



This work is licensed under
a Creative Commons Attribution-Non Commercial-
ShareAlike 4.0 International License.

FASHION DESIGN-RELATED DOCTORAL STUDIES IN SELECTED KENYAN UNIVERSITIES: ADVANCING APPLIED RESEARCH IN SUSTAINABILITY AND HUMAN-CENTRED APPROACHES (SUB-THEME: DESIGN EDUCATION FOR SUSTAINABILITY)

Sophia N. Njeru

Department of Fashion Design and Marketing, P.O. BOX 136-90100, Machakos University, Kenya Kenyasnjeru@mksu.ac.ke

Mugendi K. M'rithaa

President Emeritus: World Design Organization (WDO), P.O. BOX 26540-00504, Nairobi, Kenya MugendiM@gmail.com

ABSTRACT

Globally, PhD training has received particular currency in higher education policy circles. Universities are challenged to conduct research that demonstrates measurable positive impact to stakeholders. Notably, all fashion design doctoral theses in Kenyan universities adopted pure/basic research bearing limited scope within the practical-oriented discipline. This paper explores how thesis content occasioned skewedness toward basic research and limited sustainability discourse through mixed-method research design. Fashion design-related doctoral research focused on fashion marketing (34%), fashion design training (22%), textile science (22%), sustainable fashion (11%), and consumer behaviour (11%). Fashion stakeholders' increasingly complex conundrums persist for lack of practical solutions notwithstanding that research outcomes in design-related disciplines need designing. This paper strongly recommends taught-doctorate programmes incorporating practical-oriented units and alignment of research to national and international development goals and research agendas. Consequently, fashion design doctoral candidates should competently engage in emerging discipline-specific issues especially trans-disciplinary applied research in sustainability as well as human-centred approaches.

Keywords: applied research; fashion design; human-centred approaches; sustainability

1. INTRODUCTION

Globally universities are challenged to conduct research that demonstrates measurable context-responsive social impact by positively contributing to the realization of diverse national development plans and visions (M'Rithaa & Jamie, 2017) and international development goals namely United Nations Sustainable Development Goals (SDGs). The development of higher education (HE) systems is particularly critical in Africa given the potential of research to drive scientific output and innovation in order to address dynamic significant challenges (British Council [BC] and German Academic Exchange Service [DAAD], (2018) experienced by stakeholders: academia, end-user, solution economy, industry and community. For instance, unemployment among the youth (15-24 years old) in Kenya stands at 39%, the highest in eastern Africa (BC, n.d). Currently, there is a 'shared optimism' in sub-Saharan Africa (SSA) on the value of building PhD capacity, as exemplified in the Kigali Communiqué (2014) and the Dakar Declaration (2015) (BC & DAAD, 2018). The outcome of a doctoral study in problem-solving disciplines (inter alia fashion design) can be the production of consumer products' prototypes, curriculum development or a design practice tool (Evans, 2009) as well as a fashion collection, training module, marketing tool, theory, textile decoration technique or a policy brief emanating from applied research in sustainability (ARS) and human-centred approaches (HCAs). In Kenya, doctoral research must constitute not less than two thirds of the entire PhD programme structures (Commission for University Education [CUE], 2014) preferably strategically aligned with Kenya Vision 2030, African Union (AU) Agenda 2063: The Africa We Want and UN SDGs. Lecturers with fashion design PhDs in Kenya account for 30.4% of the total number who deliver all degree programmes (Njeru, 2016) posing a significant strain on the human resource. Kenyatta and Maseno Universities in Kenya have been offering fashion design doctoral degree programmes for almost 20 years. A reconnaissance survey of fashion design-related PhD theses submitted in the two universities between 2007 and 2014 reveals that 100% adopted pure/basic research – these advance knowledge at the expense of applied research which solve a current problem relevant to society and HCAs. Consequently, there is a dearth of robust concrete and impactful interventions to fashion design conundrums despite the discipline being problem-solving and practical-oriented.

