; Iron-biofortified beans; Kitchen Performance Test; Mattson Bean Cooker; Household energy use; Women's workload; Uganda

FWE-O06
ORAL

A Holistic Approach to Briquettes Adoption and Commercialization in Uganda

Sarah Kizza-Nkambwe *(presenting author)*

Co-authors: Miria Agunyo, Simon Peter Mukisa, Martin Kizito, Sharon Longola, Anold Mugisha, Livingstone

Mutyaba

Session 2C · Thu 5 Nov, 14:20 – 14:35 · Maari Block, Room M-1

Uganda's continued reliance on charcoal and firewood contributes to deforestation, environmental degradation and indoor air pollution. Biomass briquettes made from agricultural residues and organic waste offer an alternative, but their adoption and commercialisation remain limited. The key gap is the lack of an integrated, evidence-based approach that addresses feedstock availability, product quality standardisation, technical skills, consumer awareness, and entrepreneurship and marketing capacity. This study will develop such an approach, focusing on Mukono District and UCU.

The study will use a mixed-methods, experimental and applied design. Surveys will target briquette producers and users, while key informants will provide insights on feedstock supply, production technologies, marketing and commercialisation challenges. Laboratory tests will assess calorific value, moisture content, ash content and compaction using standardised procedures. Survey, qualitative and laboratory findings will be triangulated to guide a pilot production unit at UCU, practical training materials, and recommendations on standardisation and commercialisation.

Expected outputs are: (i) an operational pilot briquette production unit, evaluated on performance and production consistency; (ii) locally appropriate production and quality-control procedures, verified through laboratory tests; (iii) training materials and improved technical competencies, evaluated through pre- and post-training assessments; and (iv) strengthened entrepreneurial and marketing capacity, assessed through participants' business plans and market assessments. The study will also inform briquette standardisation and policy, promote the productive use of agricultural and municipal waste, and support viable community-based briquette enterprises, contributing to waste valorisation, environmental protection and sustainable cooking energy in Uganda.

Keywords: Briquettes, Sustainable Energy, Waste Valorization, Cabonisation, Value Chain, UCU

FWE-O07

ORAL

From waste stream to wall: wastepaper–polyethylene terephthalate (PET) fibre blocks for non-load-bearing construction in Uganda

Kenneth Econi *(presenting author)*

Co-authors: Marvin Zzigwa, Rodgers Tayebwa, Josephine Nakyeyune, Betty Namakula

Session 2C · Thu 5 Nov, 14:35 – 14:50 · Maari Block, Room M-1

Introduction / Purpose: Kampala generates about 180 tonnes of plastic waste daily, with only 40–50% reaching landfills, and paper and pulp make up about 1.60% of its household waste. The study evaluated lightweight masonry blocks in which waste paper replaces quarried aggregate and PET-bottle fibre reinforces the mix, seeking the best balance of strength, weight, water absorption and impact resistance.

Methods: Waste paper (0–100% of coarse aggregate) and PET fibre (0–1.5% of cement weight) were varied in an optimum cement–sand–aggregate mix (water–cement ratio 0.65). Thirty-five mixes, cast in triplicate, were tested for weight, compressive strength and water absorption, and each paper level's peak mix for impact resistance, then benchmarked against Ministry of Works and Transport (MoWT, 2013) specifications and BS 6073/BS 2028 block classes.

Results / Findings: Paired t-tests showed that 1.5% PET significantly increased strength ($p=.002$), absorption ($p=.006$) and weight ($p=.008$), while 25% paper significantly cut weight and strength and raised absorption (all $p<.001$). All paper mixes were lightweight (957–1445 kg/m³). Only mixes with up to 50% paper met the ~24% water-absorption allowance. The recommended mix, 50% waste paper with 1.25% PET fibre, achieved 3.26 MPa (48% above the MoWT Type 2 minimum), 1317 kg/m³ and 23.10% absorption, with favourable impact resistance.

Discussion / Conclusion: Each recommended block keeps about one and a half reams of paper and nearly two 500 ml PET bottles out of Kampala's waste stream and avoids quarrying about 0.007 m³ of aggregate. The blocks suit interior, non-load-bearing partitions and infill; their narrow absorption margin calls for rendering during pilot deployment. Rendering was not tested, and only one mix ratio was examined.

Keywords: PET fiber reinforcement; waste paper; circular economy; lightweight masonry blocks; sustainable housing

FWE-O08

ORAL

Photovoltaic Solar Water Heater System for the UCU Kitchen

Miria Agunyo *(presenting author)*

Session 2C · Thu 5 Nov, 14:50 – 15:05 · Maari Block, Room M-1

About 90% of cooking energy at Uganda Christian University (UCU) comes from traditional biomass, mostly firewood, causing greenhouse gas emissions, indoor pollution and high procurement costs. An 800-litre solar thermal water heating system installed at the UCU kitchen in 2022 reduced daily firewood use for water heating by 15%, but performs less well in rainy seasons.

The study used an experimental design to compare two solar water-heating technologies: a flat-plate solar thermal system (16 collectors heating 400 litres of water, discharged once a day) and a 4.2 kWp photovoltaic (PV) system with a 5.5 kW hybrid inverter powering three 1,500 W heaters for 200 litres of water. Water-temperature changes were monitored under dry-season and cloudy conditions. Interviews and focus group discussions with system operators and kitchen staff documented system configuration, operating practices, maintenance requirements and challenges.

Solar irradiance ranged from 150 W/m² in the morning to 1,173 W/m² in the afternoon. In the dry season, the PV system heated water from an average of 28°C to 80°C in about four hours; in the wet season it still reached 60°C in about six hours. The solar thermal system produced water of at least 80°C in the dry season but only 35°C in cloudy conditions, discharged once a day.

Although the PV system is a quarter of the size of the solar thermal system, its ability to produce water at up to 60°C in the cloudy season suggests it is a viable complement to solar thermal heating during that season.

Keywords: Solar thermal, PV solar system, clean cooking options

FWE-O09

ORAL

Integrated Energy and Resource Recovery Systems (IEARRS) for Uganda Christian University and Environs in Mukono

Miria Agunyo *(presenting author)*

Session 2C · Thu 5 Nov, 15:05 – 15:20 · Maari Block, Room M-1

Background: Integrated energy and resource recovery systems offer sustainable solutions for organic waste management, sanitation, agriculture, and renewable energy production. This study explored the application of anaerobic digestion technology to convert organic waste, including food waste, faecal matter, and animal manure, into biogas and bioslurry. It aimed to develop an affordable, portable biogas system and optimise bioslurry utilisation as organic fertiliser for institutions and small-scale farming communities.

Methods: A mixed-methods approach involving experimentation, surveys, questionnaires, and case studies was employed in Mukono and surrounding communities. A portable, two-stage biogas digester comprising two 220-litre plastic tanks, stirrers, and bioslurry collection units was fabricated and tested at Uganda Christian University over six months. Bioslurry effectiveness was evaluated on maize, cowpeas, and beans across three planting seasons.

Results: The locally fabricated, above-ground biogas system cost approximately UGX 2,000,000 and produced at least 80 litres of biogas daily, comprising 59% methane and 35% carbon dioxide. Although 100% inorganic NPK fertiliser generally produced better crop performance, a 50:50 bioslurry–NPK combination increased dry biomass by 13%. Findings highlighted the importance of assessing initial soil conditions before fertiliser application. Storing bioslurry for five days at 35°C reduced pathogens, with Staphylococcus eliminated under the tested conditions.

Conclusion: Affordable, portable biodigesters offer a viable approach to decentralised waste management, renewable energy generation, and agricultural resource recovery for institutions and small-scale farms. However, appropriate system sizing is essential to ensure sufficient biogas production for cooking and other energy needs.

Keywords: Integrated energy and resource recovery systems; Anaerobic digestion; Portable biogas digester; Biogas production; Bioslurry; Organic waste management; Sustainable agriculture; Uganda

Sub-theme 4 Technology, Innovation and Sustainable Communities

TIS · THURSDAY 5 NOVEMBER · 14:00 – 15:30

Session 2B (joint with Business, Trade, Law and Economic Development)

Maari Block, Room M-7 · Chair: Dr. Sylvia Nabasumba

TIS-O05

ORAL

Parameter-Guided Digital Evidence Triage: An Explainable Machine Learning Approach to Scoped Forensic Artefact Classification: A Case Study of the Uganda Police Force

Paul Ifemene *(presenting author)*

Session 2B (joint session) · Thu 5 Nov, 14:35 – 14:50 · Maari Block, Room M-7

Introduction/Purpose: Uganda Police Force (UPF) examiners may search extracted data only for what a court order and Police Form 17A authorise, and this review is largely manual. An Auditor General review found equipment and manpower shortages and 28 percent performance in the digital forensics laboratory, while reported cybercrime nearly doubled in 2024. Manual review is a likely contributor to delay. Extraction tools such as Cellebrite UFED, to the author's knowledge, do not let examiners state authorised scope and receive classified, explained results. This study designs and evaluates a prototype that does.

Methods: Design science research is used; requirements come from literature and a consented, anonymised UPF digital forensics examiner interview. Pretrained model outputs are thresholded to label each artefact in scope, borderline or out of scope; this is the "classification". Sentence-BERT matches text by meaning, CLIP matches images to descriptions or reference images, a local language model converts plain-language requests into parameters, and rules filter metadata, call logs and contacts. Each result shows its basis (matched keywords, best-matching passage, filter conditions or reference image). Only the image matcher learns: a contextual bandit (reinforcement learning) re-ranks CLIP results from examiner accept/reject feedback, over frozen embeddings, reset per case and logged. Evaluation uses public datasets (GovDocs1, NIST CFReDS), synthetic call and contact records, and simulated examiner feedback. No UPF data is used; processing is local.

Results/Findings: Preliminary finding (interview): examiners work from narrowly scoped requests and must justify each item, shifting the design to parameter-based triage. The prototype is under development; no performance results yet. Planned measures: precision, recall and time-to-triage against keyword search, and precision gain across feedback rounds.

Discussion/Conclusion: The anticipated contribution is scope-bound, explainable triage needing little casework data. These benefits require validation with additional examiners on realistic data; court admissibility depends on legal standards beyond this study.

Keywords: digital forensics; evidence triage; explainable AI; machine learning; Uganda Police Force

Sub-theme 5 Faith, Education and Community Empowerment

FCE · THURSDAY 5 NOVEMBER · 11:30 – 13:00

Session 1E: Faith, Ethics and Community Transformation

Maari Block, Room M-5 · Chair: Prof. Mary Sonko Nabacwa

FCE-O01
ORAL

Towards a Theology of Love Gift in African Christian Marriage

Julius Izza Tabi *(presenting author)*

Session 1E · Thu 5 Nov, 11:35 – 11:50 · Maari Block, Room M-5

Bridewealth, a groom-side material transfer to the bride's family and distinguished from dowry and other family or ceremonial gifts, is a practice in African Christian contexts that fosters relationship building and community involvement in marriage. Bridewealth has, however, evolved to carry counterproductive characteristics such as commercialization, coercion, indebtedness, valuation and entitlement. Despite substantial anthropological, legal and theological scholarship on bridewealth, limited attention has been given to the construction of a Christian theology of marital giving addressing these challenges. This paper therefore proposes the Love Gift model as a trans-contextual Christian-African way of rethinking marital giving rather than a description of all African marriage practices. The study proposes marital giving, which is non-conditional, freely given rather than demanded, non-negotiated in economic value, and non-equivalent. The proposed model departs from the transactional nature of bridewealth while preserving gratitude, kinship recognition, relationship building and community engagement.

