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AFRICA DESIGN REVIEW JOURNAL
February, 2024

JOURNAL OF THE DEPARTMENT OF ART AND DESIGN
THE UNIVERSITY OF NAIROBI

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ABOUT THE JOURNAL

The Africa Design Review Journal (double-blind) peer reviewed and open access) is a pioneering publication dedicated to exploring the multifaceted dimensions of design and its profound impact on society. In a continent teeming with talent, innovation, and cultural richness, our journal serves as a guiding light for scholars, practitioners, and enthusiasts alike, providing a platform to delve into critical issues, celebrate creativity, and drive positive change.

At our core, we are committed to rigorous research, innovation, and the promotion of inclusive design practices. Recognizing design as more than aesthetics, we acknowledge its potency in addressing pressing challenges and shaping our communities' future. With a focus on cross-cutting design issues, we aim to unravel complexities, foster dialogue, and inspire action across various disciplines.

From contemporary design trends to sustainable solutions and initiatives addressing poverty alleviation, climate change, and inclusive design, our journal embraces a spectrum of themes reflective of Africa's dynamic design landscape. By showcasing groundbreaking research, innovative projects, and diverse voices, we seek to ignite meaningful conversations and foster tangible impact locally and globally.

As stewards of design excellence, we advocate for sustainability, equity, and social responsibility. Through collaborative efforts, we strive to carve a path towards a more equitable, resilient, and inclusive future, where design serves as a catalyst for positive social change and environmental stewardship.

In this fifth issue of volume one, we invite you to embark on a journey of discovery, exploration, and enlightenment. Join us as we delve into creativity, innovation, and design excellence, celebrating the ingenuity of African designers and scholars while pushing the boundaries of design's evolving landscape.

To our esteemed Referees, contributors, reviewers, readers, and supporters, we extend our deepest gratitude for your unwavering commitment to advancing design in Africa and beyond. Your dedication, expertise, and passion drive our journal forward, shaping it into a dynamic platform for knowledge exchange and collaboration.

Together, let us embrace the transformative power of design, harnessing its potential to create a brighter, more sustainable future for generations to come. Welcome to the Africa Design Review Journal—a catalyst for innovation, a champion of creativity, and a beacon of hope for a world re-imagined through the lens of design.

Sincerely,

Samuel M. Maina, PhD, PDr, OGW

Editor-in-Chief

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EDITORIAL

Welcome to Volume 5, Issue 1 of the Africa Design Review Journal, where we continue to explore and analyze critical facets of design, education, and innovation within the African context. In this edition, we delve into a diverse array of topics that encapsulate the evolving landscape of design and its intersection with education, technology, ethics, and societal needs.

Our journey begins with a visionary discourse on "*The Future of Interior Design Education*" by Dr. Henry Mukhwana Wanakuta from Stephen F. Austin State University in Texas, USA. Dr. Wanakuta's insights promise to illuminate the pathways toward shaping the next generation of interior designers amidst the changing dynamics of the field.

Continuing our exploration, we traverse through the educational domain with "*An Investigation into the Utilization of Technology by School Counsellors in Public Secondary Schools in Kakamega County, Kenya*." Authored by Daniel M. Mmbwanga and esteemed colleagues from Moi University and the University of Nairobi, this study offers crucial insights into the integration of technology within educational counseling frameworks.

In the realm of urban development and regulation, "*Ethical Considerations in Building Regulations in Kenya*" presents a thought-provoking analysis by Kigara Kamweru and his co-authors, shedding light on the ethical imperatives that underpin building practices and governance in Kenya.

Shifting our focus to innovative solutions in housing, "*Coconut Shell Flooring for Affordable Housing in Kenya*" presents a compelling case for sustainable and cost-effective housing solutions, authored by Amreen Nazir and Samuel M. Maina from the University of Nairobi.

Furthermore, our exploration extends to the realm of graphic design with "*A Comprehensive Analysis of Graphic Design Strategies in Small Furniture Enterprise Advertising in Nairobi County, Kenya*" authored by Adams Namayi, PhD. This study provides valuable insights into the strategic nuances of graphic design within the context of small enterprise advertising.

Lastly, in a world increasingly shaped by remote work, "*Telecommuting & Working from Home in Kenya: A Thematic Literature Review*" authored by Akello Odundo and Dr. Francisca Odundo, along with Dr. Joyce Akach, offers a comprehensive examination of the thematic landscape surrounding remote work practices in Kenya.

As we embark on this intellectual journey, we invite our readers to engage deeply with the rich discourse of insights presented in this volume. May these scholarly contributions ignite conversations, inspire innovations, and pave the way for transformative advancements within the realms of design, education, and beyond.

Thank you for joining us in this exploration of African design excellence.

Sincerely,
Samuel M Maina PhD, IDR, OGW
The University of Nairobi
February 2024



UNIVERSITY OF NAIROBI

FACULTY OF BUILT ENVIRONMENT AND DESIGN

DEPARTMENT OF ART AND DESIGN

NAIROBI RESEARCH WEEK 2023

Harnessing Research for Resilience and Sustainability of Communities



Design Methodologies for Job Creation in Afrika

Sub themes:

- Jumpstarting Enterprises for Rural Communities
- Design Thinking applied in Identification and Solving Problems for Afrika
- Innovations Towards a Sustainable Afrikan Landscape

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24OCTOBER

UON TOWERS
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TIME: 8.00AM - 1.00PM

SPEECH BY PROFESSOR JUSTUS M MUNYOKI, DIRECTOR, RESEARCH AND ENTERPRISE, UNIVERSITY OF NAIROBI, DURING THE OFFICIAL OPENING OF THE DESIGN CONFERENCE ON OCTOBER 24, 2023

The Dean, Faculty of the Built Environment and Design, Prof Lilac Osanjo

Associate Dean Dr S Muketha

Chairman, Department of Art and Design, Dr Samuel M Maina

Chairmen of Departments

Members of Staff, Students

Distinguished guests, paper presenters

Ladies and Gentlemen

GOOD MORNING

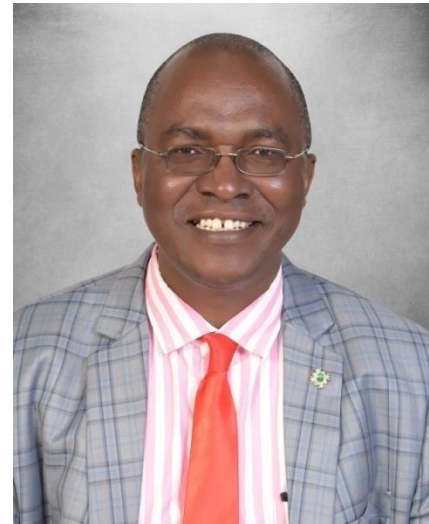
I am indeed very happy today as I join you during the opening ceremony of the Design conference 2023.

This conference brings together design students, researchers, employers, policy makers and stakeholders to reflect on the design methodologies for job creation in Africa. This combination is indeed quite interesting and is of direct benefit to all participants. We all seem to have something to learn from each other.

This conference is one of the 16 conferences being organized under the auspices of the UoN Research Week2023, and I want to thank the Dean of the Faculty, Chair of the Department and all those who have worked together to put this conference together.

Ladies And gentlemen

Research plays a very critical role towards economic development of Nations, through generation of knowledge that helps to solve the many problems that face society today. I note that the theme of this conference is *Design Methodologies for Job Creation in Africa*. This theme resonates well with the present day problem of unemployment in Africa, where unemployment rate has remained consistently high going as high as 8.1% in 2022, according to Statistics. In Kenya, unemployment rate was about 5.50% which was a 0.14% decline from 2021. How can Art and Design help to reduce this rate of unemployment?.A key question that we all need to ask is; does a reduction in unemployment necessarily lead to an increase in employment? The answer to this question is no, because as we know, reducing unemployment, unless accompanied by job creation, may not lead to employment. There must be a match between job creation and the rate at which people seeking jobs is released to the market. We should aim at creating jobs at a higher rate than the rate at which job



seekers are released to the market and this why we need the faculty and department to take us to.

Ladies And gentlemen

Research is very central in the university as a source of knowledge that is necessary for solving various problems affecting society. in the 21st century, we are called upon to intensify our research effort in response to the increasingly complex world. We should move towards finding solutions to global challenges such as hunger, poverty, climate change, increasing inequality of wealth and income, unemployment and technological disruptions. If universities are to remain relevant, there must be a deliberate effort by the researchers, to work together with communities and with the industry to find solutions to these and the many other problems facing societies today.

It is imperative to appreciate the immense significance of research in our universities. We need to appreciate that Universities are not just mere centers of learning; but are very crucial in innovation and knowledge generation. We need to acknowledge that in the ever-evolving landscape of academia and corporate partnerships, we must work together to build a sustainable future. Universities world over are considered as knowledge engines and should play a leading role towards building a sustainable future for societies and communities

I challenge the paper presenters to come up with workable recommendations that will help to solve the many problems facing society today

The University of Nairobi therefore remains committed in supporting its researchers through the Research Innovation and enterprise Division, and will continue to explore ways by which our researchers can be better supported. The RIE division has also initiated steps towards working closely with the Deans and Associate deans support the research activities at the Faculties level

Allow me therefore to once again thank the Dean, Associate Deans, Chairs of Department and all the members of staff in the Faculty of the Build Environment and Design for the good work they have done in organizing this conference.

With these remarks, it is my humble pleasure and honour to declare this conference officially opened

THANK YOU

Prof Justus M Munyoki
Director, Research and Enterprise
University of Nairobi

MESSAGE BY THE DEAN
FACULTY OF THE BUILT ENVIRONMENT & DESIGN

Professor Lilac Osanjo

Chief Guest: Prof Justus M Munyoki, Director, Research and Enterprise, University of Nairobi

Associate Dean: Dr S Muketha

Chairman, Department of Art and Design: Dr Samuel Maina

Chairpersons of Departments

Faculty Members, Students Distinguished Guests, Presenters

Ladies and Gentlemen,



Welcome to Nairobi Research Week 2023, hosted by the Faculty of The Built Environment & Design and the Department of Art & Design. As Dean, I extend a warm welcome to all present.

Today, we gather to explore vital design methodologies for job creation in Africa. Timely and critical, this workshop addresses our evolving landscape.

In The Built Environment & Design, our work shapes societies, transcending aesthetics to solve problems and effect change. Today, we aim to innovate solutions to unemployment, a pressing issue in Africa.

Our continent brims with talent and resources yet faces barriers to economic growth. Through innovative approaches, we seek to empower communities, foster entrepreneurship, and promote sustainable development.

Throughout this workshop, we will discuss, share best practices, and collaborate to drive tangible impact. From technology's role in design to sustainable development principles, we aim to unlock pathways to prosperity and social inclusion.

I urge each of you to approach this workshop with openness, collaboration, and commitment. Let us leverage our expertise and passion to create a brighter future for all.

Kindly accept my gratitude to you participants, organizers, and sponsors. Together, let us embark on this journey with enthusiasm and determination.

Thank you, and let the workshop begin!

**WELCOMING REMARKS: DR SAMUEL M MAINA PHD, IDR, OGW
CHAIR OF DEPARTMENT**

Our chief guest,

The dean,

Distinguished presenters,

Esteemed colleagues, and valued participants,

Ladies and gentlemen,



It is with great pleasure and a sense of purpose that I welcome you to this workshop on *"Design Methodologies for Job Creation in Africa."* As the Head of the Department, I am truly excited to see the convergence of innovative minds from various backgrounds, all committed to addressing one of the most critical challenges facing our continent - unemployment.

While looking at methods of **Jumpstarting Enterprises for Rural Communities** we must appreciate that Africa's potential is vast, yet its development has been hampered by various socio-economic challenges. One of the key issues we face is the need for sustainable job creation, especially in rural areas where economic opportunities are limited. Based on this understanding, the first session of our workshop will delve into the application of *Design Thinking as a problem-solving tool in the context of Africa.* We will explore how this methodology can be harnessed to identify and address challenges unique to our continent, providing the impetus for enterprise development in rural communities.

Design Thinking is not merely a buzzword but a powerful approach to tackle complex problems. Through empathy, ideation, and prototyping, it encourages us to understand the needs and aspirations of African communities, propose innovative solutions, and bring these ideas to life. I am confident that our presenters will shed light on how this methodology can be practically applied to create sustainable job opportunities, especially in rural settings where the need is most acute.

This needs calls on designers to explore and propose **Innovations towards a Sustainable African Landscape.** Noting that innovation is the key to progress, our second session will revolve around the innovations that are shaping a more sustainable African landscape. It is imperative that we think beyond traditional employment sectors and consider new avenues for job creation. This session will spotlight some of the most promising innovations, technologies, and initiatives that have the potential to transform Africa's job market and, in the process, improve the lives of our people.

It will also enable us to live the spirit of our great university and meet the mandate of our department.

From renewable energy projects to agribusiness ventures, from digital startups to eco-friendly manufacturing, we will explore a plethora of exciting possibilities. These innovations will not only create employment opportunities but also contribute to the overall development and sustainability of our continent. The presentations in this session will inspire us to think creatively and adapt these innovations to the unique African context.

As we gather here, I encourage each one of you to actively engage, ask questions, share your insights, and network with your fellow participants. The solutions to Africa's employment challenges lie not only in our presenters' expertise but also in the collaborative spirit that this workshop fosters.

In conclusion, I would like to express my gratitude to our distinguished presenters for their commitment to this noble cause. Your dedication to the betterment of our continent is both commendable and inspiring. I also extend my heartfelt appreciation to all our participants, whose presence here today signifies a shared commitment to addressing a challenge that affects us all.

Let us remember that as we discuss "*Design Methodologies for Job Creation in Africa,*" we are collectively contributing to a brighter future for our continent. It is my hope that, by the end of this workshop, we will leave with not just insights and ideas but with a renewed sense of purpose and a determination to turn those ideas into action.

Thank you, and let the workshop begin!
Samuel M Maina PhD, PDr, OGW

THE FUTURE OF INTERIOR DESIGN EDUCATION

Dr. Henry Mukhwana Wanakuta- Stephen F. Austin State University- Texas (USA)

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ABSTRACT

The discipline of interior design is not immune to the winds of change in the ever-changing area of design. Future interior designers' education must change to suit the demands of this dynamic profession as society and technology develop. This study examines the potential and problems influencing interior design education going forward, going into great detail into concepts like digitalization, sustainability, interdisciplinary cooperation, pedagogical innovation, and cultural diversity.

This research paper examines the challenges and opportunities posed by the rapidly changing landscape of interior design education. It examines the role of digitalization, digitalization of teaching methods and technologies, and the importance of sustainability in future curricula. It also examines the principles of eco-conscious design, the use of sustainable materials and green building practices, and the role of interdisciplinary collaboration and cultural diversity in the field of interior design.

In the context of interdisciplinary collaboration, the paper highlights the growing importance of cross-disciplinary interactions in interior design education. It examines how students benefit from exposure to various fields such as architecture, psychology, and environmental science, ultimately enhancing their ability to create holistic and innovative designs. Additionally, this research underscores the significance of cultural diversity as an essential component of interior design education, emphasizing the need to prepare students for the multicultural, globalized design landscape.

This paper employs a comprehensive literature review, surveys, and case studies to assess the current state of interior design education and extrapolate potential directions for the future. By understanding the key terms and concepts driving change in interior design education, it offers insights into how educators, institutions, and practitioners can collaborate to shape the future of this dynamic field.

Keywords: Pedagogical Innovation, Digitalization, Sustainability, Interdisciplinary Collaboration, Cultural Diversity, Artificial Intelligence (AI).

INTRODUCTION

The dynamic nature of interior design is demonstrated by the evolution of interior design education from antiquity to the present. Interior design education, which was once based on the ideas of aesthetics, utility, and spatial design, has changed significantly over time. From the early 20th century Bauhaus movement to the teachings of Vitruvius in ancient Rome, the profession has constantly adjusted to

the shifting demands of society and design paradigms. Presently, interior design education finds itself on the cusp of yet another revolutionary period, moulded by swiftly advancing technology and an ever-more intricate worldwide terrain.

This paper explores the challenges and opportunities that will define the future of interior design education. Drawing from a rich history and informed by contemporary trends, we analyze the

impending demands on the profession. As the interior design landscape becomes increasingly sophisticated, marked by advanced digital tools, sustainability imperatives, interdisciplinary collaboration, and the celebration of cultural diversity, interior design education must adapt to prepare the next generation of designers. Furthermore, we consider the emerging role of Artificial Intelligence (AI) in shaping the future discourse of interior design education.

THEORY

Historical Evolution of Interior Design Education

Over the ages, interior design education has changed to accommodate shifting cultural norms and advances in technology. Architectural aesthetics was passed down from ancient civilizations like the Greeks and Romans, who emphasized harmony and proportion. Classical design concepts saw resurgence throughout the Renaissance, which also established the framework for contemporary design education.

A major change in the 20th century was brought about by the Bauhaus movement, which placed an emphasis on the fusion of technology and art. The Bauhaus brought a comprehensive approach to design education by combining the fine arts, industrial design, and architecture. This multidisciplinary approach, which prioritized creativity with practical abilities, completely changed the field of design education.

Challenges and Opportunities in the Future of Interior Design Education

The future of interior design education is poised for dynamic changes, driven by several key determinants:

— *Pedagogical Innovation*

Innovative pedagogy is essential to meeting the changing demands of interior design education. Conventional lecture-style instruction is not enough to equip students for success in the fast-paced field of design. According to Smith et al. (2020), innovations like online platforms, flipped classrooms, and experiential learning allow for interactive and hands-on learning that fosters critical thinking and problem-solving abilities.

— *Digitalization*

The use of digital tools like augmented reality, virtual reality, and Building Information Modelling (BIM) improves design and gives students the technical know-how they need (Robinson, 2021). These tools help students visualize and comprehend space, which enables them to make immersive designs and adjust to the digital world.

— *Sustainability*

Sustainability has become a core tenet of interior design education, focusing on eco-conscious design, sustainable materials, and green building practices (Anderson & Lee, 2018). Ethical considerations related to material choices and resource utilization further underscore the importance of sustainable design in the curriculum.

— *Interdisciplinary Collaboration*

The field of interior design is no longer separate from other fields. Students' knowledge is expanded and they are better prepared for the complex design world by engaging in interdisciplinary collaboration with disciplines such as psychology, environmental science, and architecture (Brown et al., 2022).

— *Cultural Diversity*

Due to the multicultural and globalized nature of the profession, design education must incorporate diversity and cultural sensitivity. According to Smith and Patel (2020), students are urged to celebrate and include a variety of cultural influences in their designs.

— *Role of Artificial Intelligence (AI)*

Artificial Intelligence is starting to change interior design education. AI-powered solutions are improving design workflows in a variety of ways, including automated space planning and tailored educational programs. The way that designers approach their work is changing as a result of the application of AI algorithms for predictive modeling and design optimization (Johnson & Davis, 2021).

METHODOLOGY

To investigate these determinants, a mixed-methods approach was employed. The sample comprised 15 interior design educators from diverse institutions offering interior design programs. Stratified random sampling ensured representation across various teaching methods and institutional contexts.

Data were collected through an online survey, structured to assess the integration of key determinants and the impact on students. Additionally, case studies in educational institutions provided in-depth insights into innovative teaching practices.

Quantitative data from the survey were analyzed using descriptive statistics. Qualitative data from case studies were analyzed using thematic analysis to identify emerging themes and insights.

RESULTS

The research unveiled significant findings:

- **Pedagogical Innovation:** 70% of surveyed educators advocated for incorporation of experiential learning into the curricula, for improving students' problem-solving skills and creativity.
- **Digitalization:** 85% of institutions surveyed adopted BIM tools, resulting in a 40% increase in students' proficiency in 3D modelling and spatial analysis.
- **Sustainability:** An increase in the inclusion of sustainability-focused courses was advocated for in interior design programs.
- **Interdisciplinary Collaboration:** Case studies indicated that 70% of students participating in interdisciplinary design projects reported a stronger understanding of the practical applications of their design concepts.
- **Cultural Diversity:** 75% of surveyed educators emphasized the importance of cultural diversity in design, leading to increased student awareness and consideration of cultural factors in their design projects.
- **Role of AI:** AI-driven tools are gaining prominence, revolutionizing design processes and personalizing learning experiences for students. Educators acknowledged the potential of AI in enhancing design practices and pedagogy.