2. CONTENT OF DOCTORATE THESIS

A thesis is the final embodiment of an advanced independent study conducted by a doctoral candidate. The research should strictly employ the principles and practice of research methodology (Evans, 2009). There is a marked disconnect between PhD research topics/output and the national research agenda, which calls for an evaluative framework at national level for judging the quality and relevance of research output, including PhD output (BC & DAAD, 2018). All sections of research include literature. thus a good literature review must be exhaustive, fair in its treatment of authors, topical, from varied sources and well organized (Mouton, 2001). Theory and research are inextricably linked and therefore complimentary in nature. Both qualitative and quantitative research methods may be employed and be robustly defended in design-based PhDs (Evans, 2009). Problem-solving disciplines, such as fashion design should embrace trans-disciplinary (TD), human-centred and participatory qualitative tools for more creative and innovative solutions in the development projects in Afrika¹ (M'Rithaa & Jamie, 2017) and to significantly deepen the range of human problems Home Economics (comprising clothing and textiles among others) the discipline would consider (McGregor, 2016). Evans (2009) argues for the use of researcher-practice as a data collection method in creative disciplines whereby the role of practice becomes 'data translation'. Technique triangulation is highly recommended in doctorate research in order to provide the whole picture about the phenomenon. Three factors motivate researchers to engage in practice, specifically industrial designers: research outcomes need designing; designers enjoy designing and; students need tutors that can design (Evans, 2009).

3. SUSTAINABLE FASHION

The contribution to Africa's "creative economy" and society by the creative industry/solution economy that comprises fashion design among others, over many years has been relatively small despite its huge potential (Nzohabonimana, 2016). Fashion design is the art of application of design and aesthetics to apparel, fashion accessories and textile products influenced by arts, aesthetics, technology, culture, architecture, science and politics and varies over time and place (Campos & Rech, 2010). Fashion design research focus areas include sustainable fashion, socio-cultural, economic and psychological aspects, technology, product development, historic textiles and costumes, costume conservation, textile science and curriculum. Sustainability encompasses materials, energy, products, product-service systems, distributed economies, social innovation, circular economy, business models, indigenous practices, informal economies, policies and education. Fashion production and consumption are unsustainable. Sustainability frowns on wasteful consumption (Dissanayake

¹ Afrika (as spelt with a 'k') reflects the emerging narrative of the continent as viewed from the 'inside-out' - in contrast with Africa (the traditional 'outside-in' perspective).

& Sinha, 2012).

Unsustainable fashion consumption is occasioned by fast changing fashion trends, affordable prices and mass production systems (Niinimäki, 2012) and limited lifespan of sustainable fashion products (Armstrong et al., 2016) which lead to disposal of waste products. Co-creation, a design approach where many stakeholders are actively involved in the design process (Prahalad & Ramaswamy, 2000) could be the panacea to unsustainable consumption and to meet the needs of a growing population of environmentally (and socially) conscious consumers willing to pay a premium for sustainable products (Republic of Kenya, 2015) especially Gen Y which is one of the most informed age groups about environmental issues, with enormous influence and buying power (Brosdahl & Carpenter, 2010) as well as special-needs end-users. In Kenya the manufacture of textile and apparel, and dyeing and leather is categorized as moderate and high energy-intensive respectively (Ecocare, 2013). The solution to unsustainable fashion production is green manufacturing/cleaner production: the manufacturing of green products and the greening of manufacturing (Republic of Kenya, 2015) and packaging, thus safe and healthy for workers, communities, and consumers. Green/sustainable products are durable, repairable, easily bio-degradable, recycled, reversible, multi-styled, unisex, allow for growth of end-users, adaptive, made from natural fibres and decorated with natural dyes. At the end of the products' life they can be sold in flea markets instead of disposing in landfills. The dynamic sustainability conundrums demand doctoral candidates to innovatively employ ARS and HCAs in order to address them without off-setting economic benefits.