This is theoretical constructive theology study informed by inculturation and African Christian ethics employs literature on bridewealth, gift and reciprocity, biblical and Christian theology, African relational ethics, and gender and dignity. Relationality, voluntariness, human dignity, non-coercion, and non-entitlement provide the main criteria for evaluating the Love Gift model. The model safeguards the autonomy of both spouses and participating families and does not recommend a permanent gendered direction of giving. It therefore allows culturally appropriate giving or reciprocal generosity from either side. The paper proposes Love Gift as a transformation in the moral grammar of marital giving, where relational exchange is maintained without economic equivalence, coercive obligation, or entitlement. This theological construction requires further empirical testing through interviews, denominational dialogue, case studies, or community-based application across different African contexts. The paper makes three constructive contributions: it distinguishes reciprocity from equivalence, develops diagnostic criteria from Love Gift, and proposes a Gift-Transaction continuum.

Keywords: bridewealth, Love Gift, theological construction, marital giving, African Christian marriage

FCE-O02
ORAL

Everyday Peace and Intercommunal Strife in Uganda's Refugee-Hosting Districts: The Role of Schools in Fostering Peace Between Refugees and Host Communities in Adjumani District

Andrew David Omona *(presenting author)*

Co-authors: Sarah Kiza-Nkambwe, Alfred Wonyaka, Anne Cherotwo, Hamilton Mbokureeba

Session 1E · Thu 5 Nov, 11:50 – 12:05 · Maari Block, Room M-5

Uganda's inclusive refugee policies provide access to education, work, services, and economic opportunities. Yet prolonged displacement can strain refugee-host relations amid scarce land, forests, water, livelihoods, schools, and services. This article examines how schools foster everyday peace and positive inter-communal relations in Adjumani District. Using qualitative data, the study synthesises scholarship, Ugandan policies, institutional reports, and research on refugee-host relations, education, and peacebuilding. It draws on a larger study of 150 participants—88 refugees, 52 host-community members, and 10 institutional informants—selected by leaders from communities near the camps. The framework combines Mac Ginty's everyday peace perspective, intergroup contact theory, and social connections that support refugee integration. Respondents described children attending the same schools, sharing language and fee arrangements, and interacting through play and broader community cooperation. These accounts point to schools as shared institutions where people can become familiar with one another and recognise common interests. Scholarly literature and programme documentation

show how cooperative activities, inclusive governance, and supported dialogue may strengthen these encounters. Findings suggest schools can serve as everyday peace infrastructure through inclusive schooling, cooperative learning, peace and citizenship education, clubs, sports, cultural activities, peer mediation, psychosocial support, participatory governance, and teachers' non-discriminatory conduct. Analysing the findings through the theoretical framework reveals that these practices encourage positive contact, empathy, friendship, trust, shared identities, dialogue, and nonviolent conflict resolution. However, contact alone does not guarantee peace: overcrowding, scarce resources, trauma, language barriers, limited teacher preparation, perceived inequality, discrimination, and weak community participation can reproduce wider tensions. The article argues that school practices foster everyday peace through relationships shaped by institutional and community conditions. Refugee education policy should look beyond access and achievement and view schools as local peace infrastructure that connects learners, families, and communities. It recommends inclusive activities, representative parent participation, adequate resources, and appropriate safeguarding.

Keywords: Adjumani, everyday peace, intergroup contact, peacebuilding, peace education, refugees, refugee-host relations, schools, social cohesion, Uganda

FCE-O03
ORAL

Distributive Justice in Coffee Supply Chains: A Moral–Relational Framework of Virtue Ethics and Gendered Recognition

Mpiriirwe Comfort *(presenting author)*

Session 1E · Thu 5 Nov, 12:05 – 12:20 · Maari Block, Room M-5

Unequal bargaining power in agricultural supply chains raises questions about how economic benefits and burdens are allocated. Research has examined structural inequalities and governance arrangements affecting value distribution, but offers less insight into how buyers assess suppliers' legitimate distributive claims and when those claims influence purchasing decisions. Focusing on Uganda's coffee supply chains, this conceptual paper develops a moral–relational framework grounded in Christian virtue ethics, informed by relational governance and supported by servant leadership scholarship. Through conceptual analysis and theoretical integration, it draws on distributive justice, virtue ethics, relational governance and gendered recognition scholarship to develop five propositions. Stewardship and service are treated as complementary moral orientations that may guide buyers' distributive reasoning about contributions, entitlements, needs and equal moral standing. Virtue-based practical wisdom helps explain the ethical judgement required when these claims conflict. The framework proposes two pathways through which legitimate claims may influence purchasing allocations. The first links distributive reasoning to allocation decisions, depending on the purchasing discretion available to buyers. The second involves relational enactment through reciprocal engagement and mutual accountability. Gendered recognition is proposed as a contextual moderator of the relational pathway: unequal recognition of suppliers' credibility, authority and legitimacy may limit the influence of their claims even when opportunities for engagement exist. The framework distinguishes distributive practices from assessments of their fairness against principles of contribution, entitlement, equality and need. The paper contributes to business ethics by specifying virtue-based foundations for distributive reasoning, distinguishing moral and relational pathways to purchasing allocations, and explaining how purchasing discretion and gendered recognition condition these pathways.

Keywords: Distributive justice; Christian virtue ethics; stewardship and service; buyer–supplier relationships; gendered recognition; coffee supply chains

FCE-O04
ORAL

Financial Cooperatives and Social Enterprise Development: A Mechanism-Contingency Framework

Henry Mugisha *(presenting author)*
Co-authors: Michael Omeke

Session 1E · Thu 5 Nov, 12:20 – 12:35 · Maari Block, Room M-5

Hybrid-organising research explains how social enterprises manage social and commercial demands; cooperative-finance scholarship examines member ownership and intermediation; and relationship-lending research shows how repeated interaction improves borrower information. Yet these literatures do not fully explain how financial-cooperative attributes support social enterprise development or why

similar cooperatives produce different outcomes. The theoretical problem is that shared social orientation is treated as evidence of compatibility, despite cooperatives' duty to protect member funds and control credit risk. This paper develops a mechanism–contingency framework through a purposive integrative synthesis of peer-reviewed research and selected institutional reports. We identified the literature through targeted keyword searches of publisher and institutional repositories and references cited in major reviews. We selected sources for their relevance to cooperative attributes, financing needs, relational information, support processes, outcomes, and boundary conditions. The evidence was organised around these categories to identify recurring relationships and explanatory limits. The central insight is that cooperative attributes are potential resources rather than direct causes of development. They operate through five connected mechanisms: mission-appropriate finance, capability development, network brokerage and market access, community-oriented investment, and advocacy and institutional mediation. Capability development can improve investment readiness; network access can strengthen revenue and repayment prospects; and institutional mediation can address constraints that finance alone cannot resolve. Their operation depends on governance competence, capital capacity, member participation, regulatory coherence, impact evidence, trust, digital inclusion and ecosystem partnerships. The framework extends institutional logics research from intra-organisational tensions to relationships between organisations managing social and financial demands. It positions relationship lending as one informational process within a broader support system and recognises trade-offs between flexibility and credit discipline, relational knowledge and favouritism, participation and capture, and digital reach and exclusion. The proposed relationships require empirical testing.

Keywords: financial cooperatives; social enterprise development; institutional logics; relationship lending; hybrid organising; mechanism–contingency framework

FCE · THURSDAY 5 NOVEMBER · 14:00 – 15:30

Session 2E: Competency-Based Education, Teacher Preparation and Refugee Education

Maari Block, Room M-5 · Chair: Rev. Dr. Simon Feta

FCE-O05
ORAL

Bridging the Gap: Change Management Strategies and the Transition to Competency-Based Education and Training in Higher Institutions – A Case of Uganda

John Ssengonzi *(presenting author)*
Co-authors: Doris Atino Eggo, Dr. Eilu Emmanuel, Mr. Wangwe James

Session 2E · Thu 5 Nov, 14:05 – 14:20 · Maari Block, Room M-5

Many higher education institutions struggle to shift from traditional learning to Competency-Based Education and Training (CBET) due to unstructured change management strategies. This study examined the influence of change management approaches on CBET implementation across four universities in Uganda. Specifically, the study sought to: (1) assess the effect of strategic leadership communication, (2) determine the influence of faculty development, (3) analyze the influence of institutional policy alignment, and (4) examine the role of industry engagement. Using a cross-sectional mixed-methods design, quantitative data were gathered from 233 respondents via simple random and purposive sampling, alongside qualitative interviews and document reviews. Simple regressions revealed that strategic leadership communication ($R2 = 0.286$, $B = 0.499$), faculty development ($R2 = 0.241$, $B = 0.463$), institutional policy alignment ($R2 = 0.236$, $B = 0.430$), and industry engagement ($R2 = 0.203$, $B = 0.469$) each significantly predicted CBET implementation ($p < 0.001$). Jointly, these dimensions accounted for 40.3% of the variance ($R2 = 0.403$, $F (4, 228) = 38.521$, $p < 0.001$). Qualitatively, leadership commitment was noted as often rhetorical rather than resource-backed, and training was predominantly one-off. The study concludes that: (1) strategic leadership communication significantly enhances CBET implementation; (2) faculty development significantly equips lecturers with practical competencies; (3) institutional policy alignment anchors CBET within formal structures; and (4) industry engagement ensures curriculum relevance against labor market demands. The study recommends that higher education institutions: (1) back leadership visions with dedicated resources; (2) transition from one-off workshops to continuous faculty training and peer learning; (3) update grading policies alongside digital infrastructure; and (4) establish structured, ongoing partnerships with

industry.

Keywords: Change Management, Competency-Based Education and Training, Strategic Leadership Communication, Faculty Development, Industry Engagement

FCE-O06
ORAL

Measuring the Level of Lecturers' Competence in Using CBE Assessment Methods in Higher Education

Bernard Omukunyi *(presenting author)*

Session 2E · Thu 5 Nov, 14:20 – 14:35 · Maari Block, Room M-5

Competency-Based Education (CBE) assessment is important for aligning higher education with societal and workplace needs. However, lecturers' competence in applying CBE assessment methods may be constrained by gaps in training, practical experience, and institutional support. This study examined lecturers' self-reported competence and readiness to use CBE assessment methods in higher education institutions in Uganda, with attention to theoretical knowledge, reported implementation practices, confidence, and perceived institutional and technological constraints. A cross-sectional descriptive survey was conducted among lecturers from three universities in Uganda using a structured questionnaire. The findings should therefore be interpreted as respondents' reported knowledge, experiences, and perceptions rather than as a direct observation or objective test of pedagogical competence. The reported results indicate moderate theoretical knowledge and inconsistent practical implementation. Although 66.7% of respondents reported having received formal CBE training, half of those trained had received training lasting less than one week; 38.1% identified insufficient training as a major barrier. High workload and large class sizes were also reported as constraints. In addition, 42.9% identified access to digital assessment tools as a strategy for improving assessment practice, while 23.8% reported the absence of digital portfolio platforms as a barrier. These percentages indicate perceived needs and constraints; they do not, on their own, establish that technology causes an increase or decrease in lecturer competence. Overall, the findings point to a reported gap between lecturers' preparation and the practical demands of CBE assessment, alongside institutional and technological challenges. Higher education institutions should consider sustained professional development, mentorship, practical training in rubric design and assessment implementation, and appropriate digital and institutional support. Because the study used a cross-sectional self-report survey, the findings describe respondents' reported competence and experiences and should not be interpreted as causal evidence or as a definitive measure of demonstrated performance.