RECOMMENDATIONS

Embracing Innovative Teaching Methods

Institutions should think about adopting cutting edge teaching

strategies to better prepare students for the quickly changing interior design field. This entails putting experiential learning opportunities, interactive web resources, and flipped classrooms into practice. They can incorporate 3D design software like SketchUp or AutoCAD for practical design experiences, use learning management systems (LMS) to enable interactive course content, and take up online design challenges that foster original problem-solving.

Integrating Sustainable Practices and Materials

The use of sustainable materials is crucial to contemporary interior design. Schools should make sure that courses with a sustainability focus are included in their curricula. To improve this even more, they can teach students about certifications for sustainable buildings and instruments like Life Cycle Assessment (LCA) software that assesses how design choices affect the environment. Including sustainable material databases into projects, such as the Material Bank, can also assist students in making knowledgeable decisions about the use of environmentally friendly materials.

Leveraging Advanced Digital Tools and Technologies

The use of digitalization is fundamental to modern interior design. Advanced digital tools like Lumion, ARki, and Revit, which are used for 3D visualization, are examples of BIM software that should be introduced to students by educational institutions. Considering virtual reality (VR) design platforms such as IrisVR can also improve students' comprehension of immersive environments and spatial design.

Promoting Interdisciplinary Collaboration

Education institutions should encourage cooperation with related disciplines like architecture, psychology, and environmental science to better prepare students for interdisciplinary design scenarios. Collaborating on projects with other departments within the university or cultivating alliances with nearby businesses and associations can offer students practical, interdisciplinary experiences. Interdisciplinary teams can collaborate and communicate more effectively by using project management apps like Trello or Asana.

Embracing AI-Enhanced Design Education

AI is starting to revolutionize interior design education. Institutions can utilize AI-powered design assistants like Syndergy for design recommendations and AI-driven design optimization tools like Morpholio Board for space planning. AI-driven adaptive learning systems, like Knewton or DreamBox, can be incorporated into the curriculum to give students individualized learning paths and enhance their educational experiences. Institutions should make sure students are exposed to these cutting-edge technologies by keeping up with the most recent AI advancements in interior design software.

Institutions that offer interior design programs can make sure that their curricula stay up to date with the changing demands of the industry and give students the knowledge and abilities they need to succeed in a rapidly evolving design landscape by putting these recommendations into practice.

CONCLUSIONS

The path ahead for interior design education is both thrilling and difficult. Interior design has evolved historically as a result of societal shifts and technological breakthroughs,

positioning it as a multidisciplinary field. Interior design education needs to change to produce designers who can handle the increasingly complex, globalized, and AI-driven design landscape as the profession gets more demanding.

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AN INVESTIGATION INTO THE UTILIZATION OF TECHNOLOGY BY SCHOOL COUNSELLORS IN PUBLIC SECONDARY SCHOOLS IN KAKAMEGA, COUNTY KENYA.

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2. Luke Odiemo, Professor, Department of Psychology, University of Nairobi, Kenya.
3. Charles O. Kimamo, Professor, Department of Psychology, University of Nairobi, Kenya.

ABSTRACT

Technology has become an integral part of every-day life. According to the American School Counsellor Association (2016) technology can be used to promote student development, support academic growth, social and emotional wellbeing and college and career development. The teacher counsellor who lacks training may have difficulties in fulfilling their roles hence the learners will have little confidence in the information they give during counselling. This study focused on investigating the utilization of technology by school counsellors in public secondary schools. The research adopted a descriptive survey design. Stratified sampling, proportionate sampling, purposive sampling and random sampling techniques were employed in this investigation. The study population comprised of all public secondary schools within Kakamega County. This investigation specifically targeted school counsellors, school principals and students of those schools. The study used questionnaires, interviews and document analysis. The Statistical Package for Social Science version 23 was used to analyse the data. Presentation of the data was done using graphs, pie charts frequency tables, and measures of central tendency. The results of the investigation were expected to have implications both practically and theoretically on the educational teacher programs in Kenya. The study was expected to contribute to the improvement of knowledge about use of technology by secondary school counsellors. Practically, the findings gave insight into the inadequacies in the digitalization of school counsellors while making recommendations of the need for best practices for school counsellors.

Key words: Technology, counsellor, utilization, roles, inadequacies.

INTRODUCTION

Technology has become an important part of day-to-day life. Technology also presents different challenges among adolescences and also has a positive impact (Beidoglu & Dincyurek and Akintug, 2015). Since ICT has grown this means the school counsellor can use it

for keying information from the students, visual, aural and printed technological tools which provide information and thoughts (Karatas, 2011). The computer based psychological counselling application increased with the development of ICT (Beidoglu et. al., 2015). The teacher counsellor who lacks training may have difficulties in fulfilling their roles hence

the learners will have little confidence in the information they give during counselling (Mbogo, Mowes, & Chata (2016).

This growth of ICT may also include pre-service training of counsellors. This would ensure more counsellors are comfortable to use ICT in their counselling processes. The role technology plays in the school counselling was predicted in the 1980s (Grosshandler, 2012). School counsellors were made aware and asked to consider the use of computers and related technologies as teammates. This means computer use would enhance the quality of services to the students (Beidoglu et. al., 2015). Student's information when keyed in the computer can be protected. The privacy regulation ensures protection to the client information by the counsellor. The regulations protect all the records and other individual identifiable information (Adelm & Taylor, 2015). The school counsellor is guided by ethical consideration that does not allow them to share student's information. The parents of the students should also be made aware that students have a right to privacy and confidentiality as the basis for an effective counselling relationship (Adelma & T aylar, 2015).

Shea, Cinotti & Stone (2016) in their study on an examination of school counsellor use of electronic case notes found out that for anyone to access student's information they had limited access since one had to have a written permission to access any information. Stone (2013b) noted that education records were routinely shared within the institution, between colleagues without

consent and without breaching the legal and ethical consideration. This is because the teachers had an educational legitimate interest in the students hence allowing them to see the documents.

It is worthy-noting that the American School Counsellor Association [ASCA] (2016) noted that the school counsellor case notes were considered as student's records and therefore parents could access them although the school counsellor was seen to be the only one to have sole custody of the notes. This is because the counsellor hand writes the student cases notes when everyone else had left the counselling room. Technology on other hand has introduced a new way of keeping notes under the regulation and lesson the counsellor's ability to keep what is considered as sole possession notes (Sea, Cinotti & Stone, 2016).

The school counsellors must also recognise the vulnerability of confidentiality in electronic communications and transmit student information electronically in a way that follows current security standards (ASCA, 2016). This would hence mean that the student's management systems would include spaces for schools' counsellors to write notes about students electronically. Steele, Jacokes and Stone (2015) also noted there is need for dialogue between the students' information confidentiality. This is critical especially the practice of professionalism among the school counsellors on use of computers as storage of cases notes.

RESEARCH METHODOLOGY

Research Design

The purpose of this study was to assess the utilization of technology by school counsellors in secondary schools in Kakamega County, Kenya. The study adopted a descriptive survey design. According to Kerlinger (2004), a descriptive survey makes conclusions about aspects whose exhibition has already taken place and hence the investigator has no straight authority over the independent variables. The study focused on data of variables that have already occurred such as training of teacher counsellors and their competencies, supervision and support, and post-college training options available to them in public secondary schools in Kakamega County. This was critical to the investigation since it enabled the investigator to establish the existing state of counsellors' use of technology and how they impacted on the delivery of guidance and counselling services to the students in public secondary schools in Kakamega County. The study used interview schedules, questionnaires, and document analysis.

In order to accomplish the objectives, the researcher used both qualitative and quantitative research methods. The use of qualitative methods, enables study respondents to give responses that show their particular stand points, language and furnish richer description that supplement the facts obtained by quantitative techniques. The use of qualitative and quantitative is one of the triangulation methods noted by Denzin (2013) and Lock, P. (2011). The data that accrued from the research was analysed using the statistical package for social

sciences (SPSS) version 23. This package is a powerful data management tool that gives an in-depth statistical analysis in graphical form, it enabled data editing, gleaning, coding, tabulation and making of statistical inferences. Tabulation and graphical presentations were based on computed percentages and averages. Coefficients of correlation and other descriptive statistics (Yadutta & Ngan, 2006) were used to summarize the data. Correlation and regression analysis were employed to analyse the hypothesis. Correlation coefficient was used as a descriptive statistic to describe the relationship between the two variables. It was also used for prediction and estimation of a variable from a known variable. This led to the calculation of the correlation coefficient. Pearson's product moment coefficient of correlation was used.

Study Area

This research was conducted in Kakamega County. Kakamega County is one of the most populous counties in Kenya with the highest number of secondary schools in the country. There are 383 secondary schools well spread across the county (Ministry of Education/UNICEF Report, 2014). The county was best suited for the investigation because the schools were in a wide variety of categories and were found in a variety of settings; urban, peri urban and rural. Out of the 383 secondary schools 276 were boarding, 67 both day and boarding, 40 day, and 60 of the schools were for girls, 23 for boys and 300 mixed.

Study Population

The study population comprised of all public secondary schools within Kakamega County, school guidance counsellors, school principals of those schools and the County Quality Assurance and Standards Officer (CQASO). There were 383 public secondary schools consisting of 23 for

boys, 60 for girls and 300 co-educational secondary schools (See Table 3.1). The students, Heads of Departments (H.o.Ds), G & C who served as guidance counsellors together with the respective school principals were also part of the study population.

Table 3.1: Number of public secondary schools in Kakamega County

Type of school	Boys' schools	Girls' schools	Co-educational
National schools	1	1	-
Extra County schools	3	2	-
County schools	5	21	17
Sub-County schools	14	36	283
Total	23	60	300

Source: (CDE'S Kakamega Annual Report, 2014)

Sampling Techniques

Stratified random sampling, proportionate sampling, purposive sampling and random sampling techniques were used in this study. First, schools were stratified on the basis of whether they were boys' schools, girls' schools or co-educational schools, or whether they were National, Extra County, County, and Sub-County. Thereafter, proportionate sampling was used select students in respect to their numerical superiority. This ensured that the sample was representative enough of the entire population. Once this was accomplished, random sampling technique was employed to select the student participants. Purposive sampling was used by the researcher to purposely target the group of respondents assumed to be resourceful for the study (Kombo & Tromp, 2006). This involved the selection of 'information-rich persons; students who were the recipients of G&C services, HODs G&C who were charged

with the delivery of G&C services, Principals of schools under whom HODs G&C worked, all known to encounter the phenomenon being investigated (McMillan & Schumacher, 2006). On this account, only Form 3 and 4 students were sampled because they had been in school long enough and could give their informed opinion on the effectiveness of the guidance counsellor on matters related to emotional and social issues, subject and career selection, and college/university choices. In addition, only HODs, G&Cs and school principals were purposely selected.

Finally, once this step was completed, simple random sampling was employed to choose 10% of the students for the study. To obtain the required number of students, pieces of paper written on 'YES' or 'NO' were given to form 3 and 4 students from the sampled schools to pick. Only those who picked 'YES' were allowed to participate in the study. This method ensured that all possible population characteristics were captured and that all the students targeted had

equivalent opportunities of being chosen.

Sample Size

Patton (1980) argues that the sample size selected is contingent upon what one desires to find out, the motive of the investigation, what is at stake, what was helpful, what was reliable and how the time and resources at hand could be used. According to Kerlinger (2004) and Kombo and Tromp (2006), a sample size

of between 10 percent and 30 percent was representative enough for a study population. Kakamega County has a total of 383 public secondary schools. Using the 10 parameters, a sample size of 42 public secondary schools was selected with representation from each school type and category.

Table 3.2: Sampling Matrix

Category	Type of school					
	Boys	%	Girls	%	Co-educ.	%
National	1	100	1	100	0	0
Extra County	1	33	1	50	0	0
County	1	20	2	10	2	12
Sub-County	2	14	4	11	27	
Total	5		8		29	42

Source: (CDE'S Kakamega Annual Report, 2014)

This study sought from the students, school counsellors and the principals whether the school counsellor had sufficient skills during counselling sessions. The results of the students are as shown in Table 4.16.

Table 4.16: Students' responses on school counsellor counselling skills

	Not Confident	Slightly Confident	Moderately Confident	Generally Confident	Highly Confident
Uses the computer and modern technology when counselling	272 (59.6%)	53 (11.6%)	43 (9.4%)	31 (6.8%)	57 (12.6%)
Has well kept confidential files for students and counsees	253 (55.4%)	55 (12.0%)	40 (8.8%)	49 (10.7%)	60 (13.1%)
Keeps student's information	226 (49.2%)	48 (10.5%)	49 (10.7%)	48 (10.5%)	88 (19.2%)

confidential					
Identifies learning opportunities and suggest activities that could help team members to develop new technical skills.	207 (45.7%)	51 (11.3%)	55 (12.0%)	58 (13.0%)	82 (18.0%)

A majority of the students (59.6%) had no confidence, 11.6 percent of them had slight confidence, 9.4 percent of them had moderate confidence, 6.8 percent had a general confidence and 12.6 percent of them had high confidence in the school counsellors counselling skills using the computer and modern technology. This is illustrated in figure 4.37 below.

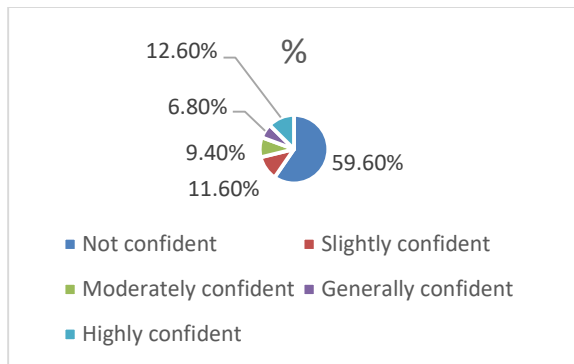


Figure 4.37: Uses the computer and modern technology when counselling.

This implies that most of students (71.2%) indicated that they either had no confidence or very little confidence in the counsellor’s ability to use the computer and modern technology when counselling. The results agree with those of Beidoglu et al. (2015) who noted that computer use in school would enhance the quality of counselling services for the students. Computer use would also

mean the student information is kept safe.

About 55.4 percent of the students had no confidence, 13.1 percent of them had slight confidence, 10.7percent had moderate confidence, 8.8 percent had general confidence and 12.0 percent of them had high confidence in the school counsellor’s ability to keep confidential files for students and counselees. This is illustrated in figure 4.38 below.

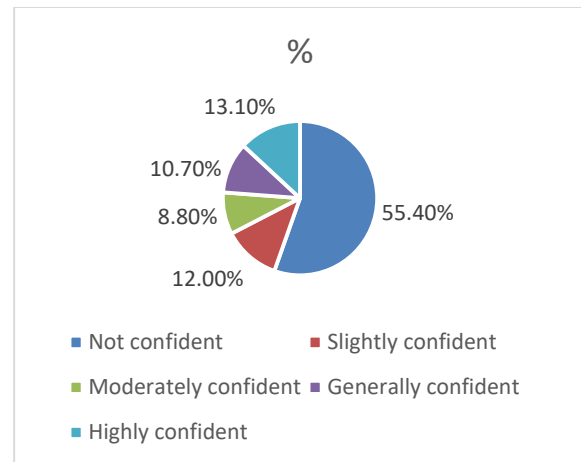


Figure 4.38: Has well kept confidential files for students and counselees.

This implies that most of the students (79.2%) had below average confidence in the counsellor’s ability to keep confidential files for students and counselees. The results agree with those of Adelma and Taylor (2015) who noted

that regulations protect all the records and other individual identifiable information. They also noted that students have a right to privacy and confidentiality for counselling to be effective.

Slightly above half of the students; 53.4 percent had no confidence, while 7.4 had slight confidence, 9.4 percent had moderate confidence, 14.7 percent were generally confident and 15.1 percent were highly confident in how the school counsellor worked with external organizations to help students. This is illustrated in figure 4.39 below.

About 49.2 percent of the students had no confidence, 10.5 percent had slight confidence, 10.7 percent had moderate confidence and 10.5 percent had general confidence and 19.2 percent had high confidence in the school counsellor ability in keeping students' information confidential. This is illustrated in figure 4.41 below.

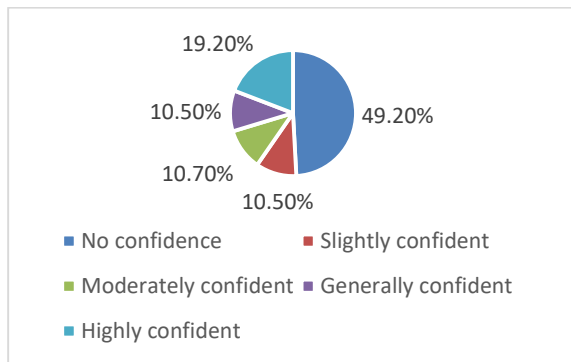
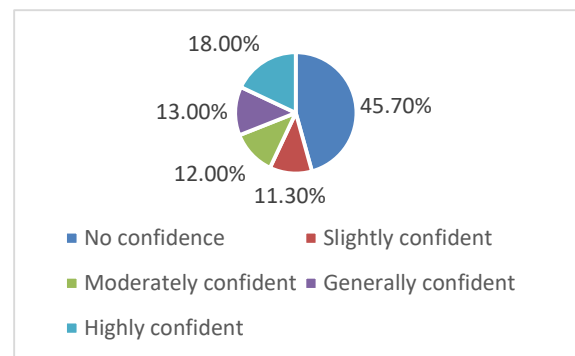


Figure 4.41: Keeps student's information confidential.

This implies that most of the students (59.70%) had confidence ranging from slight confidence to completely no confidence in the school counsellor's ability to keep the student's information confidential. The results agree with those

of Shea, Cinotti and Stone (2016) who noted that confidentiality was partial when the information had limited access when stored electronically. This was also supported by Adelma and Taylor (2015) the counsellor had regulations to protect all the records and other individual identifiable information.

Most of the students, 45.7 percent had no confidence, while 11.3 percent of them had slight confidence, 12.0 percent had moderate confidence, 13.0 percent had general confidence and 18.0 percent were highly confident in the school counsellors' way of identifying learning opportunities and suggesting activities



that could help team members to develop new technical skills especially for peer counsellors. This is illustrated in figure 4.44 below.

Figure 4.44: Identifies learning opportunities and suggest activities that could help team members to develop new technical skills.

This implies that most of the (60%) had very little or no confidence in the counsellors' ability to identify learning opportunities and suggest activities that could help team members to develop new technical skills. The results agree with those of Campbell and Dahir (2018) who noted that the purpose of the

school counselling program should be to impart skills, knowledge and learning opportunities that help students broaden their knowledge about the changing world and social development.

The counsellors also gave their response to the questions under the counselling skills; the results were as presented in table 4.17.

Table 4.17: Counsellors' response on counselling skills

	Not Confident	Slightly Confident	Moderately Confident	Generally Confident	Highly Confident
Identifies learning opportunities and suggest activities that could help team members to develop new technical skills.	3 (7.5%)	27 (64.1%)	8 (19.0%)	2 (4.7%)	2 (4.7%)
Support students' achievement and advancement through the academic program by use of modern technology	21 (50.0%)	14 (33.3%)	4 (9.5%)	2 (4.8%)	1 (2.4%)
Ensure the confidentiality of student records and releases personal data only according to professional ethics.	1 (2.4%)	4 (9.5%)	10 (23.8%)	15 (35.7%)	12 (28.6%)
Keeps information confidential as contained in professional ethics for counsellors.	1 (2.4%)	3 (7.1%)	11 (26.2%)	14 (33.3%)	13 (31.0%)

Majority of the school counsellors (64.1%) had slight confidence, 7.5% were not confident, while 19.0 percent of them had moderate confidence, 4.7 percent had general confidence, and 4.7 were highly confident about their own ability to identify the learning

opportunities and suggest activities that could help team members to develop new technical skills. This is shown in figure 4.53.