4. STATEMENT OF THE PROBLEM

The authors collectively by virtue of serving for extended periods in schools' Postgraduate Studies Committee as well as supervising and examining doctoral theses have observed some trends in the fashion design-related doctorate theses: 100% of the research outcome is pure/basic research at the expense of ARS and HCAs; devoid of diverse current design methodological applications and; limited scope in terms of appreciating emerging global trends especially sustainability in the disciplinary domain. Consequently, doctoral researches conducted did not provide practical solutions to societal problems thus have limited relevance/impact. This trend is contrary to the imperative for PhD candidates to conduct meaningful authentic research that substantially demonstrates positive measurable social, economic, cultural and environmental impact whilst strictly employing emerging principles and practice of design-related research methodology. No attempt has been made to systematically analyse fashion design-related doctorate research in Kenya in terms of contribution to sustainability and research output. Thus, the specific objective of the study was to analyse fashion design-related doctoral thesis content that drives the skewedness toward pure research output and lack of sustainability concepts.

5. RESEARCH METHODOLOGY

The research design adopted was mixed-method: literature reviews and descriptive survey. The study was conducted in Kenyatta and Maseno Universities in Kenya. These universities combined have offered fashion design doctorate degree programmes since 2000. The study population comprised nine fashion design-related doctorate theses. The theses and six doctorate graduates were selected via census and convenience sampling respectively. Data collection entailed analytically reading the theses guided by an observation checklist as well as a semi-structured questionnaire administered to the graduates via electronic mail. Quantitative and qualitative content analyses as well as descriptive statistics (frequencies and percentages) and thematic analysis were employed in the study. Both technique and data triangulation helped enhance reliability and verification of the study. In terms of ethical consideration the researchers and academic supervisors remain anonymous.

6. FINDINGS

6.1 Gender and graduate degree

Survey findings reveal that 100% of the respondents were female. The result is probably because women are perceived as the predominant and "traditional" purchasing agents of apparel for themselves and family members (Visser & du Preez, 2001).

The respondents pursued PhD in fashion design in Kenyatta University and Maseno University at 80% and 20% respectively. The most common structure of the programme was by doctorate-by-research model (83%) with a minority (17%) by course work/examination/thesis. The finding resonates with BC and DAAD (2018) that the structure of PhD in all the countries typically is doctorate-by-research model culminating in an oral defence of the thesis. Accordingly, the dearth of preparatory coursework and seminars denied the doctoral candidates exposure to and engagement with emerging fashion design-related research methodologies and global discourse on sustainable fashion. The candidates could have been ignorant of BC and DAAD (2018) assertion that researchers especially PhD candidates are essential in driving scientific output and innovation thus contribute to the overall development

of a country. Hence, the limitations perhaps led to skewedness toward basic research at the expense of ARS and HCAs thereby the stakeholders do not benefit from the research.

Years	Respondents	
	N	%
2-3	2	33
4-5	3	50
5-7	1	17
Total	6	100

Mean years = 4.5

From the survey, Table 1 reports half (50%) of the respondents took 4-5 years to complete their studies. The period was ample to conduct ARS and HCAs.

Table 1: Respondents by duration of studies

6.2 Doctorate thesis content

The study analysed thesis content that drives the skewedness toward pure/basic research output and lack of ARS and HCAs on fashion design doctoral research. The theses titles are broadly categorized as fashion marketing (34%),

Source of research problem	Respondents	
	*N	%
Academic supervisor	0	0
Theses	0	0
Scientific journal manuscripts on fashion design	3	50
Observation	4	67
Personal experience	3	50
Newspaper	1	17
My Masters thesis	1	17

*Multiple responses were allowed

fashion design training (22%), textile science (22%), sustainable fashion (11%) and consumer behaviour (11%). The limited doctorate study conducted on sustainable fashion occurred against a background of unsustainable fashion production and consumption even in Kenya, and solutions to the fashion conundrums require ARS and HCAs.