Keywords: Competency-Based Education; CBE assessment; lecturer competence; higher education; self-reported readiness; Uganda

FCE-O07
ORAL

An Interactive Blended School–University Partnership Model for Student Teacher Development in Competency-Based Education

Annet Musiimenta *(presenting author)*
Co-author: Mary Kagoire

Session 2E · Thu 5 Nov, 14:35 – 14:50 · Maari Block, Room M-5

The implementation of Competency-Based Education (CBE) requires teacher education institutions to connect university-based theoretical knowledge with classroom practice. However, school practice (SP) often remains a time-bound assessment activity, characterised by limited university–school collaboration, fragmented supervision and inadequate opportunities for continuous professional development. This disconnect may constrain student teachers' ability to translate pedagogical knowledge into demonstrable competencies. This paper proposes an Interactive Blended School–University Partnership Model to strengthen student teacher preparation, supervision and professional development. It adopts a conceptual model-development approach informed by CBE, blended learning, collaborative partnership and reflective practice. The model integrates university expertise with school-based professional knowledge through collaborative planning, structured mentorship, blended supervision, digital resource sharing, continuous feedback and competency-based assessment. University lecturers and supervisors collaborate with school-based mentors, experienced teachers and administrators. Coordination is facilitated through shared practicum schedules, competency assessment rubrics, digital communication platforms, joint supervision and periodic

progress reviews. The model is expected to strengthen school–university collaboration, improve supervision and enhance student teachers' professional competencies. Anticipated improvements will be assessed through lesson-planning quality, learner-centred instruction, classroom management, authentic assessment, reflective practice and professional conduct. Evidence will include classroom observation rubrics, teaching portfolios, supervisor assessments, digital feedback records and stakeholder evaluations.

The model's originality lies in transforming school practice from a time-bound assessment exercise into a continuous, collaborative and development-oriented process integrating face-to-face engagement, digital supervision and shared responsibility for competency development. Successful implementation requires equitable digital access, mentor training, manageable workloads, clear institutional responsibilities and consistent assessment procedures. Piloting in selected partner schools is recommended to evaluate feasibility and effectiveness.

Keywords: Competency-Based Education; blended learning; school–university partnerships; school practice; student teacher supervision; teacher professional development; reflective practice

FCE-O08
ORAL

Aligning Faculty Work Design with Competence-Based Education: An HRM Perspective from a Ugandan University

Florence Nakiyingi *(presenting author)*

Session 2E · Thu 5 Nov, 14:50 – 15:05 · Maari Block, Room M-5

Competence-Based Education and Training (CBET) is reshaping academic work through new expected deliverables for faculty. Existing scholarship has examined this transition mainly through pedagogical, curriculum, assessment and faculty development lenses, with less attention to its human resource management (HRM) implications, particularly whether faculty work design is aligned with the changing demands of academic work. This matters in Uganda, where the transition is mandatory under a national reform agenda: universities may add faculty responsibilities without adjusting roles, workload, autonomy, time allocation, coordination and resources, creating structural constraints on sustainable implementation. This study examines how anticipated CBET requirements reshape faculty work and how far existing work design arrangements are aligned with them in a Ugandan university.

Drawing on Work Design Theory and Job Demands–Resources Theory, the study adopts a theory-informed qualitative embedded single-case design in a Ugandan university preparing for the CBET transition. Embedded faculties will be selected to represent contrasting forms of academic work. Participants across faculty ranks, academic leadership, HR and curriculum roles will be recruited through maximum variation sampling. Data will come from semi-structured interviews and institutional and regulatory documents. Anticipated CBET requirements will be mapped against work design dimensions (roles, workload, time allocation, autonomy, interdependence, coordination, job demands and organisational resources) and classified as aligned, partially aligned or misaligned.

The study is expected to distinguish capability constraints from structural work design constraints and to produce an HRM framework linking CBET requirements to the roles, workload and resources needed for sustainable implementation. It extends Work Design Theory and Job Demands–Resources Theory to mandatory educational reform and offers universities a diagnostic tool for redesigning faculty work, with insights transferable to comparable institutions.

Keywords: Competence-Based Education and Training; Faculty Work Design; Human Resource Management Alignment

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AGAPE SQUARE · JUDGED SESSION THURSDAY 5 NOVEMBER, 16:00 – 17:00

Poster Presentations

Posters are on display in Agape Square for all three days. During the judged session, presenters stand by their boards for a two-minute pitch and questions from the judges.

Sub-theme 1 Health and Well-being

HW-P01
POSTER

Youth perspectives of drug and alcohol use at a Faith-Based University in Uganda: A Qualitative Analysis

Dr. Edward Mukooza and Jacqueline Kobusingye *(presenting authors)*
Co-authors: Jennifer Hatzfeld, Elsie Naruszewiczn, Jason Paltzer

Board PB-01 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Purpose: Substance use among Ugandan youth and undergraduate students arises from the complex interactions and combined influences of individual, social, family, and environmental factors. The transition to university life also introduces multiple risks that make students vulnerable to substance use and dependence. Studies have found nearly half of university students in East Africa use substances. This study focused on better understanding the student perspective of why students at UCU decide to use alcohol or drugs, and what might be a way to prevent or address substance use on campus.

Methods: This qualitative component of a larger mixed-methods study used focus group discussions to explore students' perspectives on factors influencing substance use and potential prevention strategies at Uganda Christian University (UCU). The larger study employed a mixed-methods approach to complement quantitative findings with deeper insights into students' experiences, motivations, and suggested interventions.

Results: Several key themes emerged, providing a multifaceted view of the reasons university students believed they and fellow classmates used substances and how to address them. Overall, students felt substance use began primarily to improve academic performance, but academic performance was also most often cited as being negatively impacted. Several protective factors were identified, including UCUs culture and supportive community as well as students' faith and faith communities. When asked how to prevent and address substance use on the UCU campus, students most often highlighted the importance of peer support systems and social activities that did not involve alcohol.

Discussion: Perspectives reflect the interaction of academic, social, and environmental pressures with influencing factors and proposed solutions generally consistent with findings from East Africa and other global studies. However, given the impact of faith practices, faith-based institutions have an important role to play in prevention and rehabilitation by creating safe, nonjudgmental spaces for young people to seek help.

Keywords: Substance use; university students; Uganda; faith-based university; protective factors

HW-P02
POSTER

Digital and Paper-Based Infection Prevention and Control Accountability Checklists to Enhance Hand-Hygiene Compliance in Primary Health Care Settings

Primerose Nankabirwa *(presenting author)*

Board PB-02 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: Infection prevention and control (IPC) is essential for patient safety in primary health care (PHC) and hospital settings. Hand hygiene is the most effective IPC measure, yet compliance among nurses in high-volume units is often suboptimal due to cognitive load, reliance on memory and the lack of real-time accountability. In hospitals, structured accountability systems in which workers document consumables such as gloves and medications influence clinical behaviour. Embedding hand hygiene into routine nursing documentation through a standardised IPC checklist can act as a "mental trigger", reinforcing the WHO "Five Moments for Hand Hygiene", reducing forgetfulness and promoting

habit formation.

Objective: To assess the feasibility and potential effectiveness of integrating standardised hand-hygiene accountability checklists into routine nursing documentation to improve compliance in PHC settings.

Methods: The intervention adapts the logic of consumable accountability to IPC practice. Standardised accountability fields are added to nursing treatment records, alongside treatment details, dates, times and nurse identification, in both digital hospital information systems and paper-based charts. Rule-based prompts serve as cognitive reminders during high-volume shifts. Pre- and post-implementation comparisons will assess changes in documented compliance and, where direct observation is conducted, actual hand-hygiene practice.

Results: The intervention is expected to improve the completeness and consistency of hand-hygiene documentation, make accountability a visible part of routine care, and reduce omissions. Preliminary workflow analysis suggests it is feasible in resource-limited settings using shared mobile devices.

Conclusion: Embedding IPC accountability into digital and paper-based documentation turns hand hygiene from a passive expectation into a measurable clinical action, offering a simple, low-cost way to strengthen infection prevention and patient protection in routine nursing practice.

Keywords: Hand-Hygiene, Digital-health, IPC, Accountability Checklists, PHC

HW-P04
POSTER

Designing Research Participant Compensation Governance: A Decision-Support Framework for Low-Income Research Contexts

Osborn Ahimbisibwe *(presenting author)*

Co-authors: Kofi Sarpong Adu-Manu (Department of Computer Science, University of Ghana, Legon, Ghana); Edward Kibikyo Mukooza (Department of Public Health, UCU); Dan Ayebale (School of Business and Management, UCU; Kyambogo University); Angella Napakol (School of Journalism, Media and Communication, UCU). Presenting author: School of Business and Management, UCU

Board PB-04 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction / Purpose: Research governance systems in low-income settings must ensure fair participant compensation, yet existing guidance, including the UNCST guidelines (2025), offers principles without operational tools. Researchers and regulators therefore make inconsistent, poorly justified compensation decisions, leaving economically vulnerable participants under-compensated or excluded. This study designs and evaluates a Compensation Governance Decision-Support Framework (CGDF) for consistent, transparent and locally calibrated compensation decisions.

Methods: The study follows Design Science Research, structured by Hevner's Three-Cycle View, which links field relevance, iterative design and theoretical rigour, and Action Design Research, which builds the framework with its users. Four kernel theories shape the design: Social Exchange Theory frames compensation as fair reciprocity for participant burden; organisational justice theory guides fair outcomes and procedures; institutional theory aligns the framework with regulatory norms; and the Dickert-Grady typology classifies compensation by purpose. Three co-design workshops will engage 17–23 participants: 6–8 multidisciplinary researchers and 11–15 regulators (8–10 members of three accredited ethics committees, 2–3 ethics administrators and 1–2 UNCST officials). Evaluation follows the FEDS framework: expert panel review (10–14 reviewers), scenario testing on 8–10 protocols with inter-rater reliability (Cohen's Kappa), usability testing with 6–8 new users (System Usability Scale), and a field pilot with one accredited committee.

Results / Expected Outcomes: The principal output will be the CGDF, a six-component procedure: participant profiling, burden assessment, local economic calibration, compensation category determination, ethical risk assessment and recommendation summary. Its central innovation is a Uganda-adapted Time-Inconvenience-Expense (TIE) formula anchored in the currency point (UGX 20,000).

Discussion / Conclusion: The CGDF reframes compensation as a governance design problem, giving researchers and regulators a shared, structured decision process. Its transferable design principles suit low-income settings lacking statutory minimum wages, and it can inform research ethics training and national policy.