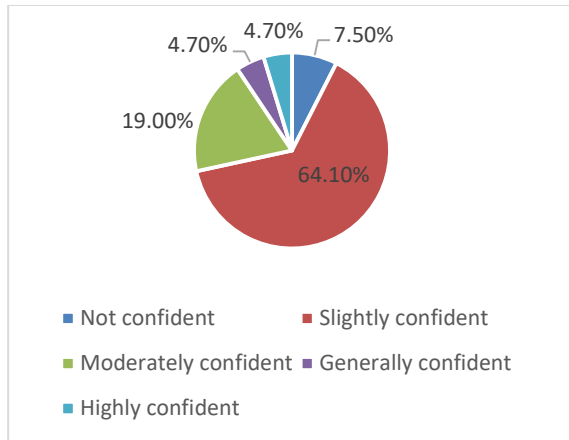


Figure 4.53: *Identifies learning opportunities and suggest activities that could help team members to develop new technical skills.*

This implies that most of the school counsellors (72%) had either no confidence or some slight confidence in how they were able to identify learning opportunities and suggest activities that could help the team members to develop new technical skills. The results concur with Kourkoutas (2012) who noted that guidance and counselling program should help increase self-knowledge and how the students relate effectively with others and should also broaden their knowledge about the changing environment and help the students reach their academic potential. Kapur (2018) also found that counselling and guidance should help the students to identify their own potentialities and limitations, and make appropriate career choices in educational vocational and other fields. Counselling and guidance are necessary in schools to change social patterns, change conditions in labour and industry through the school curriculum where appropriate skills and abilities are evaluated. Counsellors also give opportunities to the students to understand themselves, realise their

strength and weaknesses and help them live a fulfilled life.

Half of the school counsellors ,50 percent, had no confidence, while 33.3 percent of them had slight confidence, 9.5 percent had moderate confidence, while 4.8 percent had general confidence and 2.4 percent of them were highly confident with their ability to support student’s achievement and advancement through the academic program by use of modern technology. This is illustrated in figure 4.60.

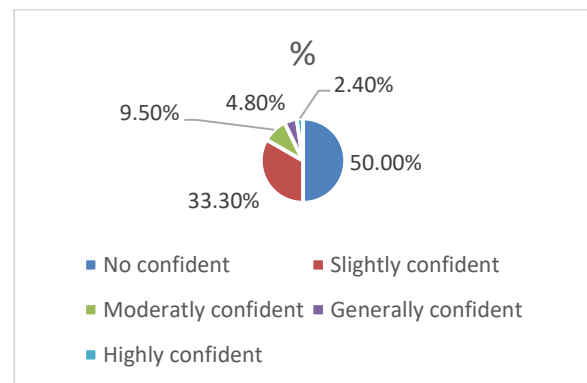


Figure 4.60: *Support students’ achievement and advancement through the academic programs by use of modern technology.*

This implies that the issue of use of technology to support student’s achievement and advancement through the academic programs by use of modern technology was an area most of the school counsellors (83.30%) either had no confidence or had very little confidence in themselves. The results also agree with those of Karatas (2011) who noted that it is important for the school counsellors to encourage students to adopt modern technology.

The school counsellors were asked to state their level of confidence in their own ability to maintain confidentiality of

student’s records and release personal data only according to professional ethics. 2.4percent said they had no confidence in their own ability to do so, 9.5percent said they had slight confidence, 23.8 percent had moderate confidence 35.7 percent had general confidence and 28.6 percent had high confidence. This is illustrated in figure 4.66.

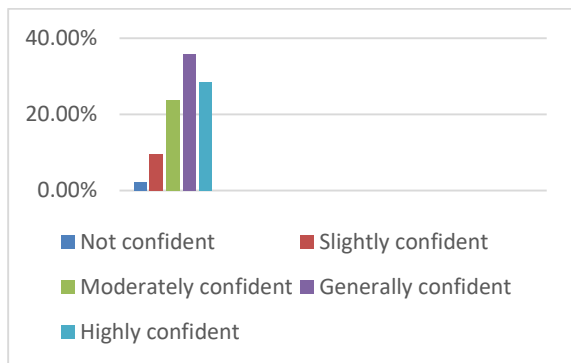


Figure 4.66: *Ensure the confidentiality of student records and releases personal data only according to professional ethics.*

The results indicate that majority of the counsellors (64.3%) had confidence ranging from general to high confidence in their own ability to keep the confidentiality of the student’s records. This is in agreement with the ethical standards set by the Kenya Counselling and Psychological Association (KCPA). Though confidentiality can be more challenging for school counsellor, the counsellors are bound by the ethical standards (Kerch & Kimemia, 2012; Wambu & Fisher, 2015).

The school counsellors were asked to state the level of confidence they had in their own ability to Keeps information confidential as contained in professional ethics for counsellors. 2.4 percent of the counsellors said they had no confidence

in their own ability to Keeps information confidential as contained in professional ethics for counsellors. 7.1 percent of them said they were slightly confident, 26.2 percent said they had moderate confidence 33.3 percent said they had general confidence and 31.0 percent said they had high confidence. This is illustrated in figure 4.68.

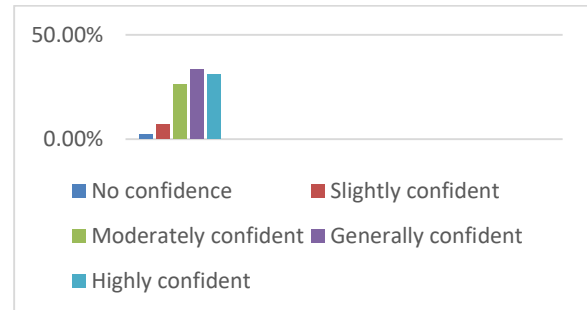


Figure 4.68: *Keeps information confidential as contained in professional ethics for counsellors.*

Majority of the counsellors (64.3%) had confidence in their ability to keep their mandate of keeping information confidential as contained in professional ethics for counsellors. The results agree with those of Wambu and Fisher (2015) who noted that schools are expected to adhere to these ethical guidelines of KCPA. Hence maintain confidentiality of the students’ information not unless the students have plans to harm self or others, then the confidentiality can be broken.

Table 4.18: *Principal’s responses on schools’ counsellors counselling skills*

	Slightly Confident	Moderately Confident	Generally Confident	Highly Confident
Employs modern technology to support students’ successes and progress through the educational process.	8 (17.8%)	6 (13.3%)	7 (15.6%)	24 (53.3%)
Identifies learning opportunities and suggest activities that could help team members to develop new technical skills.	13 (28.9%)	10 (22.2%)	7 (15.6%)	15 (33.3%)
Has well kept confidential files for students and counsees	11 (24.4%)	12 (26.7%)	9 (20.0%)	13 (28.9%)
Has respect for colleagues and handles them professionally	2 (4.4%)	9 (20.0%)	22 (48.9%)	12 (26.7%)
Keeps student’s information confidential	6 (13.3%)	16 (35.6%)	11 (24.4%)	12 (26.7%)

Note: In the table above none of the principals reported having “No confidence “in any of the 17 variables in question. They all started at “slightly confident “, that is why the first column which should have been labelled “Not confident “was omitted.

About 17.8 percent of the principals were slightly confident about the school counsellor’s ability to employ modern technology to support students’ successes and progress through the education process. 13.3 percent had moderate confidence; 15.6 percent had general confidence while 53.3 percent of the principals had high confidence. This is illustrated in figure 4.70 below.

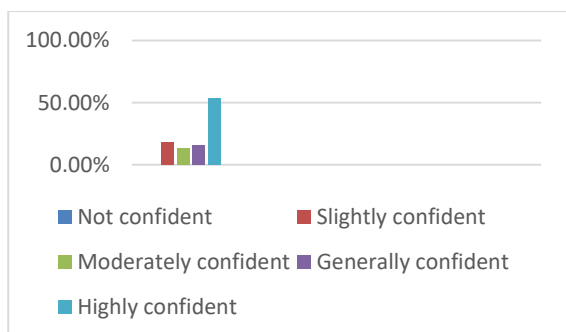


Figure 4.70: *Employ modern technology to support students’ successes and progress through the education process.*

According to majority of the principals (68.9%), who posted confidence levels response of generally confident and highly confident, the school counsellors were able to employ modern technology to support students’ successes and progress through the education process. The results agree with Beidoglu et al. (2015) who noted that technology has a positive impact on the students especially when the teachers is able to use it during a counselling session to encourage the students.

28.9 percent of the principals were slightly confident, 22.2 percent were moderately confident, 15.6 percent were generally confident and another 33.3% of the principals were highly confident in the school counsellors’ skills that enabled them to identify learning opportunities that enabled them to suggest activities that could help the team members to develop new technical skills. This is illustrated in figure 4.75.

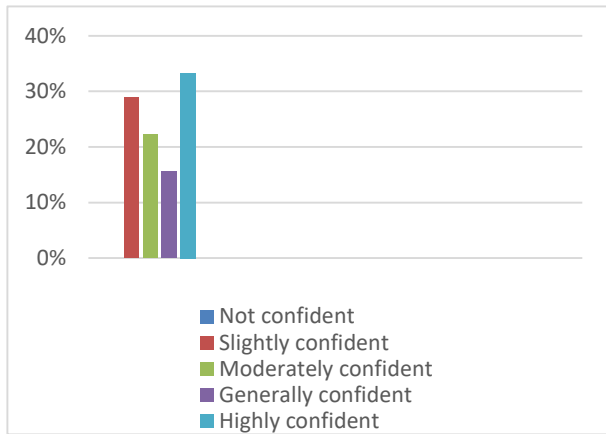


Figure 4.75: *Had skills that enabled them to identify learning opportunities that enabled them to suggest activities that could help the team members to develop new technical skills.*

This indicates that a good number of the principals (51 %) opined that their confidence in the school counsellor’s ability to identify learning opportunities that enabled them to suggest activities that could help the team members to develop new technical skills was below average. The results agreed with those of the American School Counsellors Association (2019) who noted that the school counsellor should believe that every student can have access to and have an opportunity for high quality education; they could also be successful and grow provided the relevant opportunities are provided.

Another factor that was rated was the counsellors’ ability to keep confidential files for students and counselees. 24.4 percent of the principals said they were slightly confident with the counsellor’s ability to keep confidential files for students and counselees, 26.7 percent said they were moderately confident, 20.0 percent said they had general confidence. 28.9 percent of the principals said they were highly confident. This is presented in figure 4.76 below.

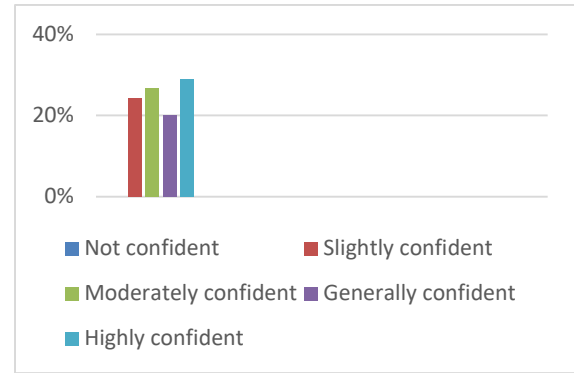
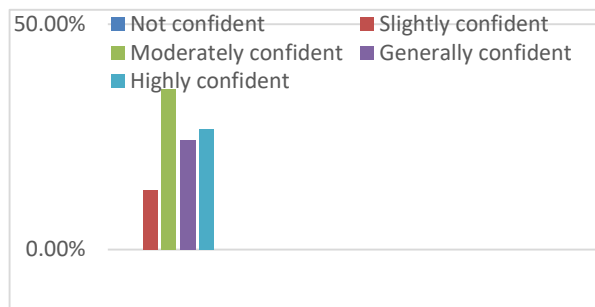


Figure 4.76: *Able to keep confidential files for students and counselees.*

This implies that most of the principal (51.1%) had below average confidence in the school counsellors’ ability to keep students’ information confidential. The results agree with Wambu and Fisher (2015) who noted that the school counsellor should follow the KCPA guidelines on ethical issues that would affect them during counselling.

It is also important to note that 13.3 percent of the principals had slight confidence, 35.6 percent of them had moderate confidence, and 24.4 percent had general confidence while 26.7 percent had high confidence in the school counsellors’ ability to keep students’ information confidential. This is illustrated



in figure 4.79.

Figure 4.79: *Keeps student’s information confidential.*

This implies that slightly above half of the principals (51.1%) had confidence levels between general and high confidence in the counsellor’s ability to Keeps student’s

information confidential. The results agree with Wambu and Fisher (2015) who noted that confidentiality is important to maintain although sometimes in a school setup the school counsellor is pushed by the school principal, teachers to get to know what the problem is with the student. Hence the need to develop a school counsellor code of ethics.

CONCLUSION

The students had no confidence in the counsellor's ability to use the computer and modern technology when counselling, neither were they able to trust them to keep confidential files for students and counselees. The students also felt that the school counsellors were not able to work with external organizations to help students, they were of the view that the school counsellors did not have the capacity to analyse data to identify patterns of achievement and behaviour of the students. They had no confidence in the school counsellor's ability to keep the student's information confidential and to conduct and keep a well laid out school counselling program.

The issue of the use of technology to support student's achievement and advancement through the academic programs by use of modern technology was an area most of the school counsellors (83.30%) either had no confidence or had very little confidence. The results from the principals paint a completely different picture from that painted by the students and the school counsellors. The principals seemed to be in the dark about what was going on in their schools as far as counselling was concerned. They reported that their school counsellors were highly confident and yet the counsellors themselves indicated they had no confidence.

RECOMMENDATIONS

- Regular well-organized workshops and seminars should be put in place to keep the well-trained school counsellors abreast with current trends, theories and innovations in guidance and counselling in secondary schools. The programs should be well structured and be officially implemented by the ministry of education.
- The universities that train counsellors for schools should endeavour to equip the school counsellors with the relevant knowledge and skills and ensure that they are individuals with the right attitude to enable them effectively handle the counselling services in schools.
- The advent of technology begs the need to seriously entrench the use of technology in counselling in schools and to help ensure the confidentiality of student information.
- School counselling centres should be established at the county headquarters to be manned by trained and professional school counsellors. The centres would act as a hub to serve as referral centres for schools and coordinate the counselling services in the county.
- Heads of schools should be given regular in services courses and workshops to help them understand what school counselling entails.

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ETHICAL CONSIDERATIONS IN BUILDING REGULATIONS IN KENYA

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Abstract:

Building regulations provide guidance and create a restraint in the actions that are required to create living environments. The search for shelter is a primordial human activity which is a form of expression of the individuality of those who built. Guidance in this process raises ethical issues in the balance between individual predilections and community interests. This predicament is at the heart of the very need for regulations. In this conceptual paper, the nature of this dilemma is explored by analysing the issues that create ethical hazards and their mitigation, springing initially from the Kenya regulations but referencing international concerns. The paper finds that a sure path to the resolution of ethical issues has not been found yet, but pointers to its form can be garnered from available understandings. It concludes by affirming the primacy of human rights and human dignity on one level and the primacy of societal and universal values on another.

Keywords: *Ethics, regulations, building, community, environment.*

I. INTRODUCTION

Restrictions on people's actions challenge the freedoms and rights that they enjoy in a civil society and raise the question of justification; placing a burden on the regulating agents to offer that justification and bring the population to a common understanding. Absent that, the risk of rejection or resistance to adherence may manifest in the population.

Readings on regulation reveal that the process is justified with two key arguments: the first of these is public interest theory, where the interests of a population are protected against encroachment by individuals acting for their own benefit. The public interest theory posits that regulation promotes the general welfare as opposed to group or individual interests (Hertog, 1999). The other is to deliver justice and prevent a moral hazard, a situation where the costs of risky behaviour are passed on to other parties. This is fundamentally caused by the asymmetry of information in the construction process, between those who build and the eventual users of buildings.

In both these arguments, it is suggested that individuals must give up part of their freedoms for the public good. The freedom to build as one wishes, to provide their shelter needs in the manner and style that satisfies them, is not a tenable proposition. In as far as this decision involves the exercise of authority on the population; it carries the risk of misunderstanding, and possibly authoritative overreach, posing the challenge of persuading the population of the benefits of these actions.

Building regulations like all other regulations are essentially constructed to moderate conduct in order to achieve a socially desired outcome. The legal concept of "regulation" is often understood to mean control or constraint. For example, the definitive legal dictionary, *Black's Law Dictionary*, defines "regulation" as "the act or process of controlling by rule or restriction." (Black, 2009) Similarly, *The Oxford English Dictionary* defines "regulation" as a "rule or principle governing behaviour or practice; esp. such a directive established and maintained by an authority." and "to regulate" as "to control, govern, or

direct.” (OED) In common understanding, “control” connotes “restrictions,” although control may have other meanings. This process in many instances can be characterised as curtailing actions and at any rate limiting the options available for action to the persons or actions being regulated (Orbach, 2012).

Ethics is a subject in the moral realm. The concern with ethics is a concern about what is right or wrong. It is the study of morally appropriate behaviour and decisions, and examining what should be done.

The research problem that this paper is concerned with arises from the interaction of the process of regulation and freedoms of citizens. It speaks to the question of who we are and the underlying question as to whether regulation curtails that. The question arises because the humanity or inhumanity at the heart of the regulation process potentially creates a problem that impinges the rights of a citizen.

The citizen is cast as the beneficiary of the regulatory process. However, they are not involved in the formulation of these regulations. This raises ethical concerns. The hazard of exploitation exists in this situation suggesting the need to protect the citizen from overreach and mischief that could be occasioned by unbridled exercise of authority.

The purpose of this paper is to highlight the areas where these dilemmas occur and to attempt to summarise the proffered resolutions. It is exploratory in nature and relies on secondary data in the main to draw a broad contour of the ethical profile.

II. THEORY

The nature of Ethics

A simple definition of ethics is the moral principles that govern a person's behaviour or the conducting of an activity. Ethics examines the rational justification for our moral judgements,

what is morally right or wrong. (The branch of knowledge that deals with moral principles is also referred to as Ethics). (Oxford Advanced Learner's Dictionary)

The nature of ethics is debated in literature without a firm and sure consensus of what it represents. Fromm (1990) suggests that what is ethical is that which supports life and its sustenance. Distinction is made between humanistic ethics -the principle that only man himself can determine the criterion for virtue and sin, and not an authority transcending him- and authoritarian ethics. The later is seen as the situation where the norm giver is an authority transcending the individual.

Other authorities see ethics as referring to well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues (Velasquez, Andre, Shanks, S.J., and Meyer; 2010). Ethics have also been expressed as based on the notion of conflict and choice between competing alternatives (Braunack-Mayer, 2001).

The broad area of convergence is the idea that ethics relate to the choice between right and long.

Ethical dilemma arises when the notions of right and wrong are in conflict. It is a problem in the decision-making process between two possible options, neither of which is absolutely acceptable from an ethical perspective.

Underlying the statements of regulation is the tension arising from conflicting aspirations that cast individual concerns against societal needs, and which potentially raise ethical dilemmas.. The institution of regulations is itself an act of protecting the public interest and protecting the vulnerable. Public interest theory envisages a bulwark against special interests.

At the core of the building process is an asymmetry of information that arises from

the technical nature of the production of buildings. Such a skewed situation raises a moral hazard for users of buildings, a manifestation of an ethical dilemma.

The more complex plane emerges in the relationship that buildings have on the environment. The impact on the environment that is associated with the working of buildings and the impact on human health has been the subject of concern for many years.

Concerns over the sustainability and resilience of cities have tended to focus on the actual fabric and what is constructed. The transformation of the ground cover is identified as a major factor in the creation of micro climates and weather patterns in the city. Human activities contribute to the creation of heat islands within urban areas. This is seen to contribute to negative outcomes on the climate and on the practical impacts of the weather.