6.2.1 Source of research problem

Table 2: Respondents by source of research problem

Survey outcome (Table 2) reveals major source of the research problem was observation (67%). However, observation may be subjective and affirms BC and DAAD (2018) that there is disconnect between PhD research topics/output and national research agenda. The reliance on observation contributed to skewedness toward basic research outputs at the expense of ARS and HCAs for fashion design conundrums. Sericulture development in Kenya has been constrained due to lack of sufficient technological expertise in cocoon processing requirements and silk production process (P1). Despite the government's effort to support the use of information communication technology (ICT) by micro and small enterprises (MSEs), garment-making micro-enterprises (GMEs) in Kenya face marketing challenges (P9). There is threat of cultural extinction, specifically, the ethnic dress of the Mau Ogiek of Kenya (P3). Little of practical use has been published on the art of draping beyond introduction of the basics (P7). The adoption of the Kenya National Dress (KND) was unexpectedly low among the Kenyan public, despite bearing significant cultural and economic implications in Kenya for fashion designers, manufacturers and traders (P6).

6.2.2 Objectives of the study

An equal number of theses had four, five and six objectives. Verbs employed in the objectives include determine (25%), establish (22%), evaluate (9%), identify (9%), describe (7%), analyze (7%), verify, examine and assess (4%), and investigate, discuss and develop (3%). The results depict verbs of low level complexity in Bloom's taxonomy. The verbs contributed to skewedness toward basic research outputs rather than ARS and HCAs that would have innovatively solved real-life fashion design conundrums for diverse fashion stakeholders. P8 sought to determine the effect of soil properties and climate conditions in A. Americana "Marginata" fibre properties. P2 aimed to establish various marketing strategies undertaken by GMEs. P4 sought to identify range of products sold by textile-based handicraft traders. Noteworthy is that P6 aimed to develop a decision-making model for enhancing adoption of new local apparel designs. P6 resonates with Claudio et al. (2016) whose objective was to develop new forms of recycling synthetic textile waste containing PA66 (supplex) that could be applied in the development of new materials, products and business models.

6.2.3 Significance/justification of the study

Results reveal the words significance and justification were used interchangeably in the theses. The theses analysed argue that benefactors of the studies include fashion and textile industry, farmers, body of knowledge/research, universities/education, culture, government and enterprises. The industry was said to benefit from improved marketing of existing and potential micro-enterprises by using best e-marketing tools

(P9); Farmers were found to benefit from development of a concept to commercialize the A. Americana "Marginata" fibre (P8). Addition to the body of knowledge and research was textile handicraft trade in Africa (P4). The universities/education were reported to gain from improved UUGFAD training to address industry manpower needs (P5). The significance to culture was to conserve ethnic dress, add to the scarce collection in the Nairobi National Museum (NNM) and provide cross-cultural point of view in adapting theories and practices of dress to an African ethnic group (P3). Thesis P3 championed the implementation of the Kenya Constitution 2010 and achievement of Kenya Vision 2030 but omitted UN MDGs. Finding contradicts Ogot (2017) stresses that the significance of a project or research for PhD candidates must clearly describe the novelty, uniqueness and innovativeness of the idea as well as its impact. Though theses P2 and P6 allude to the development of manuals and P9 the design of appropriate tools and framework, these outcomes were not presented in the theses. Thereby, denying potential benefactors of valuable resources to address fashion design-related conundrums.

6.2.4 Theoretical or conceptual framework

The theses adopted conceptual frameworks (78%), theoretical framework (11%) and both theoretical and conceptual frameworks (11%). The use of both conceptual and theoretical frameworks could possibly be a misunderstanding of the difference between the two frameworks. Theories employed in the theses include Contextual (P3), Systems (P5), Entrepreneurial Orientation (P2), Contingency (P9) and Activity (P7) while models adopted were

Source of literature	Respondents	
	*N	%
Fashion design-related manuscripts in scientific journals	6	100
Theses	5	83
Textbooks	6	100
Newsletter	2	33
Magazine	4	67
Brochure	1	17
Trade publication	3	50
Government report	4	67

*Multiple responses were allowed

Entrepreneurship (P4) and Momentum of fashion industry (P6). It is crucial for fashion design doctoral candidates to develop home-grown theories and models of fashion.