Keywords: Research participant compensation, research governance, Design Science Research, decision-support framework, Time-Inconvenience-Expense formula, low-income research contexts

HW-P05
POSTER

Religiosity and Family Planning Knowledge, Attitudes and Practices among University Students in Uganda: A Scoping Review Protocol

Prof. Robert Basaza *(presenting author)*
Co-authors: Boniface Mutatina, Emmanuel Otieno, Elizabeth Ekong, Emmanuel Mukeshimana

Board PB-33 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: University students constitute an important population for understanding family planning knowledge, attitudes and practices. No synthesis has systematically mapped how religiosity has been conceptualized and measured, which dimensions of religiosity have been examined, and how these dimensions relate to different family planning outcomes among university students in Uganda. This scoping review shall identify what has been studied, how religiosity has been conceptualised and measured, what religious beliefs and norms have been reported, and where important evidence and methodological gaps remain.

Objective: To identify, map and characterise the available evidence on the relationship between religiosity and family planning knowledge, attitudes and practices (KAP) among university students in Uganda.

Methods: The review will be conducted using the Arksey and O'Malley scoping review framework, with methodological refinements informed by the Joanna Briggs Institute guidance for scoping reviews. The review will be structured using the Population, Concept and Context framework and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews. Relevant peer-reviewed and grey literature will be identified through systematic searches of electronic databases, including PubMed/MEDLINE, Scopus, Web of Science, Google Scholar and relevant African or regional databases where accessible. Studies conducted in Uganda and addressing university or higher-education students, religiosity or religion, and family planning knowledge, attitudes or practices will be considered for inclusion. Two reviewers will independently screen titles, abstracts and full texts against predefined eligibility criteria. Data will be charted using a piloted extraction form capturing study characteristics, participant characteristics, conceptualisation and measurement of religiosity and family planning outcomes among others. Findings will be summarised using descriptive numerical analysis and narrative synthesis, with results presented in tables, figures and thematic categories. This review is registered with the International Platform of Registered Systematic Review and Meta-analysis Protocols (INPLASY202690065).

Keywords: Religiosity, Family Planning outcomes, KAP, protocol Scoping review, Uganda

Sub-theme 2 Business, Trade, Law and Economic Development

BTL-P01
POSTER

From Institutional Pressures to Institutional Voids: Reframing Integrated Management System Adoption in Civil Society Organizations

Stanley D. Wobusobozi *(presenting author)*

Board PB-05 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Integrated Management Systems (IMS) integrate multiple management standards and organizational processes to enhance coordination, accountability, efficiency, and performance. Despite substantial research, organizations exposed to similar technical requirements, capabilities, and institutional pressures exhibit markedly different adoption outcomes. This study systematically reviews the determinants, theoretical foundations, and contextual patterns of IMS adoption and assesses the transferability of established explanations to civil society organizations (CSOs), particularly in donor dependent and institutionally fragile environments. Following a PRISMA guided search of Scopus and Web of Science, 921 records were progressively screened, yielding 118 articles. The synthesis identifies four recurrent determinants: leadership and governance commitment, organizational capacity and resources, institutional and stakeholder pressures, and technical factors. However, these determinants do not operate uniformly across institutional environments, while the evidence underpinning prevailing explanations remains concentrated outside CSOs. The review therefore reframes rather than replacing established explanations: Institutional Voids Theory explains why IMS may acquire different functions where institutional infrastructure is weak; Organizational Capacity Theory explains whether organizations can sustain and regenerate systems under resource volatility; and Institutional Logics explains how competing actors, accountability demands, values, and power relations shape implementation. The study positions CSOs as a theoretically consequential context for refining IMS adoption theory.

Keywords: Integrated Management Systems; IMS adoption; civil society organizations; organizational capacity; institutional voids; institutional logics; systematic literature review

BTL-P02
POSTER

Assessment of Ministries, Departments and Agencies (MDAs) Performance on Care-Related Actions in Uganda Using the National Care Policy Scorecard

Prof. Mary Sonko Nabacwa *(presenting author)*
Co-authors: Denis Onene, Kyagulanyi Ronald, Susan Acen, Rita Aciro

Board PB-06 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: Uganda has made progress in recognising unpaid care and domestic work (UCDW) in national policy, but less is known about how consistently these commitments are reflected in spending, institutional practice and service delivery. This study assessed the performance of selected Ministries, Departments and Agencies (MDAs) in implementing care-related policies using the National Care Policy Scorecard, examining progress from the 2023 baseline to 2026 across institutions responsible for gender, labour, social protection, health, education, infrastructure, planning and statistics.

Methodology: A mixed-methods, policy-oriented design combined scorecard assessment with document reviews, key informant interviews, focus group discussions and stakeholder consultations. Indicators covering policy adoption, financing, implementation and accountability were rated 0, 0.5 or 1 (no, partial or full achievement), aggregated into percentages by policy domain, and compared with thematically analysed qualitative evidence.

Results: Uganda has strengthened its policy and institutional framework for care, but implementation varies across domains. Care Services scored highest (72%, up from 40% in 2023), followed by Care-supporting Physical Infrastructure (60%) and Care-related Social Protection (56%). Measurement Frameworks and Time-use Data (42%) and Social Norms (35%) scored lowest. The scores gauge how transformative care policies are rather than measuring changes in care burdens directly. Improvements were most evident in healthcare, early childhood development, water and sanitation, and social protection. However, inadequate financing, fragmented coordination, weak enforcement, limited protection for paid care workers, insufficient technical capacity and persistent gender norms continue to hinder implementation.

Conclusion: Policy progress must be matched by implementation and financing. Institutionalising the

Scorecard within government planning, budgeting and monitoring, strengthening coordination, collecting care-related data regularly and investing in public care services and infrastructure would improve accountability and translate policy into practical benefits for caregivers.

Keywords: National Care Policy Scorecard; Unpaid Care and Domestic Work; Institutional Performance; Care Policy; Gender Equality; Uganda

BTL-P03
POSTER

From Economic Resources to Economic Transformation: A Conceptual Framework for Explaining Women's Divergent Economic Outcomes

Simon Peter Turker Mukisa *(presenting author)*
Co-authors: I. W. Katono, R. Sebaggala

Board PB-07 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: Education, employment and income provide women with economic resources, yet their possession does not necessarily ensure asset accumulation, diversified income or lasting economic security. This raises a question: why might women with comparable resources experience different economic outcomes? Sen's Capability Approach and Kabeer's Empowerment Framework illuminate the importance of opportunities and agency, but further specification is needed of the relationships through which resources contribute to economic achievements. This paper develops a conceptual framework to examine these relationships, with particular reference to female primary school teachers in Uganda.

Methods: The paper adopts a purposive, theory-informed conceptual synthesis and model-development approach. Relevant scholarship is examined to identify definitions, explanatory contributions and limitations concerning resources, substantive capabilities, agency and achievements. The analysis compares these constructs, specifies their proposed relationships and examines how household, social and institutional conditions may influence them. Four theoretical propositions are subsequently formulated.

Results / Findings: The resulting framework conceptualizes women's economic transformation through four connected constructs: economic resources, substantive capabilities, economic agency and economic achievements. Three propositions specify the relationships between successive constructs, while a fourth identifies contextual conditions as potential moderators of these relationships. Economic achievements are reflected in productive asset accumulation, viable additional income sources and improved economic security. Their persistence, improvement or reversal provides a temporal basis for assessing sustained transformation.

Discussion / Conclusion: The framework distinguishes possessing economic resources from having feasible opportunities, exercising meaningful economic choices and realizing economic achievements. Its contribution lies in specifying these relationships and identifying where contextual constraints may interrupt economic advancement. It provides propositions for subsequent empirical investigation among female primary school teachers in Uganda, without presuming that the proposed relationships have already been established.

Keywords: Women's economic transformation; substantive capabilities; economic agency; economic achievements; female primary school teachers; Uganda

BTL-P04
POSTER

Cross-Domain Personal Development and Self-Perceived Leadership Effectiveness: An Exploratory Study

Rebekah Mugenyi *(presenting author)*

Board PB-08 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction / Purpose: Leadership development programmes mostly emphasise domain-specific competence, yet leaders work in "wicked" environments where problems are unfamiliar and feedback is unclear. This exploratory study asks whether personal development in fields outside a leader's primary domain is associated with self-perceived leadership effectiveness, and examines five proposed mechanisms: adaptability, creativity, emotional intelligence, confidence and resilience, and systems thinking.

Methods: The study combines a literature review on specialisation versus generalism, illustrative case

studies and an experimental online survey of 42 leaders. Three well-documented cross-domain leaders (Demis Hassabis, Jack Conte and Mae Jemison) were purposively chosen to illustrate how achievement in one field can coexist with serious pursuit of another, and each was examined against the same questions. Survey respondents, a convenience sample recruited through personal contacts, came from technology, healthcare, education, law, agriculture and the nonprofit sector, with leadership experience from under one year to over twelve. Leadership effectiveness was self-reported.

Results / Findings: Of the 42 respondents, 25 (59.5%) described themselves as balanced generalists, keeping depth in their field while pursuing unrelated interests, and 34 (81.0%) agreed that their diverse background shaped their leadership style. The most common outside domains were business/entrepreneurship (35.7%), music (23.8%) and the humanities (23.8%). Respondents linked outside pursuits to empathy, creativity, discipline and the ability to connect ideas across sectors; the cases showed similar cross-domain integration.

Discussion / Conclusion: Time spent outside one's field appears associated with adaptive and relational capacity rather than diluted expertise, though causation cannot be inferred. The small, self-selected sample, reliance on self-report and possible survivorship bias in the cases make the results exploratory. A larger study with peer or follower ratings and a validated leadership scale is planned. The findings point to leadership development that values breadth alongside depth.

Keywords: leadership development, cross-domain learning, generalism, personal development, adaptability, higher education

BTL-P05
POSTER

International Linkages, Financial Capacity and Green Upgrading: Firm-Level Evidence from Uganda

Henry Mugisha *(presenting author)*
Co-authors: Dan Ayebale

Board PB-09 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Green upgrading can help Ugandan firms improve resource efficiency, respond to changing environmental expectations and prepare for more sustainability-conscious markets, yet many operate with limited financial and technological resources. Prior studies suggest that exporting, foreign ownership and foreign technology can expose firms to environmental standards, knowledge and technologies, while financing constraints may limit investment in greener practices. Less clear, particularly in Sub-Saharan Africa, is whether these different international linkages are associated with green upgrading in similar ways and whether financial capacity conditions those relationships. This study examines these questions using data from 605 firms in the 2025 Uganda Enterprise Survey. International linkages are measured by export participation, foreign ownership and use of technology licensed from a foreign-owned company. Financial capacity is proxied by whether a firm has a loan or line of credit from a financial institution. Green upgrading comprises CO_2-emissions monitoring, energy management practices and on-site solar-energy use, with a 0–3 count capturing the breadth of adoption. Descriptive statistics and binary logistic regression examine individual practices, while Poisson regression with robust standard errors assesses green-upgrading breadth. Interaction terms test whether financial capacity conditions the relationship between each international linkage and green upgrading, controlling for firm size, age, sector and region. Initial findings show that 30.8% of firms monitor CO_2 emissions, 52.9% use energy-management practices and 12.1% use on-site solar energy. In the adjusted Poisson model, international linkages and their interactions with financial capacity are not statistically significant, whereas larger firms exhibit broader green upgrading (IRR = 1.17, $p < 0.001$). The findings caution against assuming that international exposure or conventional financial access alone is sufficient for environmental upgrading. Uganda may therefore need more targeted financial, trade and investment support to strengthen firms' capacity to adopt greener practices.