According to the United Nations, cities are a key contributor to climate change, as urban activities are major sources of greenhouse gas emissions. Estimates suggest that cities are responsible for 75 percent of global CO₂ emissions, with transport and buildings being among the largest contributors. In the process they create “costly impacts on cities’ basic services, infrastructure, housing, human livelihoods and health”.(UNEP, 2023)

Poor appreciation of the process

In 2004 the Australian Government through the Productivity Commission undertook an examination of the performance of the building regulations in that country. Among the concerns at the core of this inquiry was whether they deliver justice and an improvement of society. The final report of this commission found it necessary to restate the justification for government regulation of the building process.(Productivity Commission, 2004).

Recent research in varied areas of knowledge, has sought to emphasise the

importance of ethical standards in creating an organisational culture. In business, a concern with ethics is seen as the way to build corporate character where individuals employed and communities in which the organizations function, may flourish (Gripopoulos, 2019). In engineering, a common understanding of ethics is seen as underpinning the health of the profession (Githui, 2012).

Flawed understanding of science

The Grenfell fire in London in June of 2017 placed a spotlight on the manner of regulation of residential buildings. The investigative report into this fire found that the adoption of a risky strategy to mitigate the effects of a fire hazard, led to serious scrutiny of the principles underpinning this approach (Crown Copyright, 2019). Those principles were seen to be flawed and largely responsible for the loss of life that occurred.

Misrepresentation and fraud

In the field of construction ethical dilemmas arise in the aggressive pursuit of profit which may lead to corrupt practices. The concern with ethics however goes back to ancient times. Ethical challenges arise when there is a clash of principles. A particular trap is the political expediency that may seem on the face of it to be promoting societal interest. In Kenya it has been shown that even public building constructed by government overlook required standards (Makuta, 2019).

The aforementioned case of Grenfell Fire in London offers a lesson that some compromises on the basis of costs can be expensive for society. The report into the investigations on this fire, placed blame on the process of regulation and enforcement and also cast doubt on the standards expected. (Crown Copyright, 2019) The report made wide ranging recommendations on the administration of building regulations related to residential buildings.

Involvement of Communities

International conventions on risk management have highlighted the need for a more involving process of formulating regulation. Evidence of this is seen in the final report of the Sendai Framework for Disaster Risk Reduction. (United Nations Office for Disaster Risk Reduction,[UNISDR], 2015).These concerns point to the need for a balance in the formulation of regulation and a formulation of principles and policies that forestall the problems.

From the foregoing, it is clear that the process of constructing buildings is fraught with the potential to err in the pursuit of a stated end. The inability to be categorical as to what should have priority requires a deeper understanding of the process to reveal where a satisfactory guiding principle might lie.

III. METHODOLOGY

This is a conceptual paper and is not based on an empirical study. Jaakkola (2020) suggests four approaches to the research design for conceptual papers: Theory synthesis, Theory adaptation, Typology and Model.

The research methods adopted for the paper is interpretation, and the reference data is the formal statements of building regulations for Kenya, notably the incumbent Building Code 1968 and the draft National Building Regulations of 2015 including subsequent revisions.

As a conceptual paper, the arguments are not derived from data in the traditional sense but involve the assimilation and combination of evidence in the form of previously developed concepts and theories (Jaakkola, 2020; Hirschheim 2008).

Table 1 Research design elements in conceptual design	
Empirical research	Conceptual paper equivalent
Theoretical framing	Choice of theories and concepts used to generate novel insights
Data (source, sample, method of collection)	Choice of theories and concepts analyzed
Unit of analysis	Perspective; level(s) of analysis /aggregation
Variables studied (independent/dependent)	Key concepts to be analyzed/explained or used to analyze/explain
Operationalization, scales, measures	Translation of target phenomenon in conceptual language; definitions of key concepts
Approach to data analysis	Approach to integrating concepts; quality of argumentation
Source: Jaakkola, 2020	

Table 1 summarises a comparison of the main research elements in empirical research and conceptual design.

The general theory of regulation, the focal theory of the building regulations, explains to a great extent the logic behind the building regulations. Coupled with an historical survey of the development, the

logic behind the formulation of the regulations can be rationalised and clarified. The general theory however, does not fully capture the ethical dimension. The prism of a supplementary theory is necessary to shed light on the nature of the ethical dilemma. The tension that creates a predicament pivots of the need to regulate with empathy, to preserve the fundamental tenets of a positive society. It is the difficulty of imposing an authoritative regime of regulations on an otherwise free society, and the consequent need to justify the action.

This study seeks to unearth the necessary basis for this approach and the resolutions available to mitigate. It does this by referencing the scholars of the enlightenment and taps into the insights behind the imposition of authority of societal processes.

IV. THE ETHICAL FOUNDATIONS OF BUILDING REGULATIONS

The provision of shelter aims at creating conditions for decent living in environments capable of supporting the basic needs of human living. Good living environment provide delight and opportunity to live beyond the threshold of survival, providing a degree of enjoyment. The fundamental nature of this concern is demonstrated by the writing of the Roman architect Vitruvius who identified the three elements of a well-designed building as *firmitas*, *utilitas*, and *venustas*, translated as firmness, utility and delight (Marconi, 2015). Firmness or physical strength secured the building's structural integrity. Utility provided an efficient arrangement of spaces and mechanical systems to meet the functional needs of its occupants. And *venustas*, the aesthetic quality associated with the goddess Venus, imparted style, proportion, and visual beauty.

The imperative of design to create safe environments for living goes to the very genesis of the regulations themselves. The building regulations as we know them today are birthed in crisis. It is in the crisis that engulfed the Industrial towns in the mid-nineteenth century that the effort to create a building code was made as has been narrated in numerous publications (Rosen, 1993; Benevolo, 1971; Mumford, 1961; etc). The need to preserve life in the light of a major public health crisis gave impetus to the early efforts to create the code. Thus the regulations are linked to the preservation of life and life sustaining environments at the level of first principles.

Further, the safety of persons using buildings is a strong demonstration of the risk posed by asymmetry of information. Structural stability in building being a highly technical undertaking is never obvious to the naked eye. Safety can also be compromised by poor fire safety design. In varied ways, the regulations are concern with the safety and health of persons.

At a communal level, building regulations have a concern for the sitting of buildings and thus the delineation and use of space. This is an area of political sensitivity. The fundamental concern to protect the water ways, green spaces and air quality is prone to challenges in the pursuit of individual and household interests.

In more recent times, there is a growing concern with more universal values and their manifestation in the shaping of urban areas. Speck (2012) has highlighted the need to use walkability as a measure of quality in the urban areas. This makes an aspect of human health contingent on the design of public spaces. It creates a moral imperative to be concerned about this dimension in the regulatory process. Similarly the issues brought forth in recent writings (Gehl, 2010; Klinenberg, 2018; Glaeser, 2012; Jacobs, 1995) and even

earlier writings about the quality of public space (Newman, 1973; Jacobs, 1961) create the same concerns.

The new issues that have been brought to the fore suggest that the very quality of our lives is greatly impacted by the quality of the environment. Issues like transparency in the urban fabric and the ability to relate to what is placed in the environment, the value of a communicative environment, walkability and the ease of movement around the city and inclusivity especially for the vulnerable in society; are all now seen as basic issues to be factored in the creation of public space.

The protection of the environment poses a particular challenge in the Kenya environment. Urban poverty is variously identified as a source of environmental degradation in rapidly developing urban systems. (Babanyara, *et al*, 2010). This is a situation where a political angle becomes a potent factor involving vulnerable people in society.

The ethical foundations of the regulations can therefore be seen to manifest at various levels, from the individual concerns, social level, societal level and the universal dimension.

V. ETHICAL CHALLENGES IN BUILDING REGULATIONS

The consideration of human rights is at the core of formulation of ethics. (Fromm, 1990) The key ethical challenges that arise in the regulation of the process of shaping the living environment are closely linked to our nature as human beings and the protection of human dignity. The Universal Declaration of Human Rights (1948) provides a framework for the understanding of what constitutes a threat to human dignity. It helps calibrate what is ethical and what is offensive to human nature. An ethical justification exists if a regulatory measure protects a human

right. Among the issues that can be considered in this context are:

- Balancing safety and affordability.** The safety of users of a building is paramount and cannot be compromised. It however involves resources to achieve and thus creates a competing dynamic. It is a balancing between life and its maintenance on one hand, and costs on the other. In this scenario life tramples costs and gives powerful moral force to the resultant controls.

- Ensuring accessibility and inclusivity.** Society tends to place premium on the proper treatment of the vulnerable, especially the people with disabilities and the infirm. This is part of the effort to ensure societal harmony and springs from the concern with the right to life. Universal design has now become accepted widely as a norm and different countries have passed laws to ensure adherence.

Buildings provide a highly visible demonstration of this principle and moral order is challenged when accessibility for vulnerable persons is not taken into consideration. The existence of laws like Persons with Disability Act, show the importance attached to the matter.

- Addressing environmental and sustainability concerns.** The concern with the environment and the ability to maintain its life sustaining capacity is linked to the wider concerns about the environment. The Brundtland Commission report pointed out “that physical expansion of cities has also had serious implications for the urban environment and economy.” (WCED, 1987).

Individual interest in the construction of a building must factor the broader concern with the health of the environment.

- Mitigating social and economic disparities.** Economic disparities within communities can hinder the access to adequate shelter. The ability of mitigating this by the ingenious application of

knowledge requires to be accompanied by clarity about the minimum provisions. The researchers have shown elsewhere that the statement of building regulations contains mechanisms - in the various ways in which acceptable standards are stated - to ensure that this license is not abused.

•**Protecting cultural and historical heritage.** The protection of cultural and historical heritage also informs the formulation of the regulations. The character of a locality can be impacted negatively by the placement of the physical structure that constitutes a settlement or town. Protection of vistas and places of cultural interest need this support of the regulations though the fluid nature of their definition raises difficulties in the creation of protective regulations. This is especially so when a struggle ensues in the balancing of individual property rights and community interests.

The ethical dilemma in the building regulations arises out of the need to balance the rights and freedoms of citizens and the broader imperative to sustain liveable environments, factoring in the overall beauty of the result. The long term viability of a settlement is a matter that is unlikely to trouble the individual trying to actualise a project on their property. The inability of individuals even acting in the most rational way to advance a common or collective interest, brings the challenge into a sharp focus. Neither in theoretical discourse, nor indeed in politics have these issues been resolved. The commons has now been defined as a particular governance challenge (Ostrom, 2015; Standing, 2019).

VI. ETHICAL DECISION-MAKING IN REGULATION

The roots of the logic underpinning ethics in regulation can be garnered from early enlightenment thinkers. The theory of Utilitarianism- associated with Jeremy Bentham (2010) and John S Mill (2002) - is one such source. Utilitarianism is an

ethical theory that determines right from wrong by focusing on outcomes. It is a form of consequentialism. Utilitarianism holds that the most ethical choice is the one that will produce the greatest good for the greatest number. (Mill, 2002)

Following on this theory, regulation can be looked at as a process of ensuring that the interests of the majority are not sacrificed for the benefit of a few. In is an imperative that such a risk is utterly removed. Consequentialism adds the additional dimension of justifying the regulation through a consideration of the outcome. If it results in a satisfying environment, it is then right.

In the Social Contract theory expounded by Thomas Hobbes, the view is that people live together in society in accordance with an agreement that establishes moral and political rules of behaviour. Our choice is either to abide by the terms of the contract, or return to the State of Nature, which Hobbes (1651) argues no reasonable person could possibly prefer. Social contract theories have also been expounded by other important philosophers like Locke (2003) Bentham (2010) and Rawls (1971)

A Social Contract framework relies on the notion that society can agree on what constitutes a good environment, which would then provide the acceptable basis to regulate. Consensus building in this manner may have to rely on the varied tools of shaping opinion in society including political processes, civic education and the discernible input of the professionals.

The Kenya constitution of 2010 now places public participation at the centre of decision making. Public participation is seen as *“a vision of democracy in which citizens are active in public affairs, promoting their notion of justice and good policies, and engaging in dialogues with the legislature and the executive and in these ways enhancing public*

deliberation and democracy. It is a means of bringing people's preferences and aspirations onto the agenda of the state. And it is seen as relevant to accountability." (Ghai, 2013).

Public participation is one way in which ethical considerations can be integrated into the regulatory process and mitigate against bad decisions. However, while the benefits of public participation are clear in ensuring a response to the needs of a community and tapping into the skills and experiences of members of the public, challenges to effective participation remain. Among these are the costs of the process, lack of trust and even "Elite capture" where influential members of society can impose their will on the process.

Further a lack of civic education and a well understood framework for public participation may dilute the efficacy of the process.

Whereas this provision may not have contributed to the current set of building regulations, it is a requirement that has to be factored in further revisions of the Code.

VII. ETHICAL IMPLICATIONS OF REGULATORY INNOVATION

New technologies that are now coming into common use also bring in ethical questions that have not been encountered before. The reliance on data gathering technologies to enhance security - for example in the ubiquitous use of closed circuit cameras - raises the possibility of

misuse of that information, potentially invading privacy. The enhancement this technology brings into security arrangements carries the possibility of misuse of the data so gathered.

VIII. LEGAL AND POLICY FRAMEWORKS

The broad picture that offers guidance on the incorporation of the ethical considerations is starts with the Constitution of Kenya. The constitution promises that everyone is entitled to a "clean and healthy environment" with the additional promise of a right "to have the environment protected for the benefit of present and future generations". The positioning within the constitution is a powerful counterweight to the temptations to sacrifice these rights to short term satiation. This position is reinforced further by providing a wide ranging right to apply to the courts for redress on environmental rights.

Additional guidance is offered by the National Urban Development policy which indicates among its guiding principles the pursuit of liveability- Urban areas that have good quality infrastructure and services, and are secure, clean and green. Other stated principles and objectives are similarly well intentioned.

Further reference is provided by international conventions that offer guidance on the proper formulation of regulations. In almost every case, these appeal to higher principles most critical of which are the universally accepted human rights.

IX. FUTURE TRENDS AND RECOMMENDATIONS

Recent discourse on global issues reveal

the fabric may be deemed superior. The choice between passive and active systems can be cast as a choice between individual

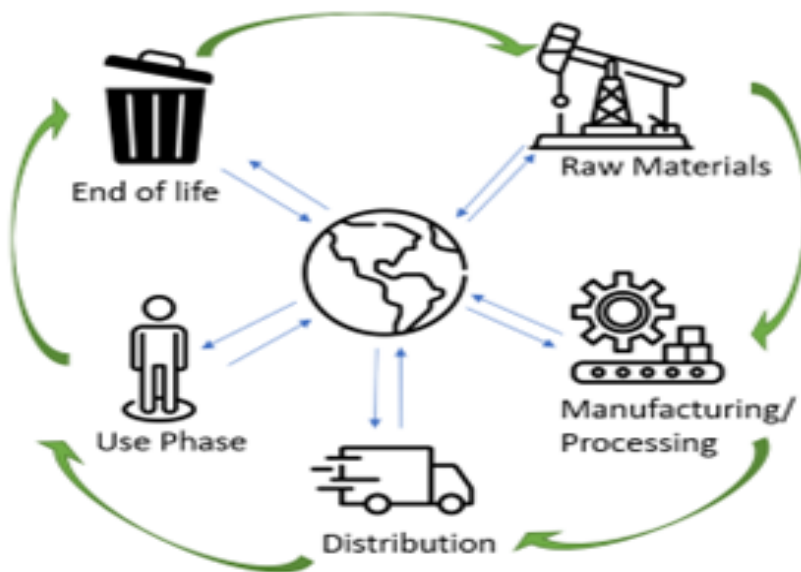


Fig 1: Life Cycle Analysis

Source: Mooney, 2022

that the process of making buildings has impacts that go beyond the concerns of individuals and communities, to a wider sphere. Concerns with climate change, a global matter of concern, are a case in point. The Brundtland Commission (WCED, 1987) identified building as a factor in the environmental response. In Kenya this was eventually reflected in the requirement that developers of buildings indicate their environmental impact as part of the approval process. Among other issues that will continue to raise concern are:

Climate Change On a global scale, the concerns with climate change are intensifying. The search for mitigation measures will focus on the urban fabric and it can be expected that new strictures will be put in place to ensure the preservation of public good. Among the areas that could see changes are the use of active systems to mediate the environmental response, but which themselves offend the environment through the inordinate consumption of energy. Passive systems relying on integration of mitigation measures into

aggrandisement and the public good. This can be brought under regulatory control.

Resource use. Environmental concerns are sharply invoked when common resources are involved. The prudent use of resources like energy and water are already beginning to feature as part of the building regulations. Individual choices around these matters must be externalized for the communal good. Two broad concerns arise in the consideration of resource use. On the one hand economic use of these resources would require that individuals do not extract more than they need. In the consideration for example on electric power for lighting purposes, it is imprudent to create buildings that need power that can be effectively served by tapping on natural light.

The cradle to grave life cycle thinking, illustrated in Figure 1, requires a clear picture of the supply chain for material. Risk mitigation may require regulations of the various aspects of the supply chain. A failure to take this level of control exposes society to the negativities of the material sourcing process and would be unethical.

Technology use. The interaction with technology is opening up new areas of challenges. Technology is utilized in the main to facilitate more efficient use of buildings. The nature of the technology available however has the potential of occasioning negativities where the benefits may be negated. The potential for data collection may make it easier to create efficiencies in the use of buildings but they may also intrude into personal information. Technology creates new bonds and frames of interaction with buildings, occasioning a breach of privacy in ways not possible before. In the realm of possibility, technology may also affect human health especially in the use of electromagnetic spectrum which the public hardly comprehends.

The science behind the technology used in various ways in public buildings, represent another area where an asymmetry of knowledge would require the intervention of authorities.

Security Arrangements. Security arrangements seek in the main to protect the owners of the properties and the properties themselves, but could easily compromise the safety of casual users of buildings. The rise in concerns about terrorism has introduced new aspects in the usage of public buildings.

X. CONCLUSION

The fundamental purposes of building regulations seek to create decent solutions to the problems of shelter while mitigating the negative pressures imposed by the fact of high densities. Society however is more complex and the priorities within communities may vary, in the main short term needs getting prioritised over longer term concerns.

The act of constructing of building is a small but critical connection to universal values. The negative effects that buildings can effect on the environment are not always evident in the short term. Yet the

potential of an overall low quality of living environment ensuing over time is very real, aspects of which may be difficult to reverse. The imperative to keep the process of creating the building environment on the right track is highly vulnerable to the political pressures of immediate societal needs.

Buildings regulations are impactful at varied levels of human's interaction with the environment. At each level a concern is raised by the higher principle of sanctity of human life and the protection of its quality.

At the human level, the concerns with safety and health create an ethical check on actions builders can take. The regulations serve as mediation basis for ensuring that the attendant asymmetry of knowledge does not create negativities which ultimately will be hurtful to society.

At the societal level, the choices that affect inclusivity and accessibility in the construction process have the capacity to either enhance positive values or harm them. Similarly choices can be made that impact of social inequalities and the access to shelter for sections of society.

Regulations also mitigate in how society responds to universal concerns including mitigating the vagaries of climate change and overall environmental responses.

The mitigations of such negativities must rely on ingenious approaches to decision making. Ultimately they will rely on an enlightened population or at the very least, a society that is sensitive to the dangers that reckless construction could inflict on the population.