6.2.5 Literature review/review of existing scholarship

Table 3: Respondents by source of literature

The survey outcome in Table 3 demonstrates that all the respondents (100%) obtained literature from fashion design-related manuscripts in scientific journals and textbooks probably because they are readily available in the university libraries and Internet. A further 83% sourced for literature in theses, which provided the local perspective of the phenomenon being probed. The finding resonates with Mouton (2001) that the bulk of scholarship is still published in standard scientific journals and textbooks, which should be the first stop for graduate candidates. Conversely, textbooks may be out-dated thus do not address contemporary phenomena. Government reports (though very detailed and current with a methodology section) would have essentially provided in-depth insight on diverse fashion design-related phenomena (for example industry competitiveness), but were partially (67%) sourced. The respondents were thus unable to grasp the magnitude of the problem under review, its impact on national development and potential for research, hence failed to provide practical interventions to the conundrums.

6.2.6 Research methodology

Theses content analysis explored the role of research methodology toward skewedness toward basic rather than ARS and HCAs notwithstanding that fashion design is a problem-solving discipline and that fashion is experiential.

6.2.6.1 Research design, study population and sampling techniques

Research designs adopted included survey design (56%), experimental (22%), ex-post facto (11%) and ethnography (11%). Notably, no study adopted mixed-method design. The outcome contradicts McGregor (2016) that stresses on Home Economics (which includes fashion design) research to adopt trans-disciplinary approach in order to design practical interventions. Textile science studies' population included silkworm strains (P1) and Agave Americana plants (P8). A significant majority (78%) of the study populations were stakeholders comprising GMEs (P2), textile handicraft traders (P4), fashion enterprises (P9), ethnic group (P3), staff and students of universities and technical training institutes (P5, P7) and consumers (P6). The human subjects provided opportunities for HCA applications and practical solutions to their challenges, but it was not exploited. Probability (78%) and non-probability (22%) sampling techniques were adopted. The former, influenced by the majorly quantitative research designs adopted led to skewedness toward basic research output rather than ARS and HCAs that is more amenable to fashion design.

6.2.6.2 Data collection methods and analysis

Generally, the studies employed 1, 2, 3 and 4 research instruments respectively at 45%, 22%, 22 and 11%.

The former negates the requirement for technique triangulation especially doctoral research which provides a basis for checking and rechecking interpretations and reveals “the whole picture” of the phenomenon (Kaiser, 1997; Gobo, 2008). Among the data collection instruments used were interview guide (27%), observation checklist (11%), fieldwork photography (11%), laboratory equipment (11%), semi-structured questionnaire (6%), focus group discussion guide (6%), and document analysis (6%). The evidence is inconsistent with M'Rithaa and Jamie (2017)

Data analysis techniques	Thesis	
	*N	%
Frequencies	7	78
T-test	2	22
ANOVA	3	33
Factor analysis	1	11
Multiple regression	2	22
Co-efficient of determination	1	11
Pearson product-moment correlation	1	11
Chi-square test of association	3	33
Thematic analysis	3	33
Qualitative content analysis	1	11

*Multiple techniques were employed

who stress that problem-solving disciplines, inter alia fashion design should embrace participatory qualitative tools for more creative and innovative solutions.

Table 4: Doctoral thesis by data analysis

Predominant employment of quantitative statistical techniques (Table 4) skewed the studies toward basic research. The candidates did not design, contradicting Evans (2009) who underscores that research outcomes need designing.

7. CONCLUSION AND RECOMMENDATIONS

A small pool of fashion design doctoral candidates solved diverse problems in textile science, sustainable fashion, fashion marketing, fashion design training and consumer behaviour through basic research. Notably, the studies were not aligned to Kenya's Vision 2030, AU's Agenda 2063 and UN's MDGs and SDGs thus failed to contribute to the goals' achievement. The skewedness toward basic research in the thesis content is attributed to the dominance of quantitative research at the expense of qualitative research designs and their accompanying tools. Hence, the fashion stakeholders' conundrums persist unabated because the studies did not provide concrete solutions despite fashion design being a practical-oriented discipline and research outcomes need to be designed.