Keywords: international linkages; financial capacity; green upgrading; sustainable finance; international business; Uganda

BTL-P07
POSTER

Towards an operational framework for enhancing the influence of evaluation on the performance of university employees: A case of Uganda Christian University

Dr. Martin Kizito *(presenting author)*

Board PB-11 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: This project proposes an operational framework for Uganda Christian University (UCU) by assessing the effectiveness of the existing performance evaluation process and using the findings to inform its improvement.

Methodology: A descriptive and explanatory design will capture the current state of performance evaluation and its impact on employee productivity. A sequential mixed-methods approach will use stratified random sampling to select 180 of 327 full-time staff, covering evaluated staff, supervisors who conduct evaluations, Human Resources Directorate staff who oversee implementation, and the Performance Evaluation Committee. Benchmarking data will be collected from the Aga Khan University, which runs a large-scale performance evaluation system for academic and non-academic staff in Uganda. Structured questionnaires with Likert-scale items will capture perceptions of the effectiveness of the evaluation process (inputs, activities and outputs) on employee performance. Quantitative data will be analysed in SPSS and qualitative data in Atlas.ti.

Outcome: An innovative framework, informed by contextual influences, stakeholder experiences and benchmarking against best practice, will be developed to refine the UCU reward system.

Conclusion: The evidence will support the realisation of UCU's current strategic plan by fostering a culture of excellence and strengthening institutional performance.

Keywords: Evaluation influence, Performance management, Higher education

BTL-P09
POSTER

Household Welfare in Uganda: Consumption, Poverty Transitions and Inequality in Official Survey Evidence, 2015/16 to 2023/24

Joseph Owor *(presenting author)*

Board PB-34 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Purpose: This study examines changes and disparities in household material welfare in Uganda, focusing on real household consumption, poverty incidence, poverty transitions and consumption inequality. It seeks to establish the extent to which improvements in living standards have been accompanied by reductions in poverty, household vulnerability and socioeconomic inequalities across population groups and geographical regions.

Methods: A descriptive synthesis draws on published Uganda Bureau of Statistics (UBOS) Uganda National Household Survey (UNHS) estimates for 2019/20 and 2023/24 and Uganda National Panel Survey (UNPS) poverty-transition statistics for 2015/16–2019/20. The target population is households represented by the respective national survey designs. Published aggregate estimates, rather than household microdata, are analysed using absolute changes, percentage changes and percentage-point differences. Cross-sectional and longitudinal findings are presented separately.

Findings: National real monthly consumption per adult equivalent increased from UGX 158,805 to UGX 167,573 between 2019/20 and 2023/24 (5.5%), although urban consumption fell by 7.5%. In 2023/24, poverty was 16.1% nationally, compared with 27.7% in Northern Uganda and 6.6% in Central Uganda. The 2015/16–2019/20 panel statistics classify 6.5% of households as chronically poor, 10.0% as exiting poverty and 7.5% as entering poverty. National consumption inequality declined from a Gini of 0.413 to 0.382.

Conclusion: Material welfare gains were uneven across locations and household groups. Poverty entry and exit reveal vulnerability that a single headcount cannot capture. The evidence supports geographically responsive policy monitoring and attention to persistent deprivation and risk of poverty entry, but it does not identify causal effects of growth or policy.

Keywords: Uganda; household consumption; poverty transitions; inequality; household welfare; UBOS

BTL-P10
POSTER

Governance and User Experience in Online Learning Systems in Sub-Saharan Africa: Preliminary findings from a scoping review

Hamilton Mbokureeba *(presenting author)*

Board PB-35 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction and Purpose: Since 2020, online learning in sub-Saharan African higher education has grown rapidly. The literature appears split into two streams: governance (policy, regulation, oversight and accountability) and the user experience of students, lecturers and administrators. This apparent separation, a possible knowledge gap, motivates this review of how the two are conceptualised and empirically connected, within an ongoing doctoral study.

Methods: The review follows Joanna Briggs Institute (JBI) methodology and the PRISMA-ScR checklist, with governance and user experience equally weighted in the Population, Concept and Context framework. Google Scholar, open web and backward and forward citation searches identified English-language peer-reviewed and named grey literature (2016–2026) on online, blended or hybrid tertiary learning in sub-Saharan Africa. One reviewer screened records using structured eligibility forms, endorsed by an experienced academic, and included studies were charted and classified as governance, user experience or both. Wider database searching and dual-reviewer screening checks are planned.

Preliminary Results and Findings: Twenty-one studies from 15 countries were preliminarily eligible, nine of them from Uganda and South Africa. One addressed governance only and seven user experience only; the remaining thirteen addressed both, though usually treating one as background. Studies that explicitly connected the two suggested associations between absent or unenforced policy and disengagement or inequitable access; one Eswatini study attributed a programme's collapse to the absence of a remuneration policy for online teaching.

Discussion and Conclusion: Governance arrangements may influence online learning experiences, yet the two are rarely studied as an integrated phenomenon. Given the limited search, this gap is not yet established and needs a more comprehensive review. The completed review will inform the study's single-institution case study and sharpen later research design.

Keywords: online learning; higher education; governance; user experience; sub-Saharan Africa; scoping review

Sub-theme 3 Food, Water and Energy Value Chains

FWE-P01
POSTER

Unlocking the potential of Kigezi potatoes through use of geographical indication as a marketing solution for potato system development and promotion

Peter Nareeba *(presenting author)*

Board PB-13 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: Potatoes are a major source of nutritious food and income for Kigezi farmers, who contribute 60% of Uganda's total production. The project aims to unlock the potato value chain's potential as a geographical indication (GI) to strengthen farmers' financial empowerment, by establishing a demonstrable, evidence-based link between Kigezi's geographic origin and the potatoes' distinctive characteristics, as provided for in the Uganda Geographical Indications Act 2013.

Methodology: A cross-sectional sequential mixed-methods design, incorporating comparative product testing and laboratory analysis, will cover three districts known for Kigezi potato production. A survey will collect socio-economic and characterisation baseline data, and the product will be measured and compared with potatoes from other regions. Interviews with farmer groups and a consumer survey will validate reputation and consumer recognition, informing standardised procedures and protocols. Tuber samples and products will be assessed using Near Infra-Red Spectroscopy, with HPLC and wet chemistry used to identify criteria for improvement.

Results: Drawing on the quality characteristics profiled, the GI will be registered, and a potato farmer network will collectively own it, set standard operating procedures, and establish marketing and promotional strategies.

Significance: GI registration with the Uganda Registration Services Bureau (URSB) is expected to bring collective producer ownership, market recognition, greater bargaining power, higher incomes and value chain development for farmer groups, linked to promotion bodies such as the Uganda Co-operative Alliance, NARO and the BUBU strategy.

Keywords: Geographical Indicator, Kigezi Potato, Uganda

FWE-P04
POSTER

Market Acceptability and Sensory Attributes of Selected Solanum aethiopicum Gilo Candidate Lines in Uganda

Brenda Nakyewa *(presenting author)*

Co-authors: Martin Mutambuka, Ronald Mupuya, Newton Kucel, Elizabeth Balyejusa Kizito

Board PB-16 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

African indigenous vegetables contribute significantly to food and nutrition security, income generation, and agricultural diversification in Uganda. Solanum aethiopicum Gilo, commonly known as African eggplant, is increasingly traded in domestic markets and has potential for commercialization. However, limited understanding of consumer preferences, trader requirements, and sensory characteristics may constrain the adoption and market success of improved Gilo varieties. This study therefore aims to evaluate the market demand, trader preferences, sensory attributes, and consumer acceptability of ten S. aethiopicum Gilo candidate lines developed by Uganda Christian University.

A mixed-methods approach will be used to collect data from traders and consumers in selected markets across Mukono, Buikwe, and Kayunga. Traders will evaluate physical attributes including fruit size, colour, hardness, shape, smoothness, succulence, and overall acceptability using a tricot approach. Consumer sensory evaluation will assess fresh, chopped, and steamed fruits based on appearance, colour, aroma, taste, texture, mouthfeel, freshness, and overall acceptability using a nine-point hedonic scale. Structured questionnaires will assess consumer purchasing behavior and market demand, while focus group discussions will explore reasons underlying varietal preferences. Conjoint and regression analyses will assess consumer preferences and demand, while descriptive statistics and ANOVA will be used to compare evaluations across candidate lines.

Evaluating market demand, trader preferences, and consumer sensory acceptability will provide evidence to guide the selection of promising Solanum aethiopicum Gilo candidate lines. Aligning varietal development with end-user preferences can support potential variety release, commercialization, and improved market opportunities for farmers and value chain actors in Uganda.

Keywords: Solanum aethiopicum Gilo; consumer preferences; trader preferences; sensory evaluation; market demand

FWE-P05
POSTER

Nature of gene action involved in resistance of Uganda's cowpea germplasm to aphids

Ronald Kityo *(presenting author)*
Co-authors: Alfred Ozimati, Isaac O. Dramadri, Patrick Obia Ongom, Jeninah Karungi

Board PB-17 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Crop losses in African countries due to insect pests are estimated at 49% of the expected total crop yield each year. In cowpea, losses in grain and foliage attributed to field pests ranges from 20% to almost 100% including aphids. Insecticide use for aphid control has been the most common strategy but has been recorded to have serious public health concerns and ecological backlashes. Host plant resistance which is now the most sustainable alternative for management of aphids in cowpea fields requires a detailed understanding and knowledge of gene action involved in the resistance of cowpea to aphids. The objective of this study was to determine the nature of gene action involved in the resistance of cowpea to aphids in Uganda. Six (6) parental genotypes were cross pollinated by hand in March 2021 to generate F1 progenies which were advanced to F2. The F2 progenies together with parental genotypes were evaluated in Kabanyolo and Serere in a completely randomized block design for aphid resistance. Data were imported into the Analysis of Genetic Designs with R for windows (AGD-R) software to extract genetic components and heritability values. Results revealed high heritability values for resistance of cowpea to aphids in Uganda, indicating that the trait is controlled multiple genes. The study revealed significant ($P \leq 0.001$) general combining ability (GCA) effects and specific combining ability (SCA) effects for resistance of cowpea to aphid infestation. The presence of phenotypic differences among cowpea genotypes in both parents and segregating F2 generations for resistance of cowpea to aphids revealed in this study is important for selection of best parents and crosses for advancing into varieties or further breeding. Conclusively, aphid resistance in cowpea is highly heritable, being controlled by several genes, involving both additive and non-additive genetic effects, with predominance of additive gene effects.

Keywords: Aphis craccivora, Vigna unguiculata, heritability, gene effects, Uganda

FWE-P06
POSTER

Effect of Banana and Pumpkin Processing Treatments on the Consumer Acceptability and Physical Properties of Composite Bread

Martin Mutambuka and Edirisa Mugampoza *(presenting authors)*
Co-authors: Stephen Opiyo, Elizabeth Kizito

Board PB-18 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: Composite flour technology, involving the partial or complete replacement of wheat flour in bread-making, offers a sustainable strategy to reduce dependence on imported wheat in non-wheat-producing countries. However, incorporating non-wheat ingredients often compromises bread quality. This study investigated the interactive effects of banana and pumpkin treatments (fresh, oven-dried, pasteurized, and freeze-dried) and pumpkin variety (Local and Hybrid) on the consumer acceptability and physical properties of composite bread.