Public authorities need to be awake to these dangers so that they can protect against short term interests. The placement of a healthy environment for all at the level of a constitutional right is a step in the right direction. Further, channels for civic education need to be explored and incentives introduced into the economy to keep a focus on the

ethical dilemma the process of creating the

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COCONUT SHELL FLOORING FOR AFFORDABLE HOUSING IN KENYA

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ABSTRACT

This study is based on the potential use of coconut shell waste for providing flooring solutions for the Affordable Housing Programme in Kenya. Research has shown that the husk takes eight years to decompose organically, which leads to poor disposal methods. Additionally, previous research shows that most uses of coconut shell waste are limited to product and jewellery design. Advancement in technology has proven that coconut shell waste can be used for creation of flooring, roofing and wall tiles. The problem of this study arises from poor disposal of coconut shells and the state of the housing crisis in Kenya. It was recognized that the government of Kenya had initiated The Affordable Housing Program in order to provide cost-friendly housing solutions for the low-income families in Kenya. One of the objectives of the program was to employ the use of local materials to promote the artisans in Kenya. The study was guided by the following key research question: How can coconut shell waste be used to produce interior flooring solutions that support affordable housing in Kenya? By prevalently applying qualitative research, the author used purposive and snowballing sampling methods to collect relevant research information. The study was predominantly based in Nairobi, however, there was initial reconnaissance involved in other coastal counties in Kenya such as Mombasa, Watamu and Kilifi. The subjects of this study were thirty, which included suppliers of construction materials, coconut-based furniture experts and professional interior designers based in Kenya. The main data collection tools involved were the use of Google Form questionnaires and in-depth interviews. The results of this study proved that despite being an excellent material, it was difficult to establish a key link with the AHP due to inaccessibility and unavailability of the tile. Nonetheless, it was established that the tile could still play a key role if further experimentation and production could be conducted for purposes of prototyping and mass commercialization.

Keywords: coconut shell, flooring, affordable housing

INTRODUCTION

The coconut tree, an ancient presence predating humans, holds significant importance along coastlines. Its traditional uses encompass cooking oil, charcoal, and more. Modern technology reveals additional applications, notably in interior and exterior design (Agriculture Authority (2021)). Recent trends highlight the coconut shell's potential for sustainable solutions in construction, including flooring, roofing, and tiling, demonstrated by global research and practical applications ((Ahuja, Siddharth, and Uma, 2014).. Diverse techniques yield eco-friendly products such as flooring, wall panels, furniture, and jewelry. Research pioneers hail from the Philippines, India, Netherlands, and Amsterdam, with implementation in various countries (Mike Foale (2003)). While Africa lacks substantial evidence, its climate and coconut waste suggest promise for similar endeavors. This study draws from primary and secondary sources, spanning from 1999 onwards and encompassing international contexts before focusing on Kenya. Its goal is to develop eco-conscious design solutions, while addressing the improper disposal

of coconut shells in Kenya, and to contribute to Kenya's Affordable Housing Programme by offering sustainable, affordable materials for low-income families.

Problem Statement

The problem arises from poor disposal of coconut shells and the state of the housing crisis in Kenya. According to research, a coconut shell takes around 8 years to decompose - under natural conditions. The conventional and easy but dangerous solution is therefore to burn the waste or to dispose off it carelessly to a landfill. These disposal systems contribute to air and land pollution. Another major issue to tackle is that of shortage of affordable housing. Kenya is racing in creating affordable housing solutions for low-income families, whilst simultaneously trying to support local artisans by employing their skills for the AHP and creating job opportunities. These Kenya is doing through its new bottom up development approach.

Objectives

Main objective: To explore how coconut shell waste can be used to produce interior solutions that support affordable housing in Kenya

Specific objectives:

- i. To establish the amount of coconut waste available in Kenya
- ii. To assess the uses of coconut waste
- iii. To investigate the products and processes that can be created from coconut waste
- iv. To propose a framework for coconut shells application as interior flooring solutions for affordable housing in Kenya

THEORY

Though coconuts were indigenous to the Indian Ocean, they were introduced to Kenya around the 16th Century by the Portuguese. Coconut palm tree agriculture spread promptly and it soon became a trading crop. It held very high economic significance in Kenya up to the 20th century. The Arabs handled its agriculture and trading until the 19th Century, whereby small-scale farmers started getting involved as well. Many households in the coastal region in Kenya are either directly or indirectly connected with coconut farming. They not only use it for cooking, but also for

the other functional uses (Finyange P. et al., 2019).

Quantity of Coconuts in Kenya

The following section will outline statistics on coconut farming and production as of 2021. The data is collected from a memorandum on the coconut industry development bill, by the Cabinet Secretary, Ministry of Agriculture, Livestock, Fisheries and Cooperatives.

According to the data collected by the Ministry of Agriculture in 2021, 6 coastal counties are the major producers of coconuts. These are Kilifi, Kwale, Lamu, Mombasa, Taita Taveta and the Tana River. The study also points out that there is possible opportunity for growth in other parts of Kenya such as Meru, Machakos, Busia, Siaya and Homa Bay due to similar climatic conditions suitable for coconut palm growth.

Kenya has over 10 million trees which are in fruit bearing stage. These trees are able to produce around 250 million mature coconuts or more (Agriculture and Food Authority Kenya, 2021).

The production of coconuts in Kenya in 2018 was about 92,560 tons – valued at 4.7 billion Kenya shillings - from approximately 200,000 acres. In the following year, the amount leaped to approximately 110,000 tons over an area of 86,843 acres. This amount of coconut holds value of approximately 6.8 billion Kenya shillings (FAO, 2020).

Of the approximate 10 million coconut trees, an estimated 1.3 million are under 10 years of age, 6.5 million are at a fruit bearing age and 2.6 million are senile. Senile trees are those that are over 60 years of age and bear very low output (Ministry of Agriculture, 2021).

The area, quantity and value of coconut trees in Kenya as of 2021 are as follows:

Table 2.1: Coconut tree statistics in Kenya (2021)

Source: AFA Nuts and Oil Crops Directorate, 2021

The graph below also shows the production value of the coconut fruit from the year 2007-2019. The expeditious nature of the graph is

owing to recent farmer sensitization programs that helped improve the coconut farming sector. Some aspects that were considered during the program are replanting quality seedlings to replace the senile ones, and farmer empowerment to embrace good agricultural practices (Ministry of Agriculture, 2021).

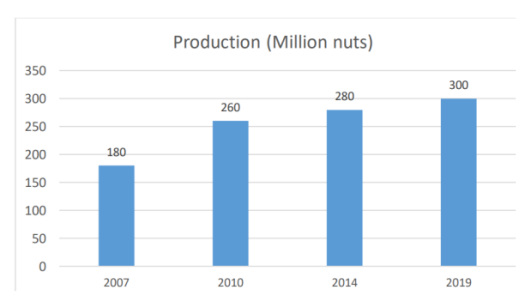


Table 2.2: Coconut tree production in Kenya from 2007-2019

Source: Ministry of Agriculture, 2021

A highly crucial factor to note is that the Ministry of Agriculture reports that only 53% of the potential of coconut has been utilized. This denies the country of agro-revenue which can be achieved by comprehending the high economic value of the coconut tree. The ministry additionally emphasizes on the importance of promoting the production of coconut-based products by employing sustainable research and technologies (Ministry of Agriculture, 2021). Consequently, this is one of the

factors that indicate a gap for research which would potentially aid the government of Kenya to implement the AHP.

Quantity of Coconut waste in Kenya

According to Wekesa & Majale (2020), Mombasa produces around 2200 tons of waste daily. Of this, only 65% is

Mombasa County on its own produces around 56,000 tons of coconut shell waste.

This proves that there is a substantial amount of pollution in the fourth largest coconut-tree producer in Kenya that occurs as a result of poor disposal of coconut shells. It also indicates that there may be more waste in other

COUNTY	AREA (Ha)		Quantity(MT)		Value (Ksh.) Millions	
	2019	2020	2019	2020	2019	2020
Kilifi	41,432	41,470	52,853	52,913	2,219.8	2,384.0
Kwale	31,358	31,384	46,227	46,240	2,126.4	2,139.0
Lamu	10,713	10,722	6,771	6,792	304.7	322.0
Mombasa	156	158	2,344	2,361	103.1	122.0
Taita Taveta	99	102	873	858	37.5	36.1
Tana River	1,066	1,070	822	849	37.0	35.3
Total	84,824	84,906	109,889	110,013	4,828.5	5,038

collected and 35% is uncollected. However, in lesser affluent areas in the county, only 13% of the households are provided with a waste collection system. The amount of waste in Mombasa County annually therefore adds up to around 280,000 tons or more.

Additionally, a large portion of coconut waste is found in coastal areas. It is approximated that 20% of all the waste in Mombasa is from coconut shell waste. Therefore,

counties that produce more coconuts as compared to Mombasa.

Physical characteristics of the Coconut Shell

In order to understand the reasons as to why the coconut shell holds more uses than those currently known, it is imperative to grasp the physical properties of the material. Recognizing the properties of the material would therefore give an insight into the further uses and functions of the material, as well as the reason as to

why local and international artisans and designers employ it in their vocations. Ting et. al (2015) states that the physical characteristics of coconut shell as a material are low density, good thermal properties, toughness and durability, biodegradability, precise strength and precise modulus. Additionally, it is a low-cost material that possesses good weather resistance. Somashekhar et. al (2018) affirm that coconut shell does not cause damage to the machines employed for production of coconut-based products. This means that the material possesses reduced tool wear (Ting et. al, 2018). Aside from that, the material burns three times slower than wood (Brenya, 2018). Coconut shell is eco-friendly and a sustainable material that is anti-fungal and possesses high strength to weight ratio (Nazir & Maina, 2022). These characteristics indicate that the material possesses outstanding qualities for purposes of value addition in design.

Flooring and Tiling

Over the course of several decades, there has been an ongoing initiative to develop coconut shell tiles. Malang (1999) highlighted Adriano S. Alfonso's study on using coconut shell tiles for flooring solutions. Alfonso's research

demonstrated that the durable and stony nature of the shell makes it an excellent choice for flooring, offering both durability and ethnic accents. Despite winning 3rd prize in a utility model contest, the study didn't progress to execution.

A more recent study by Sujatha and Balakrishnan (2020) compared coconut shell flooring tiles with sawdust flooring tiles. These materials were used as aggregates in concrete. The coconut shell tiles exhibited satisfactory results in terms of flatness, perpendicularity, straightness, water absorption, and transverse strength, outperforming conventional tiles. The study encouraged the use of coconut shell for construction flooring.

Chathurangani et. al (2012) explored creating wall surface materials and tiles from coconut coir extracted from coconut shells. The process involved mixing latex, acetic acid, water, and coir fiber in a mold, followed by drying and hardening. The study concluded that these tiles effectively reduced noise to a certain extent.

Pilar et. al (2015) focused on producing tiles using two waste materials: coconut coir and UPVC waste. This approach

aimed to address construction material shortages and solid waste management issues. The resulting wood tiles displayed satisfactory properties, being durable and environmentally friendly, with improved physical and mechanical properties compared to regular tiles.

Din and Abdullah's (2014) research demonstrated the potential of using coconut shell aggregates in concrete to create roof tiles. These tiles were lightweight yet able to withstand heavy loads, stress, and forces, offering a cost-effective and environmentally friendly roofing option.

Additionally, Haran et. al (n.d.) found that coconut fiber roof tiles exhibited better water absorption rates than standard roof tiles.

From an interior perspective, coconut shell can be fashioned into tiling solutions by crafting small cuts of coconut shells that are joined to create larger tiles. These tiles improve indoor air quality due to improved circulation within the tiles.



Figure 2.1: Coconut tiles, Source: ResearchGate, 2021

Housing

Bah et. al (2018) state that Africa's population growth is projected to grow from 1.18 billion in 2015 to 2.44 billion in 2050. Rural-urban migration is at an all-time high with people moving to urban areas that are not fully developed. Additionally, inadequate planning leads to pressure on infrastructure and resources which subsequently leads to housing deficits. Most rural migrators therefore settle in slums.

Housing solutions will tremendously contribute to economic activity and employment opportunities. The construction sector in any part in the world plays a key role in providing job opportunities and growth of a national economy. Some developing countries majorly affected by the housing crisis

are Congo, Egypt, Nigeria, Mozambique, South Africa, Tanzania and Kenya amongst others (Bah et. al, 2018).

Affordable Housing in Kenya

The Affordable Housing Program (AHP) in Kenya was one of the big four agenda that was proposed to provide housing to low-income families in Kenya. The program aimed to create half a million houses by 2022. Findings by Kieti et. al (2020) showed that the program created opportunities for artisans in the informal sector. The same study also indicated that the government should take initiative for standardized mass production for the purposes of faster affordable housing.

Affordable housing is not only a difficult concept for developing countries such as Kenya – but it is also an idea that has not been adapted by developed countries. One of the major factors to consider is the fact that construction is highly costly – especially with imported materials. It is unaffordable for individuals with low-income to build homes. However, shelter is one of the basic human rights of any global citizen. Housing is an essential tool to nurture families in

order to provide a healthy, safe and protective environment (Kieti et. al, 2020).

MATERIAL PROCESS

The process of creating coconut shell floor tiles, summarized from various scholarly articles (Ogunleye et al., 2019; Díaz-Díaz et al., 2017; Lee and Wang, 2018; Amusan et al., 2021), involves several steps for clarity and comprehension. Key machinery required, along with their prices in Kenya, is highlighted. The process includes:

1. **Sourcing and Cleaning:** Obtain coconut shell waste, sort out strong shells, wash, and sun-dry for about 4 days. Warmer environments are preferable for drying.
2. **Breaking Down the Shell:** Depending on the desired by-product, either a biomass shredder machine can grind shells with coir into a powdery product, or a Coconut Husk Chipper machine can create rough cuts for aggregates.
3. **Mixing Coconut Shell and Binder:** Mix the broken-down shell or aggregates with a

suitable medium like concrete, latex, acetic acid, water, UPV plastics, or other binders based on the finish needed. A concrete mixer is essential.

4. Pouring into Moulds: Pour the mixture into molds and allow drying for a few days. Different sizes and methods yield varying textures or appearances.
5. Finishing: Sand, polish, or seal the tiles with water-resistant coatings before installation, considering specific usage areas.

The initial investment for tile creation ranges from KES 700,000 to KES 1,000,000 (USD 5,058 to USD 7,225), with potential for significant profit after prototyping and commercialization.

Illustrated Process

The following is the process represented visually:

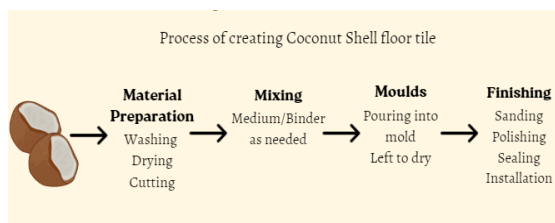


Figure 2.1: Process , Source: Author, 2023

METHODOLOGY

This study employed the use of qualitative research design. The main method that used was descriptive research design. The population consisted of 30 subjects that were found as a result purposive and snowballing methods. The scope of this study was Nairobi and two Coastal counties. The target population was manufacturers with high potential of producing coconut-based interior products and professional interior designers. The data collection tools were interviews, questionnaires/surveys, photography, observation and immersion. The data analysis tools are narrative, interpretive and content analysis. Data will be presented textually, photographically and in form of graphics. The population consisted of 30 participants including manufacturers of coconut-based products and interior design

experts in Nairobi and Coast. The study was conducted in Nairobi and Coastal Kenya. The target population was manufacturers with high potential of producing coconut-based interior products and professional interior designers.

RESULTS AND DISCUSSION

Analysis of response

The researcher approached thirty (30) respondents, of which a total of twenty-six 26 individuals or organizations responded. This represents eighty-seven percent (87%) of the intended population. The study is therefore said to have been successful. The set consisted of fifteen (15) professional designers who responded to questionnaires via Google Survey and eleven (11) furniture and/or finishing makers in Kenya who were interviewed personally.

The researcher found that a hundred percent (100%) of the respondents were familiar with sustainable design. This was inquired in relation to materials used for design purposes. It was found that 22 of the respondents representing eighty-three percent of the group (83%) believed that Kenya has plenty of coconut shells, whereas 4 of the respondents representing seventeen percent (17%) of respondents disagreed that there may not be enough. Most of the respondents, amounting to sixty-seven percent (67%), were aware of products made of coconut shell. On the other hand, thirty-three percent (33%) had not heard of, or encountered any. The respondents were asked whether they have ever heard of, or considered using coconut shell for interior solutions. Thirteen of the respondents amounting to half of the group (50%) voted 'No', nine of the respondents representing

thirty-three percent (33%) voted 'Maybe' and 4 respondents representing seventeen percent (17%) voted 'Yes.' All the respondents were asked if they would consider using coconut shell to solve design issues by simultaneously creating organic and effective design solutions. Twenty-two of the respondents amounting to eighty-five percent (85%) voted 'Yes' whereas four of the respondents representing fifteen percent (15%) of the population voted 'Maybe'. All respondents were asked if they would use coconut shell in design for purposes of flooring. Twenty-one of the respondents representing eighty-two percent (82%) voted 'Yes' and the rest of the five respondents representing eighteen percent (18%) voted 'Maybe.' It should be noted that none of the respondents voted 'No.' All respondents were asked if coconut shell flooring would assist to solve the

housing crisis by providing a sustainable flooring solution for the AHP. The researcher explained the positive aspects of using the materials such as affordability, availability, aesthetic nature and slow burning amongst others. Majority of the respondents, who were twenty-two in number, strongly believed that it could help to create a sustainable solution for the AHP. This amounted to eighty-five percent of (85%) of the group. Four of the respondents amounting to fifteen percent (15%) voted 'Maybe'.

Discussion

The research objectives and questions guided the discussion, addressing various aspects related to coconut waste availability, current uses of coconut waste, sustainable design with coconut shells, and flooring solutions for affordable housing projects in Kenya.

Amount of Coconut Waste in Kenya

The study confirms the availability of sufficient coconut shell waste in Kenya

for potential applications. Data shows a significant amount of waste, including over 110,000 metric tonnes in Kenya as of 2021, with even more in specific areas like Mombasa. Respondents also indicated that there is ample waste for research and implementation.

Uses of Coconut Waste

Coconut shell waste in Kenya is predominantly used for decorative items, jewelry, bags, and other similar products. Respondents were familiar with these uses, but there's limited awareness of using coconut shells for interior applications, particularly flooring.

Coconut Shell for Sustainable Design

While other countries have explored using coconut shells for sustainable design solutions, Kenya lacks innovative research in this area. Despite having abundant coconut waste, Kenya lags behind in utilizing it for sustainable solutions, even compared to countries with less coconut availability.

Flooring Solutions for Affordable Housing Projects (AHP) in Kenya

Affordable housing is a critical issue in Kenya, and coconut shell tiles are proposed as a potential solution. The

study highlights that such tiles have proven to be durable, lightweight, eco-friendly, and cost-effective. Industry experts express interest in using these tiles, indicating their potential suitability for the AHP.

Recommendations

- The author suggests various recommendations based on the study's findings:
- Encourage research and innovation in using coconut shells as a material in Kenya.
- Allocate a portion of the AHP budget for new material research.
- Engage organizations like KIRDI, universities, and the Ministry of Agriculture in researching the material.
- Encourage product designers and artisans to contribute to the production of coconut shell tiles.
- Highlight the versatility of coconut shell tiles for various housing solutions.

Conclusion

While the study's focus was on the AHP, the researcher concludes that there's currently limited market presence for coconut shell tiles, making

them a risky recommendation for the AHP. However, the study's findings still hold value for other housing solutions, especially in coastal regions where coconut waste is abundant.

Areas for Further Research

The study identifies gaps for further research, especially towards

experimental development and production of coconut shell tiles. The researcher suggests that more research and innovation should be undertaken to test the tiles' use in different spaces and conditions.