Methodology: A full factorial design (4 × 4 × 2) with 32 treatment combinations and a control was employed. Composite bread was baked using the straight dough method with 20% replacement of wheat flour (10% banana and 10% pumpkin). Bread physical properties were determined using a Texture Analyser, and consumer acceptability was assessed using a 9-point hedonic scale. Data were analyzed using three-way ANOVA, Principal Component Analysis (PCA), and Cluster Analysis (CA).

Results: All main effects, banana treatment ($F = 624.451$, $p < 0.001$), pumpkin treatment ($F = 1428.196$, $p < 0.001$), and pumpkin variety ($F = 25.741$, $p < 0.001$), significantly influenced specific volume. All two-way and three-way interaction effects were also significant ($p < 0.001$), indicating that the impact of one processing method depends on the others. The highest specific volume (4.93 cm^3/g) and lowest firmness (1.67 N) were achieved with fresh banana and fresh pumpkin treatments. The control bread exhibited a specific volume of 3.91 cm^3/g and firmness of 1.84 N. Pasteurization gave the most consumer-acceptable bread. PCA revealed that specific volume, firmness, and springiness were

the dominant quality attributes, while CA grouped the 32 treatments into four distinct quality clusters.

Conclusion: The use of fresh hybrid pumpkin improved the specific volume and firmness of the banana-wheat composite bread. Further research is needed to maximize consumer acceptability and volume while minimizing firmness.

Keywords: Composite bread; Banana; Pumpkin; Processing treatments; Specific volume; Consumer acceptability; PCA; Cluster analysis

FWE-P07
POSTER

Evaluating Factors Associated with Adherence to Safe Water Chain Practices in Mubende District, Central Uganda

Motram Mugabe *(presenting author)*
Co-author: Rodgers Tayebwa

Board PB-19 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction / Purpose: This study evaluated factors associated with adherence to safe water chain practices in Mubende District. Rural communities in Nabingoola Sub-county rely on unsafe water sources, and contaminated water threatens hygiene and sanitation and increases the prevalence of waterborne diseases. Water samples analysed exceeded WHO drinking water quality limits.

Methods: A cross-sectional study interviewed 400 households using a questionnaire. Two of six parishes were selected through multistage sampling, with random selection of villages and proportionate sampling of 180 and 220 households from the two parishes. Physico-chemical parameters were measured in situ and in the laboratory, with samples transported in ice-packed cool boxes. Membrane filtration was used for E. coli and thermotolerant coliform counts. Results were benchmarked against WHO and UNBS standards.

Results: Only 30% (95% CI: 13.3%–36.4%) of households demonstrated high adherence to safe water chain practices (meeting all seven indicators), reflecting rudimentary methods of collection, transport and storage. Mean turbidity (23.29–43.99 NTU) and colour (118–145.2 Pt-Co units) exceeded permissible limits. Free residual chlorine averaged 0.00 mg/L across sites, indicating a complete lack of treatment, and total bacterial counts at 37°C reached 9,930 per 100 mL. Adherence was associated with the education level of the household head (PR 2.964; CI 0.874–5.905) and length of residence in the area (PR 0.911; CI 0.347–5.99).

Conclusion: Adherence depended largely on knowledge of the safe water chain stages and of the benefits of safe water, with waterborne disease experience, awareness and difficulty accessing water also important. The community faces severe physico-chemical and microbiological contamination combined with low adherence, driven by distance, poor storage habits and knowledge gaps. Improved water sources within 30 minutes or 500 m, and awareness on safe water chain stages through schools and health workers, are recommended.

Keywords: Safe water chain practices; physico-chemical and microbiological quality; adherence; Mubende; Uganda

Sub-theme 4 Technology, Innovation and Sustainable Communities

TIS-P01
POSTER

From AI Users to AI Problem-Solvers: Assessing the Readiness of Ugandan Computer Science Students to Address African Challenges

Precious Nimmusiima Abangira *(presenting author)*

Board PB-20 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction / Purpose: Africa faces persistent challenges in food security, water availability, health, education and community resilience. Artificial intelligence (AI) offers growing potential to address these challenges with solutions shaped by African priorities, but doing so demands people with both technical skill and contextual understanding. As a Computer Science student studying AI as a course unit, my experience raised a broader question: are Computer Science students in Uganda being prepared not just to use AI, but to apply it in solving locally relevant problems? This study assesses students' AI knowledge, technical skills, practical exposure, confidence and ability to connect AI to African challenges.

Methods: The study uses a mixed-methods design involving Computer Science students from purposively selected Ugandan universities. A structured questionnaire will measure AI knowledge, practical experience, confidence and engagement with AI-related projects using Likert-scale and open-ended items. Semi-structured interviews with selected lecturers and technology practitioners will explore the competencies required to develop contextually relevant AI solutions. Quantitative data will be analysed using descriptive statistics and qualitative data thematically.

Expected findings: The study expects to find a gap between students' theoretical understanding of AI and their capacity to apply it to real-world problems. Students are likely to report limited access to local datasets, few practical learning opportunities and minimal exposure to African problem contexts. The findings will also examine how mentorship and university resources shape students' readiness for AI-driven problem-solving.

Discussion / Conclusion: The findings will inform targeted recommendations for integrating problem-oriented AI training, local case studies and practical projects into Ugandan Computer Science curricula. The study contributes to the broader conversation on how African universities can prepare students to move beyond consuming AI technologies toward building solutions that address the continent's most pressing challenges.

Keywords: Artificial intelligence education; AI readiness; Computer Science curriculum; African challenges; Uganda

TIS-P02
POSTER

The Blind Trust Effect: Evaluating the Extent of Generative AI Usage Among University Students

Emmanuel Eilu *(presenting author)*
Co-authors: Joseph Mutemere, Chebijira Justine, Dorothy Amony

Board PB-21 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction/Purpose: "Blind trust" means accepting AI-generated outputs without scrutiny or verification, yet AI systems are known to produce inaccurate information, misleading sources and factual errors (Spearing et al., 2025). A Deutsche Welle study found major errors in 45% of chatbot responses, and a 2025 BBC study found significant issues in more than half of the AI answers it checked (Sullivan, 2025). Uncritical reliance therefore threatens academic integrity and research credibility. Existing research has emphasised AI's usability and benefits in education, with little evidence on how often students verify AI-generated content (Abuzar et al., 2025; AllahRakha, 2026).

Objective: To evaluate the extent of generative AI use among university students, measure the trust they place in AI-generated outputs, and identify the drivers of uncritical reliance.

Methodology: A quantitative survey was conducted among students from the departments of Computing and Technology, Business, Social Science and Education at Uganda Christian University Mbale University College. Of 200 students contacted, 162 responded fully (81% response rate). Data were analysed in SPSS using descriptive statistics.

Results: Sixty-one percent of students often used generative AI tools such as ChatGPT, Google Gemini and Copilot for academic work, while 37% rarely did. ChatGPT was the most used tool (64%),

followed by Google Gemini (20%). Only 52% had received guidance from lecturers on the ethical use of AI in assignments. Overall trust in AI outputs was 89%, falling to 58% when verification was considered.

Conclusion: Generative AI is now mainstream in students' academic work, with ChatGPT dominant and use focused on information retrieval rather than complex problem-solving. The 31-point gap between overall trust and trust without verification shows that many students accept unverified AI output at face value. Uncritical acceptance, driven by time-saving motives, raises the risk of academic dishonesty, reliance on hallucinated content and declining independent research skills.

Keywords: Generative AI, Blind Trust Effect, Students

TIS-P03
POSTER

Evaluating the Scope: The Extent and Frequency of YouTube Utilization as a Supplementary Educational Resource Among Undergraduate Students

Emmanuel Eilu *(presenting author)*
Co-authors: Annet Mukoya, Richard Odoki

Board PB-22 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction/Purpose: Alongside learning management systems, video-sharing platforms such as YouTube give students informal, on-demand access to explanations, demonstrations and tutorials, with multimedia formats that can make difficult concepts easier to grasp (Alvarez-Alvarez & Ruthven, 2024; Beautemps & Bresges, 2021). Undergraduates increasingly use YouTube to clarify course concepts, but the frequency and scope of this academic use remain unquantified in many institutions, limiting their ability to curate resources, address credibility concerns or design hybrid learning.

Objective: To evaluate how frequently undergraduate students use YouTube as an informal, supplementary tool for academic study, including their data consumption and screen time, and the types of educational content they seek.

Methodology: A quantitative survey of 100 students from the departments of Computing and Technology, Business, Social Science and Education at Uganda Christian University Mbale University College used a Likert-scale questionnaire. Data were analysed in SPSS using descriptive statistics.

Results: Sixty percent of students used at least 1 GB of personal data per day, and 65% of their data went on learning and research. Most spent at least two hours a day on social media (83.5%), while 94% spent an average of two hours on online learning and 60% three hours. Forty-four percent often visited academic YouTube channels and 36% often downloaded academic videos. Most students (73.5%) said YouTube contributed to their learning: 51% used it for assignments and 49% to deepen understanding of material already taught.

Conclusion: Learning drives most students' data use, and online learning is a near-universal daily habit. Nearly half use YouTube as an active learning platform, and many download videos for offline study, likely because of data costs or connectivity. Students lean slightly towards task-oriented use. Classroom lectures alone do not meet students' academic needs, so universities should integrate and curate YouTube resources within their teaching.

Keywords: YouTube Utilization, Frequency, Students

TIS-P04
POSTER

A Resource-Efficient Hybrid Edge-Cloud Architecture for Reliable Building Energy Monitoring and Analytics under Intermittent Connectivity

Terhemba Michael Ahile *(presenting author)*

Board PB-23 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Internet of Things (IoT)-enabled smart metering provides high-resolution electricity measurements to monitor and manage energy use in institutional buildings. However, cloud-centric monitoring systems depend on reliable network connectivity, which can be problematic in resource-constrained environments. Communication interruptions, delayed transmissions, missing records, duplicated observations, and incorrect temporal ordering can compromise data availability and the reliability of subsequent energy analytics. Although edge computing offers opportunities for local processing and resilient data management, empirical evaluation is needed to determine the appropriate distribution of energy-monitoring functions between edge devices and cloud infrastructure.

This study will adopt a Design Science Research approach, supported by controlled experimental evaluation, to develop and assess a resource-efficient hybrid edge-cloud architecture for energy monitoring. A Raspberry Pi-based gateway will be used as the edge-computing testbed, with measured or replayed smart-meter data subjected to controlled communication disturbances, including delays, packet loss, duplicated and out-of-order records, and connectivity interruptions. A comparative experimental design will evaluate three configurations: cloud-only processing, edge-assisted processing, and intelligent hybrid edge–cloud processing. Performance will be assessed using data completeness, temporal integrity, analytical accuracy, communication overhead, processing latency, CPU and memory utilisation, and recovery performance. The experimental results will be analysed comparatively to establish the trade-offs between reliability, analytical performance, and computational cost under different connectivity conditions.

The study is expected to establish the relative performance of the three configurations under varying connectivity conditions. It will assess how edge processing and synchronisation affect data reliability, analytical accuracy, resource consumption, and recovery after network interruptions. The effects of temporal disturbances on phase-loading and imbalance estimates will also be examined.

The study will contribute an empirically evaluated architecture and task-partitioning approach for resilient, resource-efficient building energy monitoring. Its findings will inform the deployment of IoT-based energy-management systems in resource-constrained environments where connectivity, computational capacity, and operational continuity are critical.

Keywords: Internet of Things (IoT), Edge Computing, Cloud Computing, Building Energy Monitoring, Intermittent Connectivity, Resource Constrained Context, Data Integrity

TIS-P05
POSTER

Utilising Internet of Things, Artificial Intelligence, and Gamification to Improve Energy Efficiency in Shared Spaces and Halls of Residence

Terhemba Michael Ahile *(presenting author)*

Board PB-24 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Energy inefficiency in shared institutional and residential spaces presents both technological and behavioural challenges. Although smart metering enables detailed electricity monitoring, data alone may not translate into actionable insights or sustained energy-saving behaviour. This study aims to develop and evaluate an integrated framework combining the Internet of Things (IoT), artificial intelligence (AI), and gamification to improve energy efficiency at Uganda Christian University. The study will adopt a mixed-methods research design integrating Design Science Research, quantitative energy analysis, and participant-based behavioural evaluation across five Uganda Christian University buildings. The technical component will involve the design and experimental evaluation of a hybrid edge–cloud IoT architecture using smart meters and Raspberry Pi gateways. The intelligence component will apply time-series analysis and ML methods for consumption profiling, anomaly detection, and forecasting. The behavioural component will use gamification and participant-based data collection to examine engagement, energy awareness, and behavioural responses. Quantitative evaluation will integrate performance indicators, while participant data will be analysed to assess behavioural outcomes.

The project is expected to produce an integrated IoT-AI-gamification framework for monitoring, analysing, and improving electricity use in shared institutional and residential environments. Anticipated outputs include consumption profiles, anomaly detection, demand forecasts, and comparative building-performance insights. Evaluation will assess technical reliability, user engagement, behavioural changes, and potential energy savings. Actual outcomes will be established through empirical measurements.

The project is expected to demonstrate how IoT infrastructure, AI-driven energy analytics, and gamification can be integrated into a unified, people-centred approach to energy management in shared spaces. Integrating these insights with gamified interventions will enable the evaluation of how digital energy information may influence user engagement and energy-related behaviour. The project is expected to contribute design and evaluation insights for scalable energy-management solutions in similar environments, while identifying the technical and behavioural conditions that may support sustained energy efficiency.

Keywords: Energy Efficiency, Internet of Things, Artificial Intelligence, Gamification, Building Energy Management, Energy Literacy

TIS-P06
POSTER

Building Quantum Capacity Layer by Layer: A Component-Level Buildability Study for Quantum Hardware Development in Uganda

Robert Wanyama *(presenting author)*
On behalf of the UCU Quantum Computing Chapter

Board PB-25 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: No African country has yet built its own quantum computer, and hands-on quantum hardware capacity across the continent remains scarce. Students learn quantum theory and run programs on cloud processors hosted abroad, but rarely engage with the physical machine. This study by the Uganda Christian University (UCU) Quantum Computing Chapter asks: (1) how each subsystem of a quantum computer works and what it requires; (2) which subsystems can be built locally with present skills, materials and infrastructure; and (3) where local innovation can reduce the cost or complexity of quantum hardware.

Methods: We are comparing five qubit technologies (superconducting circuits, trapped ions, neutral atoms, photonics and silicon spin qubits) to select a reference architecture, then decomposing it into five layers: the quantum layer (qubit chip), environment (cryostat, vacuum or optical table), control (wiring, signal generation, readout), structure (mounts, enclosures, shielding) and software (compiler, control software, interface). Each subsystem will be modelled in 3D, studied in peer-led sessions, and scored for local buildability on cost, materials, skills and infrastructure.

Preliminary Findings: Leading platforms now exceed 99.9% two-qubit gate fidelity but depend on millikelvin cooling, ultra-high vacuum or advanced semiconductor fabrication not available locally. Early assessment suggests that the structural, control, software and room-temperature optical layers may be within local reach, making them promising areas for student innovation, such as low-cost control hardware and 3D-printed components.

Conclusion and Expected Outputs: Institutions can build quantum hardware capacity layer by layer rather than waiting for full-scale facilities. The study will produce a complete 3D model of a quantum computer, a component-level buildability map and a staged roadmap toward a first Ugandan prototype, offering a replicable model for teaching quantum hardware across Africa.

Keywords: quantum hardware; capacity building; 3D modelling; buildability assessment; student research; Africa

TIS-P07
POSTER

Behaviour Change Leadership: A case of mindset changes on Solid wastes sorting into separate colour coded bins for reuse and recycling

Joy Turyamwijuka *(presenting author)*

Board PB-26 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: The menace of plastic waste to the environment, the demand for recyclables and the need for organic waste for manure require careful waste sorting. However, communities in Uganda do not have sorting habits, and unless they shift from a linear-use mindset to a circularity mindset, sorting will not be achieved. Although Uganda banned the 30-micron plastic carrier bag (kaveera) in 2019, enforcement failed. The study hypothesised that availability of sorting containers and awareness of plastic pollution lead to a higher response in sorting plastic waste.

Methodology: A quasi-experimental study was undertaken at the Bishop Barham University College (BBUC) campus, involving 60 students from the Social Sciences department and staff of the hygiene services provider, WINTRUST. Participants were first sensitised about sorting waste into six colour-coded bins, labelled in English and the local language. Over ten months, BBUC students were sensitised about separating plastics from paper and organics, with observations and informal assessment conversations.

Results: Sorting was practised only at the canteen, and the bins were occasionally found with mixed solid waste. Of the 28 responses to the online survey, 71.4% used the bins correctly, 21.4% sorted sometimes and 7.1% were not keen to sort. Inadequate numbers of colour-coded bins in classroom areas and residences were cited as an obstacle. Consistent with Everett Rogers' diffusion of innovations theory, there were fast and slow adopters; the hypothesis was not supported.

Conclusion: Consistent training and adequate sorting infrastructure, backed by sanctions, are needed for behaviour change initiatives in communities.

Keywords: Behaviour Change, Urban Community, Solid Waste Management

TIS-P08
POSTER

Building Research Capacity for Technology and Innovation: A Sustainable Research Mentorship Framework for Uganda's Private Universities

Sylvia Nabasumba *(presenting author)*
Co-authors: Amaniyo Mercy, Martin Kiziito, Doreen Kukugiza, Robert Umarwoth

Board PB-27 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction: As African universities respond to rapid technological change, artificial intelligence and data-driven research, institutional capacity to generate, apply and communicate knowledge becomes increasingly important. Yet many private universities in Uganda face constraints on research productivity, including limited institutional research support, weak mentorship structures and uneven opportunities for early-career researchers and postgraduate students. This study examines the landscape of research mentorship in Uganda's private universities, its contribution to research productivity through a gender lens, and the elements required for an effective and sustainable mentorship framework.

Methods: The study adopts a mixed-methods approach combining descriptive cross-sectional and case-study designs. About 300 faculty members and 300 postgraduate students from ten private universities will be selected using stratified and simple random sampling, alongside purposively selected key informants (directors of postgraduate schools, research coordinators and mentorship programme managers). Research productivity will be measured by publications, conferences attended, grants written, students supervised and books authored. Questionnaire data will be analysed using descriptive and inferential statistics, and interview data thematically with NVivo. The framework will be developed through participatory approaches with stakeholders.

Findings: The study is expected to identify mentorship practices associated with stronger research productivity, institutional and gender-related barriers to effective mentorship, and the elements of a sustainable framework, which may extend beyond mentor and mentee to institutional and community levels.

Conclusion: The resulting research mentorship framework will guide universities and policymakers in strengthening mentorship systems, building research capacity and improving research productivity, while offering a potentially scalable model for similar African higher-education contexts.

Keywords: Research mentorship; research productivity; innovation; capacity building; sustainable knowledge communities; private universities; Uganda

Sub-theme 5 Faith, Education and Community Empowerment

FCE-P01
POSTER

Between Compliance and Care: Christian Stewardship in Sustainable Public Procurement

Pascal Muloosi *(presenting author)*

Board PB-29 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Despite regulations intended to promote sustainable public procurement in public entities, its adoption remains uneven. Some procurement officers continue to rely on conventional purchasing because sustainable options may be perceived as costly, risky, technically difficult or administratively burdensome. Yet sustainable public procurement, the integration of environmental, social and economic considerations into procurement planning, specification, supplier selection, contract award and contract management, can use public purchasing power to support environmental protection, social inclusion and long-term value.

The study argues that regulatory compliance alone may not secure substantive adoption. It proposes Christian stewardship as an ethical framework for public service, through which procurement actors approach sustainability requirements as responsibilities for the resources, communities and environmental consequences entrusted to them. Informed by Christian ideas of custodianship, care for creation, accountability and responsibility for future generations, stewardship may guide procurement officers to exercise their discretion in pursuit of public value.

The study is conceptual. It reviews peer-reviewed literature on sustainable public procurement, procurement regulation, public administration, stewardship and Christian ethics, together with relevant policy sources. Institutional Theory explains how regulation creates formal obligations and pressures for legitimacy, while Stewardship Theory explains how an ethical orientation may shape the interpretation and application of those obligations. The two are integrated into a conceptual framework linking sustainability regulation, stewardship orientation and substantive adoption.

The paper contributes an ethical stewardship framework explaining how stewardship may support responsible decisions on specifications, life-cycle considerations, supplier evaluation and contract management without weakening legal compliance, transparency or accountability.

Keywords: sustainable public procurement, Christian stewardship, regulatory compliance, public value, institutional theory, procurement ethics

FCE-P02
POSTER

Influence of Marital Breakdown on Family Business Continuity in Uganda

Dickson Tumuramye *(presenting author)*

Board PB-30 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Introduction/Purpose: Family businesses are central to private enterprise, employment, innovation, GDP, and economic stability in Uganda, yet little is known about how marital breakdown, particularly separation and divorce, affects their continuity. This study examines how separated and divorced family business owners navigate business continuity after marital breakdown. Marriage is conceptualised as any union recognised under Ugandan law: civil, religious (Christian, Islamic or Hindu) or customary, not one type of marriage. Continuity is the business surviving under the ownership or control of either former spouse, or their family, at least two years after the disruption. The study is grounded in family systems theory (FST).

Methodology: Situated within an interpretivist paradigm, the study will employ a qualitative phenomenological design. Data will be generated through in-depth, semi-structured interviews, held separately, using a purposive and snowball sampling strategy, where participants with direct, information-rich experiences of both marital disruption and family business operations are identified in Kampala, Wakiso, and Mukono, and whose disruption began at least two years after business inception. Data will be analysed using Colaizzi's phenomenological method, supported by NVivo, to illuminate the meanings and shared experiential dimensions of sustaining a family business.

Results/findings: The anticipated findings will illuminate how marital disruption reshapes the management and continuity of family enterprises, including coping mechanisms, communication strategies, relational adjustments, and pressures of shared business ownership. The study is expected to reveal how couples negotiate the overlapping demands of their personal and business lives during marital disruption.

Discussion/Conclusion: The study will extend FST into the underexplored context of divorce and separation within family enterprises in a developing economy. The findings are expected to provide evidence-based insights for governance reform and policy frameworks aimed at sustaining family businesses during familial disruption.