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A COMPREHENSIVE ANALYSIS OF GRAPHIC DESIGN STRATEGIES IN SMALL FURNITURE ENTERPRISE ADVERTISING IN NAIROBI COUNTY, KENYA

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ABSTRACT

Graphic design (GD) plays a crucial role in visual advertising, serving as a tool to inform, educate, and persuade towards brand loyalty. Despite its significance, Small Furniture Enterprises (SFEs) in Kenya consider graphic design professionals, processes, and final products excessively costly, limiting its applicability in advertising. Instead, most enterprises rely on less effective marketing methods such as roadside exhibitions, word-of-mouth, and referrals, making them highly dependent on unsustainable roadside manufacturing and vulnerable to market competition. This research probes graphic design strategies in SFE advertising within Nairobi County, Kenya, objectively aiming to analyze the various graphic designs utilized in branding and advertising. Guided by (Brown, 1979) "Graphics Triangle Theory," encompassing explanation, persuasion, and identification values, which are also defined as tenets of the theory, this study targeted an accessible population of 940 SFEs, ultimately selecting a representative sample of 273 licensed SFEs with physical business premises. Employing systematic random sampling and further supplemented by snowballing seventeen welfare leaders, the research collected data through questionnaires, interviews, and observations. The study's reliability and validity were guaranteed and confirmed by an 89.6% response rate, providing quantitative data that was analyzed descriptively through percentages and frequency distributions. At the same time, qualitative data (including narratives and photographs) were also meticulously coded and analyzed. Demographic findings indicate that SFE management is predominantly male-dominated, where most SFE managers possess KCSE and CPE education levels while others have entrepreneurial skills, which largely stem from apprenticeship programs. While SFEs principally acknowledge the role of graphic design in advertising, it is not their preferred choice due to its perceived high cost, time consumption, complexity, and low significance. Based on these diverse perceptions and challenges, the only graphic design practice found popular in most SFEs is photographs, often shared through social media, and some used in enterprise stationery, posters, and flyers. Most graphic designs used are either produced by enterprise owners, managers, and family members or sourced from non-graphic design professionals, hence a low communication value observed in most visual advertising products. The implication of the study is that, increased graphic design awareness, promotion, production, and application among small enterprises could largely enhance their advertising strategies, especially those that lean towards emerging e-businesses leveraging small enterprise market competitiveness. The study recommends individual small enterprises or those operating in clusters to explore graphic design professionals, processes, and products that are available, affordable, and sustainable as a strategy to address their advertising needs and achieve increased market competitiveness.

Keywords: Small and Medium Enterprise, Advertising, Branding, Graphic Design

INTRODUCTION

The study focuses on a critical design problem within small furniture enterprises (SFEs) concerning their inefficient utilization of visual advertising to market furniture products and services. Earlier research reveal that a paltry 15.6% of SFEs use basic branding tools such as flyers, brochures, contact cards, photo albums, and signage, primarily due to a lack of know-how on other options and limited resources (M'zungu et al., 2019; Odoom et al., 2017; Walker, 2017). Furthermore, SFEs rely to a great extent on informal roadside exhibitions, word-of-mouth, referrals and walk-ins, which do not sufficiently attract customers in the broader furniture market. The displays are often congested, disorderly, and lack product variety, impeding effective product promotion. Word-of-mouth marketing often elicits inconsistent, skewed, sometimes biased, contradictory, or negative messages about SFE products and services. Customer perception and, to some extent, competitor attacks resulting from such messaging harm overall consumer perception. The perception held by small furniture enterprise managers (SFEM) on the high costs associated with hiring designers and advertising often arises from hearsay and their limited exposure to the profession, hence restricting the utilization of visual advertising in the sector. Addressing these factors through graphic design and advertising strategy is a prerequisite for enhancing the scope of visual advertising, as well as its efficiency and effectiveness in the small enterprise sector.

Despite limited research on graphic design's significance in small enterprises' advertising, graphic design and

Advertising remain interconnected. graphic design plays a pivotal role by visually translating brand messages through typography, colour, imagery, and layout, capturing attention and reinforcing brand identity. At the same time, advertising forms the strategic communication process that utilizes various graphic design visuals across electronic, print, and digital media alongside other channels to promote products or services. This synergy ensures effective communication, memorable campaigns, sustained consumer engagement, and higher client conversion rates, ultimately contributing to the economic success of an enterprise.

Walker (2017) observes that the existing research on graphic design dwells more on the contributions of designers to the creative field, leading to a dearth of empirical data on the influence of graphic design in small enterprise promotions. Further, empirical studies conducted by M'zungu et al., (2019) and Odoom et al., (2017) reveal a consensus among researchers focusing on branding in small and medium enterprises (SMEs) that graphic design, which is a professional discipline remains under-researched. To address this gap, this research adopted a comprehensive historical and contemporary empirical exploration to bridge the empirical void and provide a more robust understanding of graphic design's applications in small enterprise branding and advertising.

An analysis of various types of graphic design utilized in branding and advertising by small furniture enterprises is necessary to understand the diversity of its empirical data. Dzisi & Ofosu (2014) highlight various advertising methods employed by SMEs in Ghana,

skewing them to television, radio, newspapers, magazines, banners and billboards, while additional techniques include exhibitions, door-to-door marketing, word-of-mouth, face-to-face interactions and discounted sales. Vidic, (2013) study also reveals a deficiency in graphic design application within SME advertising, primarily due to their managers' avoidance of multimedia advertising approaches. A mere 20% of SMEs use branded clothing, and only 15% incorporate logo signage within showrooms. However, (Manzini, 2015) urges small businesses to redefine their identity through design to remain competitive. This study, therefore, grounds (Martin, n.d.) view that graphic design can help enterprises establish a good image, earn goodwill in the market, attract clients and win business trust. Deploying good graphic design strategies in enterprises enhances innovative and effective visual advertising. (Mathenge, 2020), in a discussion on the evolving dynamics of the advertising landscape in selected advertising agencies in Kenya and its implications for advertising practices, pursue advertisers to embrace diverse, interactive, flexible, sustainable and cost-effective advertising methods to capture consumer attention. (Winston & Granat, 2014) advise SMEs to share the costs with individuals who operate similar businesses in nearby communities to mitigate advertising costs. This mode of advertising is commonly utilized by enterprises that are members of the same trade association or chamber of commerce. Given the ever-changing consumer preferences, the study underscores the importance of continuous engagement, staying updated on technological advancements and utilizing new media and interactive channels to cultivate consumer

awareness through innovative and engaging graphic design strategies.

Although Dzisi and Ofori's study comprehensively explores various advertising media, it falls short in precisely addressing the types of graphic design, production processes and their utilization within multimedia contexts in support of small enterprise advertising. Hence, this study need to further on (Mathenge, 2020) proposed dynamism strategy and (Winston & Granat, 2014) collaborative approach to small enterprise advertising strategies.

THEORY

The history of graphic design spans forty thousand years, commencing with cave wall visuals in early civilizations and gaining momentum during the 18th-century Industrial Revolution as a tool for commercialization. While modern graphic design is deeply rooted in marketing and is key in today's social and economic activities Meggs & Purvis, (2016), its impact on Industrial Revolution 4.0 is domiciled in human-centred and emotional design within a complex digital social-economic ecosystem. Buchanan, (2001) further traces the evolution of graphic design from crafting symbols to intricate human-focused systems, hinging on graphic design as a versatile tool in print and electronic media. It is integral to corporate identity, publications, outdoor advertisements, and online social technologies. The design process across various spheres of the Industrial Revolution gravitates around universal elements and principles of design, such as line, form, texture, balance, unity, and colour, to create visual appeal (Reid, 2021). These principles extend beyond graphic design to products like furniture, contributing to a sophisticated visual system that can support small enterprises in production and advertising (Mughal, 2023).

Kenya's Small Furniture Enterprise (SFE) sector holds significant potential for poverty alleviation and economic contribution. These labour-intensive, resourceful businesses often rely on low technology to produce high-value furniture categorized into domestic, contract, and office segments. Samani, (2023) further categorizes furniture based on use, materials, style, and design, ideal in product differentiation on which graphic design thrives. However, the importance of graphic design in aligning production with market demand, fostering innovation, cost-effectiveness, and establishing brand identity is underexplored. Consumer fascination with trends and lifestyle orientations underscores the need for effective graphic designs in advertising. Despite challenges like poor physical presentation and market vulnerability, small enterprises can leverage graphic design to enhance visibility, credibility, and competitiveness. Strategic branding, advertising, and improved infrastructure are vital for overcoming marketing challenges, propelling the sector forward, and contributing to economic growth, poverty alleviation, and employment generation.

In the era of economic globalization, the competitiveness of products on a global scale is increasingly achieved through effective and sustainable strategies for brand development (Li et al., 2022). Manufacturers of any product must actively define and periodically redefine their unique brands and identities to survive in the business realm (Manzini, 2015). In the present landscape, the prevalence of online consumerism underlines the importance of branding and advertising, particularly for small businesses, as highlighted by (Hakim, 2014).

According to Fabisiak et al., (2013), who investigated the role of corporate identity as a marketing tool, small enterprises rarely employ a multimedia advertising approach. They reveal that 75% of these enterprises utilize interior and web design, while 20%

opt for branded attire, and 15% use logo signage within showrooms. Common advertising methods for small enterprises in Ghana, for example, include television, radio, newspapers, magazines, banners, billboards, and branded items (Dzisi & Ofosu, 2014). However, Dzisi & Ofosu, (2014) lack comprehensive details regarding the specific graphic design forms used, the production process, the role of graphic design across various media, and the potential challenges faced. Further, Jeconia, (2017) observes that digital marketing, through digital publishing, online platforms, TV, and CD-ROMs, positively influences the sales and growth of SMEs in Nairobi, Kenya. In contrast, the studies by Sharu & Guyo, (2013), Fabisiak et al., (2013), and KAAA, (2017) primarily associate advertising challenges with financial constraints, overlooking graphic design-related hurdles in SFEs, thus highlighting a gap that this study aimed to address.

Various articles, such as Cann, (2022), Terry, (2020), Brooks, (2020), and Tomboc, (2023), explore diverse facets of graphic design, identifying types like visual identity, marketing, User Interface (UI) / User Experience (UX), and motion. They emphasize the need for specialized designers to address these styles. However, the discussions overlook technical influences on graphic design choices in small enterprises, creating a knowledge gap. Small businesses' perceptions of graphic design vary, challenging such broad generalizations. While highlighting diversity and demand, the articles neglect nuances in application, especially in small enterprise contexts, suggesting a need for further exploration in understanding the intricacies of graphic design in diverse small business settings.

As Winston & Granat, (2014) highlighted, print advertisements offer versatility by easily adapting to various mediums. Their structured sales message aligns with print style, capitalizing on adaptability, familiarity, budget flexibility, and a less

restrictive creative process. Video advertising, on the other hand, is increasingly crucial and boasts a 95% information retention rate compared to 10% for written content (Clarine, 2016). Positive user experiences with video ads enhance purchase intent by 97%, and brand association by 139%. Amazon and eBay note a 35% increase in the likelihood of a purchase when a video is included in a product description (Clarine, 2016).

Etuk & Emenyi, (2022) study on advertising's impact on SMEs in Uyo affirms that diverse advertising approaches significantly improve profitability, which is crucial for local, regional, and national market development. The research advocates for a balanced communication plan, integrating traditional and non-traditional channels like TV, newspapers, and social media. In comparison, TV offers extensive reach, but its high-cost limits small businesses. Conversely, internet marketing emerges as a cost-effective tool, allowing SMEs to utilize banners, pop-ups, emails, etc., for a broader audience reach. The study underscores the importance of innovative strategies in adapting to evolving advertising demands, fostering growth, sales, and overall profitability for small enterprises.

Nair, (2023) research highlights the significance of small businesses comprehending social media advertising on platforms like Facebook and Twitter. These platforms effectively enable engagement, relationship building, and customer understanding. Instagram has emerged as a suitable platform for the fashion, food, travel, design, and technology industries. While Varun & Lekshmi, (2016) urges small businesses to harness social media's potential for holistic marketing success, Varun's study is critiqued for its limited exploration of diverse graphic design forms for impactful market creation, highlighting a research gap.

The literature review explores graphic design in small furniture enterprise (SFE) advertising, emphasizing the adaptability and cost-effectiveness of print advertising for small enterprises. While acknowledging the effectiveness of video advertising, it underscores the growth contribution of online advertising, particularly on social media platforms. However, the review falls short of establishing a clear link between graphic design and online advertising. It briefly mentions the role of graphic design in supporting SFEs amid globalization challenges but lacks specific details. Empirical research highlights graphic design's integral role in attracting diverse consumers. However, it lacks an in-depth exploration of its specific contributions in print, electronic, or online advertising trajectories that suit the small enterprise sector.

RESEARCH METHODS

The study adopted a descriptive research design process, which enabled the quick collection and collation of large amounts of data from a population comprising small furniture enterprises in the expansive study area of Nairobi County in Kenya. The capital city was preferred for the study because of its large number of small furniture enterprises, a substantial industrial and commercial hub with a stable supply of raw materials, and a vast pool of graphic design professionals. Nairobi County is on latitude - 1.286389 and longitude 36.817223. GPS coordinates of 1° 17' 11.0004" S and 36° 49' 2.0028" E. The county has approximately 696.1 km², with a population projection of 4,750,056 people and a population density of 6,748/km² by 2023. The population of this study entailed all Small Furniture Enterprises operating in Nairobi County. The accessible population was 1540 SFEs derived from NCG (2019) with physical production or exhibition sites in Nairobi County. The target population consisted of 940 licensed Small Furniture Enterprises in Nairobi manufacturing or exhibition sites. The study also targeted 17 welfare group leaders

coordinating SFE participation in national trade fairs, exhibitions, and other commercial publicities (KAAA, 2017). A systematic random sampling method selected 273 SFE managers. The study also

collection. The questionnaire contained structured questions to collect data from SFE managers and SFE Welfare Leaders about graphic design used in SFEs. Two hundred and seventy-three (273) filled questionnaires (89.6%) out of 242 were returned and considered adequate for further analysis, reporting, and publication, according to (Mugenda & Mugenda, 2003) . Thirteen SFEWL accounting (67%) out of nine were interviewed.

RESULTS AND DISCUSSION

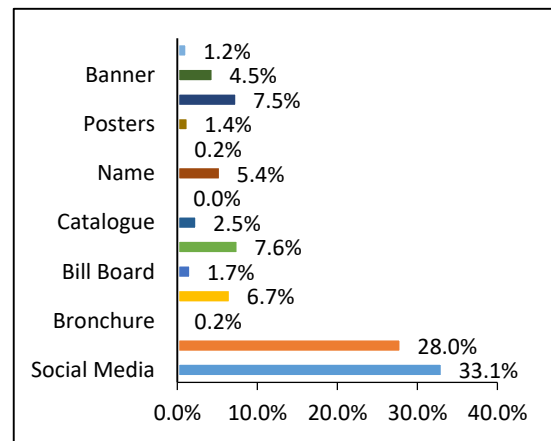
Types of graphic design used in SFE advertising were investigated through questionnaires, interviews, and observation. Graphic designs used in Small Furniture Enterprises advertising is highlighted in Figure 1:

FIGURE 1: GRAPHIC DESIGN USED IN SMALL FURNITURE ENTERPRISE ADVERTISING

The study on graphic design usage in Small Furniture Enterprises (SFEs) advertising, as depicted in Figure 1, indicates that 33% of SFEs employ social media for sharing text-infused photographs. Additionally, 28% utilize branded stationery, with receipts and business cards being the predominant forms. Business cards, signage, branded names, printed photographs, banners, and other methods account for varying percentages, such as 7%, 8%, 5%, 7%, 5%, 3%, 2%, 1%, 1%, and less than 1%, respectively and nil packaging design.

used 13 SFE welfare leaders drawn from sub-county selected through snowballing.

The questionnaire, Interview Schedule, and Observation were research methods applied to data



Small Furniture Enterprise Welfare Leaders (SFEWL) interviewed affirmed increased use of business cards, flyers, receipts, photographs, catalogues, banners, posters, signage, and various branding elements except branded packaging materials.

Sharing of Photographs through social media at 33% and use of stationery at 28% is attributed to its flexibility Receipts serve as documentation for sales, while business cards contribute to fundamental advertising by providing contact details. The findings align with the growing global internet user base, suggesting increased online advertising and purchases. Social media's advertising potential was identified and its likely role in leveraging e-commerce for business expansion. These findings correlate with the KNBS, (2016) economic survey, revelation that 49.2% of small enterprises refrain from using traditional advertising tools like posters and brochures. The study underscores challenges in small enterprise sector, whose majority operate in unfavourable conditions that partly hinder the use of other

graphic design tools like, banners, posters, signage and publications: Enterprises use traditional and wrapping materials for product protection and therefore branded packaging materials is prioritised. A variety of graphic designs observed in Small Furniture Enterprise are discussed below:

DRAWINGS

Figure 2 shows an illustrated book used in Small Furniture Enterprise advertising.

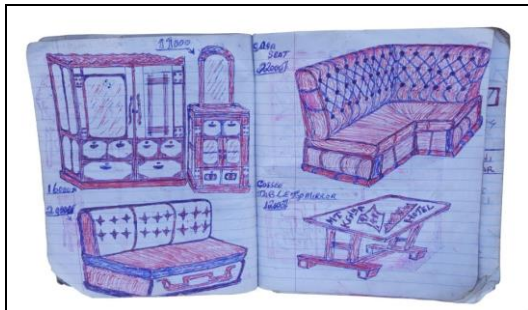


Figure 2 shows two pages of in single exercise book used with furniture illustrations. The book was created by SFE owner using red and blue inked pens in exercise book. The captioned illustrations include wardrobes, dressing desks, sofa seats, coffee tables and many other different furniture products in a similar artistic style and finish.

Although the illustrated images utilise graphic design elements, the execution of the design elements, such as shapes, texture, and colour, lacks precision and the drawings fail to abide by fundamental graphic design principles of balance, proportions, perspective, dominance, and harmony, which are essential rules followed through a design process to achieve a strong and effective visual communication. These contrasts Reid, (2021) advice on the need for ingenious application of fundamental elements and principles of

design in any graphic design creation. Elements and principles of design similarly apply to furniture design, directing the coordination of the eye and hand within a complex visual system of thought and action, as evident in the furniture catalogue at De School Zeen website (*Furniture Design*, 2024).

CATALOGUE BOOKLETS

Figure 3 shows a catalogue's cover and content page used in Small Furniture Enterprise advertising.



Figure 3 depicts a dilapidated enterprise product catalogue, showcasing photographs of furniture. Furniture categories featured include beds, wardrobes, dressing desks, sofas, and coffee tables.

The overall quality is marred by poor image composition, framing, focus, and exposure, that lead to distortions. Additionally, the catalogues suffer from subpar printing materials, resulting in stains, tears, and crumbling, which further diminishes the quality of the printed photographs and subsequently hampers effective communication. The brand for the enterprise is omitted to maintain flexibility for multiple use across various enterprises within a cluster. However, this strategic choice clashes with Kabue, (2013) and Mustafa, (2023), who emphasize the importance of conveying a message in every image to inform, educate,

promote brands, entertain, and persuade the audience.

Since photography is key element in visual communication, SFE ought to acknowledge its inherent value and capacity to capture forms with meticulous details and realism, crucial in any advertising endeavour. To enhance their product catalogue strategy, they should heed Curtin, (2007) recommendations, advocating the use of high-quality, realistic, and appropriate digital photographs. Images which can subsequently be transformed into universally recognized digital formats, facilitating easy storage, manipulation, display, retrieval, distribution, and sharing without losing their communicative value. Such a shift not only addresses the current shortcomings but also has the potential to elevate the overall presentation and effectiveness in SFEs advertising efforts.

SIGNAGE

Figure 4 shows a signage identifying a Small Furniture Enterprise. Names, symbols, and addresses of signage used in this paper was pseudonymized through graphic design image manipulation techniques to maintain the confidentiality and anonymity of respondents.



The critical analysis of Figure 4, illustrating the signage of a furniture enterprise along Jogoo Road in

Nairobi, Kenya, reveals notable visibility but raises concerns about its legibility. Such vice is common in small enterprise signage's observed with majority being placed closely cluttered together. The findings indicate the presence of elements in the signage observed which are not consistent with typical enterprise stationery brand. Such lack of uniformity is crucial for achieving brand harmony and fulfilling the signage's roles, including identification, promotion, information provision, directional guidance, product awareness, and overall enhancement of the enterprise's competitiveness through effective branding.

Figure 4 deviates from Ambrose et al., (2019) concept that branding and signage should empower small enterprises to distinguish themselves and their products while throughout establishing positive customer connections to foster loyalty. The repetition of visual components across various advertising platforms is emphasized by Ambrose et al. as a strategy to engrain the brand in customers' minds, invoking emotions and ideas associated with the brand.