Keywords: Marital breakdown, family business continuity, Uganda

FCE-P04
POSTER

Enhancing Clarity and Engagement in Competency-Based Curriculum Implementation for Lower Secondary Education in Uganda: A Proposed Multiple-Case Study

Annet Musiimenta *(presenting author)*
Co-authors: Mary Kagoire, Simon Mukisa, Dickson Tumuramye and Sarah Nkabwe

Board PB-32 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Uganda's lower secondary Competency-Based Curriculum (CBC) requires changes in teaching, learning and assessment. However, schools continue to encounter difficulties translating curriculum expectations into classroom practice. Teachers' preparedness, access to instructional materials, assessment procedures and differences in stakeholder understanding raise questions about how schools can implement the curriculum effectively across diverse contexts. The proposed study will assess CBC implementation by examining the clarity of curriculum expectations, stakeholder engagement, structural and institutional barriers, and assessment practices. It will explore the experiences and perceptions of administrators, teachers, parents or guardians and learners, and examine how these shape implementation. It will also document promising practices and investigate how teacher development, instructional support and assessment procedures can respond to schools' needs.

A qualitative multiple-case study will be conducted in three purposively selected lower secondary schools in Mukono District, representing contrasting CBC implementation experiences and including a geographically isolated island school on Lake Victoria. Data will be generated through interviews, focus group discussions, classroom observations and document review. Thematic analysis will examine experiences within schools and patterns across cases, with evidence compared across participants and methods to strengthen credibility.

The study is expected to inform the development of a Context-Responsive CBC Implementation and Professional Support Model (CR-CIPS). The proposed model will link the diagnosis of school-specific implementation needs to differentiated professional development, peer learning, instructional support, resource utilisation, assessment improvement and monitoring. The model will be informed by the findings and refined through stakeholder validation. The research is currently at protocol-development stage, and no empirical findings are available.

Keywords: Competency-based curriculum; curriculum implementation; lower secondary education; stakeholder engagement; teacher development; assessment practices; context-responsive support

FCE-P05
POSTER

Holistic Transformation in the Church of Uganda: Local Congregations Navigating Faith, Praxis and Resource Constraints

Denis Ruhama Onzima *(presenting author)*

Board PB-36 · Agape Square · Judged session Thu 5 Nov, 16:00 – 17:00

Local Congregations in the Church of Uganda struggle to promote holistic transformation in their communities. Holistic transformation leads to sustainable change of the whole person spiritually, physically emotionally and economically. Meaning congregations by their very nature, are to espouse ministries that are holistic/integral. With the focus on spiritual aspect of humanity, it is not clear how local congregations are promoting holistic transformation amidst the challenges. The intention of the study was to explore how local Church of Uganda congregations have holistically transformed communities.

This qualitative study adopted multiple case study to gain insights into the holistic transformation praxis in the Church of Uganda. A total of 60 participants (members of synods, clergy and laity were purposively identified from the dioceses of Kampala, West Ankole and Madi West Nile. Semi-structured

interviews guided focused group discussions and review of church documents were employed to collect data. Michael Cowan's 2000 LIM Model (practice-theory-practice) guided the study. The study involved three steps. First, understanding the real situation on ground through collection of data from participants. Secondly, Comparing the real situation with the traditions of faith. And finally, making recommendations to improve situation for the better.

Local congregations have holistic transformation, despite challenges. The congregation teach Christians to embrace education and engage in income generating ventures, provide skills training and partners with local governments. Other congregations provided school fees, basic needs, and promoted voluntary saving and loan activities, especially among women. Members have owned these activities part of their faith practice.

Congregational holistic transformation initiatives promote effective member participation as they touch all aspects. Most importantly, local initiatives have more meaning as people learn to transform within. Congregational holistic transformation is therefore more viable strategy to transform communities than depending on donor driven initiatives which perpetuates dependency.

Keywords: Holistic Transformation, Church of Uganda congregations, Resource constraints

AGAPE SQUARE · ALL THREE DAYS

Innovation Walk-throughs

Innovators demonstrate their work at their stands during every health break and during the judged session on Thursday, 16:00 – 17:00.

IN-03
INNOVATION

Auto Swift: Leveraging Digital Innovation to Transform Roadside Assistance and Support Sustainable Mobility in Uganda

Trevor Ayeni *(presenting author)*

Stand IN-03 · Agape Square · Demonstrations during health breaks

Introduction/Purpose: Vehicle breakdowns can disrupt mobility, compromise motorists' safety, and create difficulties in accessing dependable mechanical and towing services. Auto Swift is a digital platform designed to connect stranded motorists with mechanics and towing service providers. This paper examines its value proposition as a technology-driven response to roadside assistance challenges and its potential to support digital entrepreneurship within Uganda's automotive sector.

Methods: The paper adopts a descriptive case-study approach, examining Auto Swift's platform model, service offering, target users, and potential commercial and community benefits. It considers how digital connectivity can facilitate interactions between motorists and roadside service providers. Further empirical research would be required to establish measurable impacts on response times, customer satisfaction, and business performance.

Results/Findings: Auto Swift provides a digital channel through which motorists can seek mechanical assistance and towing services. Its model offers the potential to improve service discoverability, connect service providers with prospective customers, and create opportunities for automotive service businesses to expand their reach. The platform also illustrates how locally developed technology can address practical mobility challenges while supporting entrepreneurship and digital economic participation. Quantitative evidence of its operational impact remains an area for further evaluation.

Discussion/Conclusion: Auto Swift demonstrates the potential of locally developed digital platforms to improve access to roadside assistance and contribute to innovation in Uganda's transport ecosystem. Realising this potential will depend on platform reliability, customer trust, service-provider participation, affordability, and a sustainable business model. The paper highlights the importance of strengthening local technology ventures as practical solutions to everyday challenges and as potential contributors to sustainable mobility and economic development.

Keywords: Digital innovation; roadside assistance; sustainable mobility; digital entrepreneurship; Uganda

IN-04
INNOVATION

Guild Market: A Verified, Commission-Based Campus Marketplace for Student Entrepreneurship at Uganda Christian University

Jacob Karugaba *(presenting author)*

Stand IN-04 · Agape Square · Demonstrations during health breaks

University students often engage in small-scale commerce to supplement their allowances and build entrepreneurial skills. At Uganda Christian University (UCU), however, this trade largely runs through informal social media groups, where seller identities, product authenticity, payment security and delivery arrangements are difficult to verify. The absence of a centralised, trusted marketplace limits student entrepreneurship and organised digital commerce on campus.

This project designed, developed and deployed Guild Market, an online campus marketplace providing a structured, accessible and trusted platform for student-to-student commerce at UCU. Built on the Base44 platform, it enables student entrepreneurs, artisans, retailers and service providers to set up storefronts, advertise products and services, and interact with customers. Development addressed the weaknesses of informal online trading through seller verification, administrative oversight, transaction management and secure access control.

The system verifies sellers through student identification documents and administrator approval, and offers free listings for verified sellers, server-side price validation and role-based access control. It supports product categorisation, storefront management, order processing and multiple payment

options, including mobile money, card payments and pay-on-delivery. Further features include escrow-style payment holding, GPS-assisted delivery information and an automatic five-percent commission on successfully delivered orders, intended to promote accountability and sustain marketplace operations.

Guild Market is live at guild-market.com. At the time of reporting, 18 sellers had registered, 11 of whom were actively managing storefronts. These figures show initial uptake, although further evaluation is needed to establish effects on transaction safety, user satisfaction and student business performance.

The project demonstrates the potential of a university-based digital marketplace to support student entrepreneurship as an organised alternative to fragmented social commerce. Planned improvements include direct mobile money integration, automated seller payouts, comprehensive security auditing and user feedback evaluation through a campus pilot.

Keywords: Campus marketplace; student entrepreneurship; digital commerce; seller verification; Uganda Christian University; online marketplace

IN-06
INNOVATION

Design, Field Mapping and Deployment of Roomio: A Centralized Hostel Booking and Management System for Uganda Christian University

Sarah Kamwikara *(presenting author)*

Stand IN-06 · Agape Square · Demonstrations during health breaks

Introduction / Purpose: Students at Uganda Christian University face serious accommodation friction because of fragmented information, price exploitation by unverified brokers and congestion during off-campus housing searches. Although these challenges are well documented, students lack a centralized platform and currently rely on unverified WhatsApp groups. This project aimed to design, develop and pilot Roomio, the UCU Hostel Booking System: a centralized digital platform that aggregates verified hostel data, enforces pricing transparency and digitizes the reservation workflow to support student welfare.

Methods: The system was developed using full-stack web frameworks (React.js, Node.js and MySQL), following requirements gathered from student housing surveys. To generate baseline data, a field mapping exercise across three surrounding Mukono zones verified 18 off-campus hostels, capturing room prices (UGX 400,000 to 900,000 per semester), safety compliance and amenities. A three-week pilot followed, involving 120 student users and six hostel managers. Usability was evaluated with the System Usability Scale (SUS) through digital questionnaires at the end of the pilot.

Results: Of the 18 verified hostels, 72% met baseline student safety standards. Average search time for test users fell from four days to under two hours. The pilot processed 45 direct bookings and achieved an average SUS score of 84/100, with no recorded server downtime. Direct, transparent landlord-to-student communication reduced broker exploitation by removing intermediary mark-ups.

Conclusion: Roomio bridges a campus accommodation gap, providing an evidence-backed digital platform that reduces search friction and improves housing transparency. The pilot sample was localized; future work will integrate automated payment gateways and expand hosting capacity.

Keywords: Hostel booking; digital platform; student welfare; accommodation; Uganda Christian University

IN-08
INNOVATION

Improving the Discoverability of Job Opportunities and Small Businesses Through a Digital Marketplace

Daniel Jiga Buyinza *(presenting author)*

Stand IN-08 · Agape Square · Demonstrations during health breaks

Introduction / Purpose: Access to job opportunities and business visibility remain important challenges for people seeking livelihoods and small businesses seeking customers. Young people looking for jobs and gigs may rely on personal referrals and chance to find opportunities. Tufike is a digital marketplace being developed to improve the discoverability of service providers, businesses, and opportunities. This paper presents the motivation, development, and early implementation of Tufike.

Methods: An exploratory, early-stage approach was used. Five young adults aged 25–30, recruited

from the founder's friends and acquaintances, were engaged through interviews conducted in person or online. Interviews lasted approximately 15–20 minutes; responses were documented using worksheets or Google Forms. Informal conversations were also held with five business owners about their marketing practices and challenges. User testing involved participants creating accounts, profiles, and service listings on Tufike.

Results / Findings: The interviewed young adults described relying on friends and social media to find work and gigs, experiencing inconsistent work, and sometimes missing opportunities because potential clients were unaware of their skills or availability. Business owners described competing for visibility on social media and receiving unclear client requirements. Tufike has onboarded 15 providers. Users have generated profile views and followers, but no employment, completed-gig, or customer-acquisition outcomes have yet been confirmed. Some provider profiles remain incomplete.

Discussion / Conclusion: Early findings identify discoverability challenges among the participants and inform Tufike's ongoing development. The platform provides a mechanism for providers to present their skills and offerings, but its effectiveness in improving access to work and customers remains unestablished. Further evaluation should examine user engagement, opportunity matching, and actual employment and business outcomes. Findings are preliminary and cannot be generalised from this small, convenience-based sample.

Keywords: Digital marketplace, job discoverability, small businesses, technology and innovation, sustainable communities

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Organising Committees and Acknowledgements

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CONTACT

Symposium Coordinator: Prof. Elizabeth Balyejusa Kizito · ebkizito@ucu.ac.ug · 0752 141 377

Abstracts and scientific programme: scientific@ucu.ac.ug

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