Furthermore, the findings contradict Onkoba, (2016), who posited that businesses with a robust brand identity tend to excel in market competition, because a strong brand identity is characterized by a design that imbues meaning and quality into the brand through cohesive use of colour, typography, imagery, and style across all related stationery, creating both aesthetic and functional appeal. SFE should embrace signage design to supplement advertising through influencing walk-in consumers' purchasing decisions based on

perceptions of quality, safety, luxury, value, or other factors deemed crucial in the consumer decision-making process.

SOCIAL MEDIA

Figure 5: shows a Face book Account used in advertising Small Furniture Enterprises’ products. Confidentiality and anonymity of respondents was achieved through graphical pseudonym of names, symbols, and addresses.

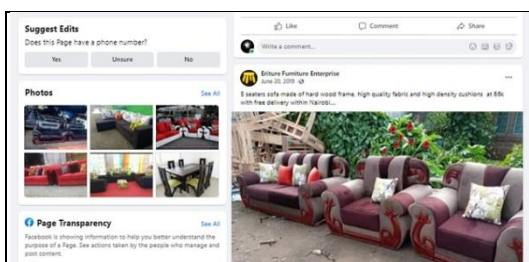


Figure 5 vividly demonstrate a segment of a small furniture enterprise's Face book advertising site, featuring various furniture types, capacities, materials, processes, and prices. However, a visual discrepancy arises as the outdoor elements depicted in the photos contrast with the indoor nature of the furniture products. The inclusion of unfinished furniture frameworks in the image may convey a perception of low-quality products, especially when shared on competitive social media platforms. The findings contradict the principles outlined by Kabue, (2013) and Mustafa, (2023), emphasizing that every image should convey a purposeful message, whether to inform, educate, promote, entertain, or persuade the target audience.

The conflicting visual message in Figure 5 diverges from established views, and it fails to capture the necessary details and realism. According to Helena, (2016), the quality of photos is pivotal in effective furniture product

advertising especially in any website page design. For such a design, photographs taken by professionals or images that adequately represent the brand are recommended. Website users form rapid judgments about the enterprise's credibility and trustworthiness based on image quality. Helena emphasizes the positive influence of reality-based websites, particularly those with engaging graphics, while cautioning against the use of numerous tiny images similar to those used in in many small enterprise advertising. Such visual disorganization often deters consumer attraction, persuasion and conversion, reinforcing the importance of presenting fewer, bolder photos to project an image of a trustworthy enterprise.

BUSINESS CARDS

Figure 6 show a variety of business cards used in Small Furniture Enterprise advertising labelled from Business BC 1 to BC 12. Confidentiality and anonymity of respondents was achieved through graphical pseudonym of names, symbols, and addresses on the cards.



The design flaws in the business cards depicted in Figure 6 hinder effective communication due to visual impairments. Most cards fail to adhere to fundamental design principles such as balance, alignment, contrast, repetition, proportion, movement, and

white space. Font styles, images, layout concepts, colours, shapes, and materials exhibit striking similarities among BC 1, BC 9, BC 10, and BC 11. BC 2 and BC 11 lack unique and distinctive symbols. BC 5 and BC 11 feature cluttered photographs, while BC 3 suffers from illegible tiny fonts. BC 2 and BC 11 have faded content. Tight margins are evident in BC 1, BC 2, BC 6, BC 8, and BC 10, affecting content legibility.



The non-compliance with these principles in Figure 6 renders most cards ineffective in attracting, informing, and persuading as intended. Small enterprises aiming to effectively communicate through business cards should incorporate clear and unique images, brand colours, appropriate shapes, ideal sizes, and typography to convey essential contact information and promote brand recognition, creating lasting impressions ideal for multimedia advertising (Freepik, n.d.; Reid, 2021).

RECEIPTS

Figure 7 show a Cash Sale Receipts used in sales administration in SFE. Confidentiality and anonymity of respondents was achieved through graphical pseudonym of names, symbols, and addresses on the receipts.



Cash sale receipts in Figure 7 are printed on white paper with a blue spot colour, numbered in red, perforated, and bound into duplicate booklets. They include enterprise details, a unique identifier, and entry slots for transaction details. The receipts feature a bed image, possibly to entice future purchases, and bear the abbreviation "E&OE" for error protection. A disclaimer makes goods irrevocable, preventing returns.

Receipts in Figure 7 exhibit design inconsistencies and cramped layouts. Examples like High Tech Signs show significant differences from associated business cards, hindering a clear brand image. The HF logo design lacks professionalism due to the redundant circle enclosure. Stationeries in SFEs contradict Reid, (2021) quality criteria and lack consistency, trendiness, and impact, especially when using photographs in a single colour, diminishing persuasive impressions compared to full-colour alternatives. However, this study conceptualizes strives to illuminate an ideal corporate branding through graphic design stationery impressions highlighting a collage of various stationeries, as shown in Figure 8 below



FIGURE 8: BRANDED STATIONERY TO IDENTIFY ENTERPRISE, TO INFORM AND PERSUADE CUSTOMERS

Source of all Stationery Graphic Designs: Authors Concept.

Figure 8 showcases a range of branded stationery designs for the fictional Cane Furniture, a manufacturer of Unique Rustic Furniture. The designs, including a letterhead, cash-sale receipt, business card, mouse pad, sticker label, and product catalogue, adhere to a consistent visual identity and harmony. This uniformity across various communication channels is aligned with the concept of hypnotic

Figure 9 is an example of dilapidated posters displayed in an enterprise, depicting dining sets, beds, wardrobes, dressing desks, sofas, and coffee tables. The dilapidation is probably due to inappropriate display points, mishandling, or inappropriate design materials used in their production. Furthermore, most pictures seem sourced from other printed matter or online publications to help customers decide on preferred product designs.

Figure 9 contradicts Lippert's (2017) view that a poster is a temporary promotion of a product placed in a public space for mass consumption as opposed to enclosed enterprise factories, stores, and narrow display

advertising as proposed by Winston & Granat, (2014), emphasizing the power of repetition to reinforce sales messages. Popnikolov (n.d.) supports this approach, stating that providing consumers with a consistent experience across communication channels builds trust and familiarity. Reid, (2021) further underscores the importance of consistent logos and stationery layouts for attracting and retaining consumers, a characteristic lacking in most enterprise stationery layouts. The consistency, simplicity, and uniqueness of the designs in Figure 8 build on Popnikolov, (n.d.), Reid, (2021) and Winston & Granat, (2014) principles and also amply allow white space to facilitate the inclusion of additional business information on letterheads and cash sale receipts.

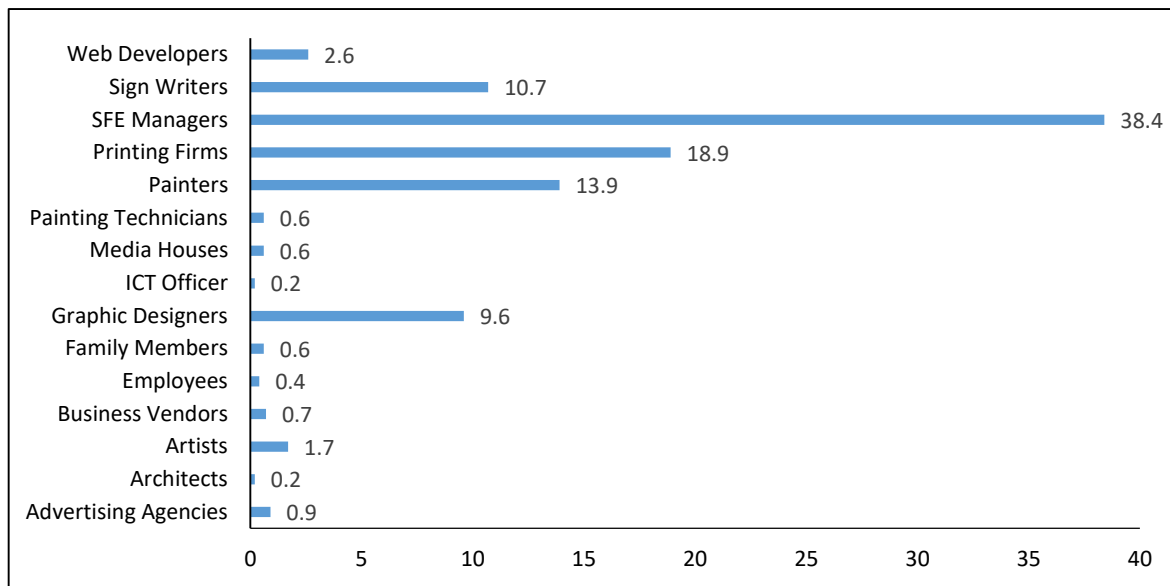
POSTERS

Figure 9 shows several posters used in SFE advertising on display in the enterprise.

spaces with less public traffic and less impact on advertising. Although close to about 1.4% of SFEs in this study used posters to promote their products, the study established that most posters used in SFEs contain cheaply sourced photos from outside the enterprises while others were not developed by professionals. To a large extent, most posters are displayed within restricted spaces in enterprise with less consumer traffic to the detriment of the advertising intensions.

GRAPHIC DESIGN PRODUCTION

Figure 10 shows sources of graphic design used in Small Furniture Enterprises advertising.



The data presented in Figure 10 highlight the preferences of Small and Medium Enterprises (SMEs) regarding graphic design sources. Notably, 38.4% of SMEs prefer in-house graphic designs created by owners, managers, or employees. Other sources include printing firms (18.9%), painters (13.9%), and sign writers (10.7%). Limited involvement is observed from advertising agencies, architects, artists, business vendors, enterprise employees, family members, ICT officers, media houses, painting technicians, and web developers. Small Furniture Enterprise Welfare Leaders' interviews emphasized that printers, artists, painters, and cyber cafes contribute to different aspects of graphic design, including business cards, receipts, banners, logos, signage, branding, photographs, and photo albums.

The study aligns with Manzini, (2015) assertion that everyone possesses a natural design capacity, but not everyone can be a competent or professional designer. Despite only 9.6% of SMEs utilizing graphic designers, collaboration with various entities, such as advertising agencies,

media houses, printing presses, sign writers, web developers, artists, and painting technicians, is deemed appropriate for their supportive roles in graphic design and advertising. Concerning architects' involvement (0.2%) in graphic design production, there is contention with McIlroy's view that architects may not excel in creating elements like characters, symbols, logos, and branding-related graphics. Vidic, (2013) study on branding among Slovenian enterprises, on the other hand, reveals that 9.4% used unqualified persons, 8.3% relied on the printing industry, 3.9% involved architects, and 2.8% hired a marketing agency for branding. However, Vidic's findings cannot be generalized to graphic design because the brand is highly uninfluenced by design.

Only 9.6% of graphic design used in Small Furniture Enterprise advertising is created by graphic design professionals due to resource scarcity and several underlying perceptions. However, designing on a budget does not imply cheap design, and therefore, it's imperative for small enterprises to find designers aligned with the creative vision rather than solely focusing on fees. The evolving graphic design

industry, shifting towards online-based systems, suggests that graphic designers need to adopt new skills and technologies to enhance graphic design production through accurate and efficient timelines and on budgets that would support effective and sustainable enterprise advertising.

CONCLUSION

The study delved into the realm of graphic design practices within Small Furniture Enterprises, unveiling significant strides, challenges, and implications in its application in advertising. The findings reveal a prevalence of photograph-based advertising on social media, stationeries that support businesses in enterprises, limited engagement of graphic design professionals, and the potential adverse effects on graphic design processes and products, brand, and advertising credibility.

Social media platforms are heavily relied upon for advertising in which raw photographs showing finished products are predominantly shared to potential consumers. Photographs used are mostly sourced remotely from enterprise stakeholders and to some extent from customers, contributing to numerous visual discrepancies and deceptions that affect advertising and which are likely to mislead expectations, cause customer discontent, and endure harm to brand credibility, resulting in reduced sales, legal ramifications, and negative word-of-mouth regarding small enterprise products. The situation is aggravated by use of low-quality photographs taken with mobile phone cameras of low pixel counts and the image compression algorithms that automatically compress images on social media software compromising

communicative clarity of shared images.

Observed were strong efforts towards use of illustration, product catalogues, signage, posters, and stationery characterised with low graphic design professional ingenuity revealing glaring communicative weaknesses. Further, minimal utilization of graphic designs in SFE advertising, particularly logos, posters, fabric designs, billboards, and brochures are unprecedented. Enterprise stationery comprising of business cards, receipts, invoices were also witnessed, however the inadequate articulation of elements and principles of design in various stationery observed raises questions about their effectiveness in complementing advertising and branding in small enterprises.

A significant portion of graphic design used in enterprises are created in-house by non-professionals, including owners, managers, and employees to lower costs. Engagement of graphic designers is remarkably minimal, underscoring the predominant use of non-graphic designers and the overwhelming visual misrepresentation, weaknesses, and inconsistencies observed.

Low quality graphic design observed in enterprises can raise significant visual concerns that can erode the values of advertising dilute brand identity and reduce consumer trust. The study aligns this concern with Brown's (1979) framework for image building design, educational design, and information design, emphasizing the importance of professional application of graphic design elements and principles in visual advertising. Professional graphic designers are trained to understand brand identity nuances, target audience preferences, and the psychology of

visual communication that can improve advertising in small enterprises.

RECOMMENDATIONS

The study recommends the small enterprises to establish an effective graphic design strategy in visual advertising by leveraging opportunities available through various print, electronic and online media. The roadmap should aim to utilize clean, cohesive branding across the available design materials and media, focusing on clear and honest communication of key messages that emphasize visual appeal to grab intended attention. Especially in packaging design which has the potential to enhance brand visibility, communicate quality, and differentiate their products. Guided by graphic design principles, the strategy should prioritize consistency and simplicity in design elements to enhance brand recognition and memorability within the target consumers.

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Furthermore, the strategy should focus further into emerging online advertising due to its global reach, precise customer targeting, cost-effectiveness, real-time analytics, and diverse advertising formats, in which graphic design thrives, to effectively engage and convert audiences. Leveraging on online stationery for branding, communication, and cost-effective marketing will enhance credibility, professionalism, and brand recognition in a competitive market.

Further, small enterprises should consider hiring freelance graphic designers or working with graphic design agencies or advertising agencies inclined to support small businesses. These professionals possess the skills and experience necessary to create effective graphic designs tailored to small enterprise branding and advertising needs, ensuring high-quality visual content for marketing campaigns.

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TELECOMMUTING & WORKING FROM HOME IN KENYA; A THEMATIC LITERATURE REVIEW

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ABSTRACT

This paper focuses on the field of telecommuting in the Kenyan workspace and its development, by providing an overview regarding telecommuting culture. It is part of a larger research that involved a literature review of 42 relevant papers from which 8 were thoroughly analysed. From the analysis of this corpus, three main categories were identified: Communication and Marketing, Design and Production & Culture and Society.

This study is a thematic literature review focusing on the categories of telecommuting & working from home, which collectively gathered indicatively 48% of the selected literature. It presents its relevant studies and sub-categories, providing a rich and varied map of them and contributing to better design and further research in telecommuting & working from home. The study finding indicated that working from home will likely continue to grow as a practice in Kenya over the years. The shift from on-site working to telecommuting has proven beneficial in most industries.

Keywords: *telecommuting, working from home*

INTRODUCTION

“Telecommuting has given individuals the ability to participate in the global economy domestically. Technology has contributed to the modification of where work is executed and the manner in which it is executed. This in turn, has changed the way in which domestic interiors and environments need to be designed to become responsive to the changes on the job market” (Benny, A. (2020).

Variously, telecommuting has been defined from many perspectives. Among the many is that remote work defines any work performed by an

employee from a different physical location than their direct supervisor. When the remote work involves use of telecommunication technology it becomes telecommuting.

Telecommuting has further been defined as the type of remote working that uses telecommunications technology to partially or completely replace the commute to and from the workplace (Mokhtarian, 1991). Employers give their employees the option to physically work from an offsite location. For most remote workers, this location is their home (Uresha, 2020). Working from home (WFH) occurs when telecommuting or

remote work takes place in the residential setting.

Telecommuting is supported by a combination of ICT hardware and software including computing devices such as mobile phones and laptops, and apps such as “Slack” and “Google Meets” (Ilag, 2021).

THEORY

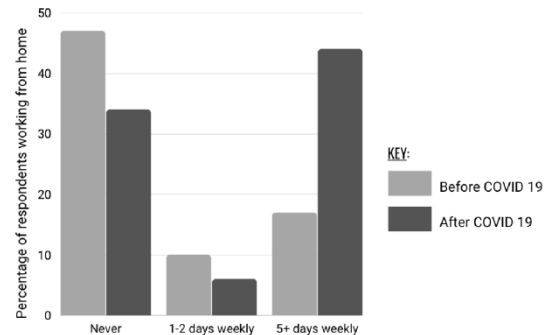
HISTORY OF TELECOMMUTING

Telecommuting arose from technology driven innovations, particularly with the digitization of tasks related to documentation. American companies had started to implement the practice as early as the 1980s. It was a chance to eliminate commutes to the workplace and instead dedicate those hours towards productivity (Streitfeld, 2020). The arrangement had advantages to both employers and employees.

The practice of remote working became unprecedentedly common during the global lockdown of 2020 (Fatmi et al, 2022). Because shelter-in-place directives had been issued by most governments to combat a pandemic, non-essential employees did not have the option of travelling to their workplaces. Businesses quickly adapted their work models to incorporate digital operations. Without the option to move operations online, many businesses would not have survived the COVID 19 pandemic.

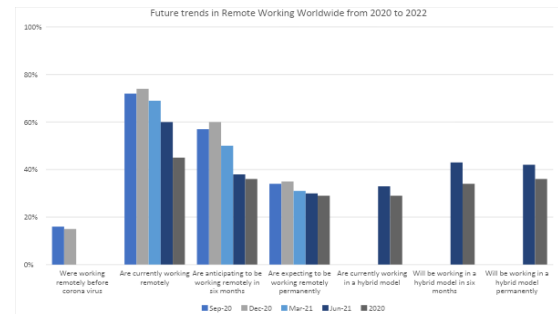
Figure

1.1.1:



Remote Working Trends, 2019 & 2020

In statistics collected by Statista worldwide between September and December 2020, March 2021, June 2021, and 2022 among 1,200 respondents and released in January of 2022, there was a distinct upswing in the number of people working from home as compared to prior to the



Coronavirus outbreak of 2020.

Figure 1.1.2: Remote Working Trends, 2020 & 2022

ADVANTAGES OF TELECOMMUTING

Improved Sustainability

Because employees work from an offsite location, businesses can reduce operational costs related to corporate headquarters. These operational costs

are mainly incurred when hiring, furnishing and maintaining office square footage. Even in the case where hybrid systems are being operated, there is still a cost saving, since employees working in shifts can occupy less office space.

From the perspective of the employee, telecommuting reduces transportation costs such as fuel or fares. Workers also save money on expenses associated with going to the office such as lunch, appropriate clothing and childcare (Benny, 2020). The costs forgone increase an employee's disposable income.

Widens Access to Expertise

Before the advent of telecommuting, work teams were made up of persons in the same geographic location. As a result, the expertise of the team was constrained to the talent base of the people present. Operating in an online setting allows employers to bypass the restrictions they might have when hiring for an on-site position. Through communication networks access to a global talent pool is created (Indeed Editorial Team, 2020). This furthers sustainability and innovation efforts by creating cross cultural teams with varied opinions.

Facilitates Collaboration Between Workers

Telecommuting facilitates collaboration between workers by providing communication paths. Communication is one of the factors that promotes teamwork. Online communication can be divided into synchronous and asynchronous modalities (Kenyatta University Module, 2022).

Synchronous communication is carried out in real-time using apps such as Zoom and Google meets. It facilitates complex tasks that need direct collaboration.

Asynchronous communication is suitable for non-complex tasks because it doesn't happen in real time. It is carried out using tools such as e-mail (Hacquard et Montabone, 2022).

Telecommuting offers geographical flexibility, allowing users to participate in the global teams. This promotes exchange of ideas between users and capturing of best practice databases.

DISADVANTAGES OF TELECOMMUTING

Overworking and Over-employment

Some employers have chosen to offer telecommuting as a strategic way to increase employee workloads. This includes practices such as supervisors contacting their subordinates outside of work hours & addition of administrative tasks to be done outside of work hours (Lietor et al, 2021).

On the flip side, employees have begun taking on multiple full time work engagements in a practice referred to as over-employment (Kelly, 2021). The workers attempt to navigate between two or more remote jobs using various techniques. As a result, output quality may suffer.

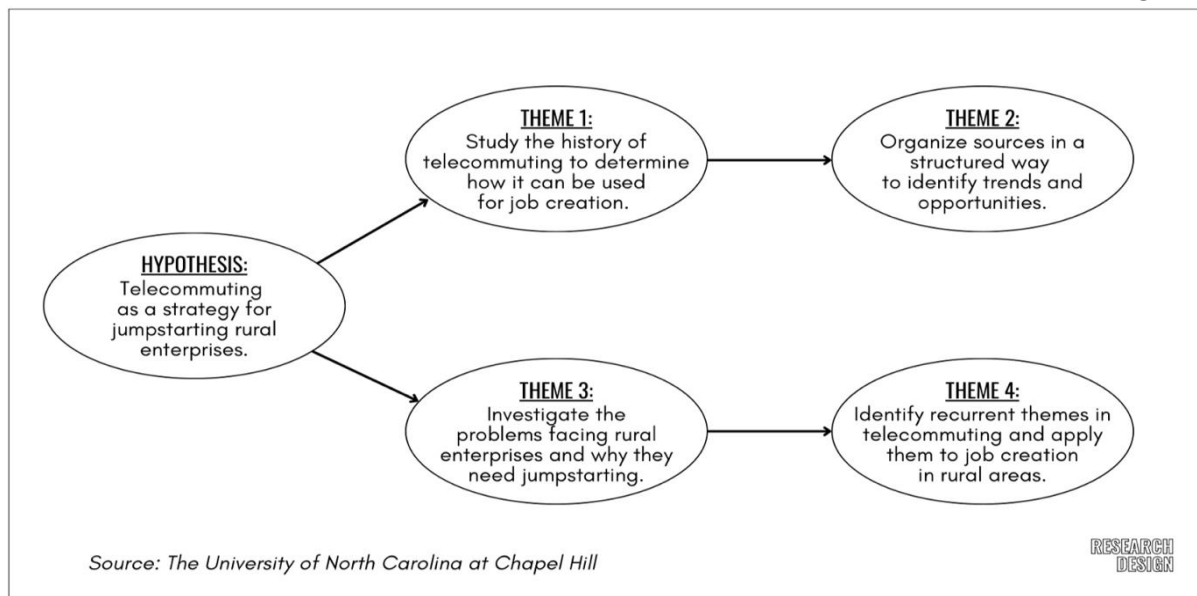
Adverse Health Implications

The act of telecommuting requires most employees to use a computing device for extended hours. This has key adverse health implications. The most

commonly reported health concerns associated with telecommuting are musculoskeletal stress and visual strain (Zalat et Bolbol, 2022). To put it more simply, a sore back and aching eyes. These symptoms, if left unaddressed, lead to chronic conditions that may

stress on workers, who feel pressure to work longer hours and perform duties beyond their job descriptions (Perna, 2022).

Another privacy issue is the possibility of data breach. Depending on whether or not the teleworker is operating on a



reduce quality of life for remote workers.

Privacy Concerns

In 2022, approximately 78% of employers in the USA were digitally monitoring their employees using remote work tools. They reported doing so in order to ensure that employees were being productive and not wasting company time (Banfield, 2022). Productivity surveillance

software is designed to perform tasks such as logging keystroke patterns, tracking website usage and taking screenshots throughout the day (Rehman, 2022).

Continued surveillance erodes trust between employers and employees. Not only is this practice ethically questionable, but it also puts undue

secure network or a public connection, malicious entities could hack into company files (Benny, 2020). The disadvantage of this is that most telecommuting resources are now digital. Loss of these resources is akin to experiencing robbery.

FUTURE OF TELECOMMUTING

Technological advancements have been occurring since the introduction of the concept of telecommuting. Cameras have gotten better, internet connections are now faster than ever and software has unmatched capabilities. Adopting the appropriate technology in terms of both hardware and software will elevate the telecommuting experience (Benny, 2020). Rural communities are well positioned to take advantage of these occurrences to enhance collaboration

of users and the unrestricted exchange of ideas.

Legislation is bound to catch up with digital labour practices in the near future. Laws that support fair wages (Wood et al, 2019), child labour protection laws and intellectual property laws (Mills, 2009) are examples of current legal concerns in the telecommuting workspace. It has been suggested that public participation is key when designing laws (Nabatchi et al, 2015).

Having labour boards/collectives where telecommuters band together to document best practices and raise their various concerns may well be a reality in the future of Telecommuting in Kenya.

Figure 1.2.1: Remote Working Trends, 2020 & 2022

METHODOLOGY

The methodology for this research was a thematic literature review. A thematic literature review refers to the evaluation of a specific subject matter by studying existing literature on the sink in order to identify themes and patterns (Charlesworth Author Services, 2022)..

A thematic literature review was selected because it allows the identification of strengths and weaknesses of a particular study topic (Charlesworth Author Services, 2022). In this case, it involved studying, organising, and synthesizing existing literature on telecommuting in Kenya.

The study themes are summarized in the diagram below. Theme 1 and

theme 2 were the focus of this study. Theme 3 and theme 4 present an opportunity for further studies into the same subject matter.

RESULTS & ANALYSIS

The most relevant texts were organised into a thematic literature review matrix. This matrix facilitated the identification of recurring themes and patterns in telecommuting. Priority was given to texts by Kenyan authors since Kenya is the geographic context.

Thematic Literature Review Analysis

STUDY 1

Title: Telecommuting on employee performance in the vocational and technical training state department in Nairobi County.

Author(s): Gacheri, S. C., & Kiiru, D. (2022)

Publication: *The Strategic Journal of Business & Change Management*, 9 (2), 929 – 939.

Aims & Objectives:

To examine the effects of telecommuting on employee performance in the Vocational and Technical Training State Department in Nairobi City County, Kenya.

Methods:

A questionnaire with both closed ended and open-ended questions. Validity and reliability of the data collection instrument was ensured. Qualitative data was analysed using content analysis. SPSS Statistical Analysis

was used to verify collected data and to generate descriptive statistics.

Sample Size: Population of 935 employees and a sample size of 252 participants.

Theory: Signalling Theory, Spill over and the Social Exchange Theory

Results/Conclusions:

The study concluded that telecommuting allows employees to be productive, happier, and less stressed; while firms are gaining from good personnel retention, increased output and lower absenteeism.

Implications:

The study recommended that the organisation needed to make sure pertinent information is easily and frequently communicated. The organisation should split the roles as effectively as possible in order to attain a higher overall quality of performance, which will likely result in more motivated staff. The study recommended that to allow workers to operate remotely, some level of technology may be required. This can be accomplished through simple methods like an instant chat app or platform, telecommuting, or email.

STUDY 2

Title: A Framework for Enhancing Employee Acceptance of Teleworking in Private Higher Education Institutions in Kenya

Author(s): Maluki Janet (2020)

Publication: *Unpublished Thesis, United States International University.*

Aims & Objectives:

To develop a better framework to enhance employee's acceptance of teleworking in private higher learning institutions in Kenya.

Methods:

A descriptive research approach with cross-sectional survey data that was quantitative. Primary data collection instruments used were questionnaires with both open-ended and closed-ended questions.

Sample Size: Population of 120 employees and a sample size of 108 participants.

Theory: Socio-technical system (STS) theory and adaptive structural foundational theory, and Diffusion of Teleworking (DOT) frameworks.

Results/Conclusions:

From the findings, participants felt that lack of proper training before and after adopting the teleworking system, lack of employee motivation and commitment, inadequate IT support, lack of top management support, unclear teleworking policies, and technological readiness could lead to rejection of teleworking. Participants also thought that conducting proper training before and after adopting the teleworking system, adequate IT support, top management support, and well-defined teleworking policies, technological readiness, user participation, motivation and commitment, and user voluntariness

can enhance employee acceptance to teleworking usage.

Implications:

A comparative study on the Acceptance of teleworking can then be carried out from model reviewers' comments. This would be a very informative and interesting study to determine if moderator and mediator factors exist towards teleworking acceptance.

STUDY 3

Title: Telecommuting Model for Small and Medium Enterprises (SMEs) in Kenya.

Author(s): Mugwika Consolata, Waweru Mwangi and Okeyo George (2016)

Publication: *European Journal of Computer Science and Information Technology, Vol.4, No.4, pp.13-19.*

Aims & Objectives:

To assist stakeholders to use the available infrastructure and personnel to allow formal telecommuting.

Methods:

A mixed study design using both qualitative and quantitative data. Qualitative data was collected using in-depth interviews whereas quantitative data was collected using an online questionnaire designed in Google forms. Data was organised and analysed using SPSS version 22.

Sample Size: Population of 84 employees.

Theory: Adaptive structuration theory (AST)

Results/Conclusions:

Data from this survey indicates that most of the workers have reliable and fast internet access away from the office and a reliable information support team. These employees also reported improvement in quality and efficiency in terms of service delivery. This was attributed to the time available to concentrate on their tasks unlike in the office where there could be interruptions or meetings.

Results showed that the SME had both the IT infrastructure and personnel in place. Based on these findings, an AST derived model was developed and tested. The study shows that adoption of the developed AST derived telecommuting model could lead to increased productivity, efficiency and quality of work.

Implications:

The success of their telecommuting programs has been due to incorporation of teleconferencing as a key to enabling technology use in their operations.

STUDY 4

Title: The Effect of Telecommuting on Employee Performance in Financial Institutions in Kericho Town, Kenya in the Context of COVID-19 Pandemic.

Author(s): Joseph Mwendwa Musinga, Amos Musili King'ola (2023)

Publication: *International Journal of Scientific and Research Publications*, Volume 13, Issue 1, January 2023.

Aims & Objectives:

To determine the influence of teleworking on employees' performance in the Public Universities of Mount Kenya region.

Methods:

The study employed descriptive research design. Open-ended questionnaires were distributed. Data analysis and interpretation was based on descriptive statistics and inferential statistics. In addition, a multiple regression model was used to explore the relationship between the variables under study. Data was analysed using SPSS software version 28. Descriptive statistics were presented in frequency tables, percentages, mean, standard deviations and graphs. Inferential statistics were used in testing null hypotheses.

Sample Size: Target population of 3,012 employees and a sample size of 353 respondents.

Theory: Adaptive structuration theory (AST)

Results/Conclusions:

Teleworking and employee performance of public universities were positively and significantly related. Balance of

family, work and organisation's long work hours helped reduce work stress. They had managed their work and family responsibility due to teleworking.

They feel comfortable with the implementation of teleworking compared to the normal working schedule. They attend to their work in a timely manner. Workers feel free to voice innovative suggestions to top management. There is an improved work environment and a positive influence on employee performance. This enhances employee commitment. Employees who work away from the office are overall more satisfied and motivated. Telecommuting improves employee productivity, good time management and benefits overall performance.

Implications:

Managers should improve the use of flexitime work arrangement because it enhances employee performance, reduces absenteeism and increases employee satisfaction. Universities should also build flexible work arrangements since they help employees in managing their workload, their personal life and helping them to assess their responsibilities.

STUDY 5

Title: Influence of Work Life Balance Practices on Employee Job Satisfaction in Commercial Banks in Machakos County, Kenya

Author(s): Felisters Nduta Muema (2018)

Publication: *International Journal of Economics, Commerce & Management* 2(4): 103-109

Aims & Objectives:

To examine Work -Life Balance practices influencing employee job satisfaction in Commercial Banks in Machakos County.

Methods:

A descriptive survey used to gather quantitative and qualitative data. Stratified random sampling. Structured questionnaires. Data analysed using SPSS. Regression & Pearson Correlation Coefficient used to analyse the relationships between the study variables.

Sample Size: Target of 16 banks. Population of 380. Sample of 191 respondents.

Theory: Adaptive structuration theory (AST)

Results/Conclusions:

The study established that the use of modern technology enabled employees to carry out certain tasks from alternative locations which helped reduce commute-related stress. The respondents cited poor connectivity, gaps in the human resource policies and inadequate gadgets as some of the challenges encountered.

Implications:

Improve on flexible working arrangements, adopt telecommuting arrangements. Consider giving benefits like on-site childcare and longer leaves that help rejuvenate employees.

STUDY 6

Title: Effect of Adoption of Remote Working on Service Delivery Among Devolved Units During the Covid-19 Outbreak in Kenya.

Author(s): Peterson Murithi Maimbu, Motanya Omai Daniel (2021)

Publication: *International Journal of Economics, Commerce and Management United Kingdom; Vol. IX, Issue 2*

Aims & Objectives:

To investigate the effect of adoption of remote working on service delivery among devolved units in Kenya during the COVID-19 outbreak in Kenya.

Methods:

Both descriptive survey research design and explanatory research design. Data collection instruments were questionnaires.

Sample Size: Target population of 2250 and a sample size of 278.

Theory: Stewardship Theory; a steward's main duty is shareholders' wealth protection as well as maximising via the performance of public institutions, since only then can the steward's utility functions be maximised.

Results/Conclusions:

The county government was not well equipped to facilitate working from home. Service delivery was negatively impacted. There was minimal support to workers to enable an efficient working from home environment. There was general indifference of the workers concerning the service delivery in county offices.

There was low and/or poor service delivery in the county offices due to lack of proper coordination and support from the right parties to ensure better service delivery. Home environments were not so conducive due to the nature of households in the county. Many respondents indicated living with other family members who disrupted them while they were working, leading to a low target achievement and low effectiveness in working. Lack of dedicated office space in homes, presented a challenge to working from home. Overall, there was no clear indication of improvement of service to the public during the lockdown period.

Implications:

The study concludes that even though strategic responses had a significant influence on service delivery in the counties, inappropriate employee skills and inadequate employee support in terms of education sponsorships, customised training, poor infrastructure and lack of commitment from county leadership were issues of concern to be addressed.

STUDY 7

Title: Employee Work Life Balance and Organizational Performance of the County Governments in Kenya.

Author(s): Irene Namuki Wakhungu, Dr. Kadian Wanyama, Dr. Joshua Abuya Olang'o (2020)

Publication: *The International Journal of Business & Management; Vol 8 Issue 6.*

Aims & Objectives:

To examine the effect of Work Life Balance (WLB) ON organisational performance (OP) in the County Government of Busia.

Methods:

Descriptive survey design was adopted. Primary data (quantitative data) was collected with the use of the structured questionnaires.

Sample Size: 91 respondents

Theory: Exchange and Spillover Theories

Results/Conclusions:

There was a positive, linear and significant association between flexible work schedule, telecommuting, compressed work weeks and organisational culture on organisational performance. An increase in flexible work schedule and compressed work weeks at the County Government of Busia would lead to corresponding increase in OP.

The County Government of Busia should improve on cultural issues like belief in hard work among employees, work ethics, observe timeliness and respect and recognize employees' exemplary performance among others. Employees should be encouraged to practice work life balance where the workforce can work from home, or outside the office

Implications:

Organisations must strive to fully operationalize flexi time, compressed work schedule, shift schedule and job sharing since these constructs of WLB

have positive influence. Organisations should make provisions of avenues like digital conferencing to enable employees to work away from their places of work thus saving on cost of space for operations. Organisations should continually use their *technology, collaboration and communication tools* to support their operations.

It has been noted that organisations that promote strategic employee work life balance such as employee technology, collaboration and communication tools can perform better because of the enhanced OP. Since telecommuting allows employee flexibility in choosing their work location, the management should fully implement policies on work life balance. Organisations should strengthen cultural aspects of the organisation such as dress code, work ethics (professionalism), timeliness, beliefs in high standards of its products among others.

STUDY 8

Title: Organization Culture and Information and Communication Technology Dynamics Affecting the Adoption of Teleworking in The Healthcare Industry in Kenya.

Author(s): Kinyua Jacqueline Wanjaa, James Mwikya (2021)

Publication: *Global Scientific Journals; Volume 9, Issue 8, August 2021; Online: ISSN 2320-9186.*

Aims & Objectives:

To establish the factors affecting the adoption of teleworking in the healthcare industry in Kenya with a focus on the effects of organisational culture and Information and Communications Technology (ICT) dynamics affecting the adoption of teleworking in the healthcare industry in Kenya.

DISCUSSION

The analysis presented comprises eight studies exploring various aspects of telecommuting, work-life balance, and organizational performance in different sectors and contexts in Kenya. The studies collectively investigate the impact of telecommuting on employee performance, job satisfaction, and organizational outcomes in diverse settings within Kenya.

Telecommuting and Employee Performance:

Studies 1, 3, 4, and 5 indicate a positive relationship between telecommuting and employee performance. They emphasize benefits such as increased productivity, reduced stress, and improved work-life balance.

Study 6, however, suggests challenges in the adoption of remote working, particularly in the context of devolved units during the COVID-19 outbreak. It highlights issues like inadequate infrastructure and lack of support affecting service delivery.

Factors Affecting Telecommuting Adoption:

Studies 2, 7, and 8 delve into factors influencing the adoption of telecommuting. They identify elements such as organizational culture,

technological readiness, support from management, and work-life balance practices as crucial determinants.

Study 8 specifically focuses on the healthcare industry, highlighting the importance of organizational culture and ICT dynamics in teleworking adoption.

Recommendations and Implications:

Common recommendations across studies include the need for clear telecommuting policies, adequate IT support, training for employees, and fostering a supportive organizational culture.

Flexibility in work arrangements, including telecommuting options, is seen as beneficial for employee satisfaction, retention, and overall organizational performance.

From the findings, it is suggested that while telecommuting offers numerous benefits, its successful implementation requires careful consideration of organizational policies, technological infrastructure, and cultural factors to optimize outcomes for both employees and organizations.

CONCLUSION

Working from home will likely continue to grow as a practice in Kenya over the years. The shift from on-site working to telecommuting has proven beneficial in most industries. This has been the case for both workers as well as employers. Telecommuters who work from home are generally less anxious and more productive.

Commuting, especially during rush hour, chews up 5 – 15 additional hours a week for the average employee (Benny, 2020). Eliminating this commute not only shrinks carbon footprints all round but frees up time for career development. Telecommuting could also be the solution to establishing work life balance, which has been a pressing issue for workers (Uresha, 2020). Having a healthy workforce reduces strain on an economy.

A work life balance and sustainability should be integrated into the work from home routine. Strategies such as time management, keeping spaces decluttered and embracing rest should be examined as possible solutions. These practices could result in a more well-rounded and productive telecommuter (Caringal-Go et al, 2022).

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Figure 1.1.1: data sourced from <https://statista.com/statistics/1122987/change-in-remote-work-trends-after->

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Figure 1.1.2: Statista Research Department, July 7, 2023, The Global telework state and trend COVID 2020-2022,

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Figure 1.2.1: model referenced from University of North Carolina at Chapel Hill. Details generated by authors.

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Provide a short abstract of 100 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references. Inclusive key words or short phrases of not more than 10 words arranged in alphabetical order.

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Italise the name or title of newspapers, books, magazines, television shows, poems, plays, movies, TV programs, artworks, song titles, and music. Italise foreign expressions, when their meaning would not be understood by the general readers of Africa Habitat Review Journal.

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Book References:

Maina M. (1993), How to write a good proposal, Frajopa Printers & Publishers Mall, Nairobi, Kenya

Journal articles:

Olima, W.H.A. (2002). The conflicts, shortcomings, implication and the urban land management system in Kenya. *Habitat International*. 21(3), 319-331.

Conference Paper from Conference Proceedings:

Rose, I.N. (2010). Informal construction workforce phenomena. Unpublished paper presented at a Conference on "Construction innovation and global competitiveness". Norfolk Hotel, Nakuru, 13th – 16th July, 2010.

Internet journal:

Maina M. (2019). Looking at Traditional Use of Leather as Dress in Kenya: a case study of Keiyo traditional clothing. *Africa Habitat Review Journal*. Retrieved on January 25th, 2019, from: <http://uonbi.ac.ke>

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