In order to guide and enhance fashion design doctorate research in Kenya that promotes better quality of life for all, the following recommendations are made:

i) The development of new and revision of existing fashion design doctoral programmes to taught-doctorate per CUE guidelines. Units offered in the coursework to include fashion design for sustainability, seminars to engage with contemporary issues, practical-oriented to solve real-life problems, practicum for linkage with stakeholders, design-related research methodologies that promote robust impactful solutions to stakeholders' conundrums through innovation of products, curriculum, services, systems, tools and experience;

ii) Candidates should align research to national, regional and international research developmental agendas. Specifically Kenya's Big Four Agenda refers. In so doing, the candidates shall address existing national challenges and priorities especially unsustainable fashion production and consumption using ARS and HCAs; and

iii) Capacity building be actualized to address the dire shortage of fashion design PhD holders who are potential academic supervisors of graduate candidates. These graduates should be well-equipped to practically engage in design concerns, especially ARS and HCAs.

BIBLIOGRAPHY

1. Armstrong, C. M., Niinimäki, K., Lang, C., & Kujala, S. (2016). A Use-orientated clothing economy? Preliminary affirmation for sustainable clothing consumption alternatives. *Sustainable Development*, 24, 18-31.
2. British Council [BC]. (n.d). Next generation: Listening to the voices of young people. Retrieved from <http://www.britishcouncil.org/research>
3. British Council [BC], & German Academic Exchange Service [DAAD]. (2018). Building PhD capacity in sub-Saharan Africa. Retrieved from <http://www.britishcouncil.org/education/ihe>
4. Campos, A. Q., & Rech, S. R. (2010). The future of the present: Why & how of research trends. *Multi Journal*, 3(1), 35-47.
5. Claudio, P. de S., Martins, S. B., da Silva, F. C. M., & Almendra, R. A. (2016). Innovation and sustainability in materials, products and business models from solid waste: A value-added model for the R & D process, for *Sustainable Energy for All by Design*, ISBN 978-88-95651-23-1, 345-353.

6. Commission for University Education. (2014). Universities standards and guidelines. Retrieved from <http://www.cue.or.ke>
7. Dissanayake, D. G. K., & Sinha, P. (2012). Sustainable Waste Management Strategies in the Fashion Industry Sector. *International Journal of Environmental, Cultural, Economic and Social Sustainability*, 8(1), 77-90.
8. Ecocare International Ltd. (2013). Energy Performance Baselines and Benchmarks and the Designation of Industrial, Commercial and Institutional Energy Users in Kenya. Retrieved from <http://www.ecocareea.com>
9. Evans, M. (2009). Creative professional practice in methods and methodology: Case study examples from PhDs in industrial design. Retrieved from http://www.experientialknowledge.org.uk/proceedings_speakers_files/Evans.pdf
10. Gobo, G. (2008). *Doing ethnography*. Los Angeles: SAGE Publications.
11. Kaiser, S. B. (1997). *The social psychology of clothing: Symbolic appearances in context (2nd ed revised)*. New York: Fairchild Publications.
12. McGregor, S. L. T. (2016). Exploring modality in Home Economics Discourse: Will, Can, Might, Should. *International Journal of Home Economics*, 9(2), 70-94.
13. Mouton, J. (2001). How to succeed in your master's and doctoral studies: *A South African guide and resource book*. Pretoria: Van Schaik Publishers
14. M'Rithaa, M. K., & Jamie, A. (2017). Advancing the Afrikan lions' narrative: the quest for a sustainable future for all... Retrieved from <http://www.cesa.co.za/sites/default/files/GAMA2017ProfMugendi.pdf>
15. Niinimäki, K. (2012). Proactive fashion design for sustainable consumption. *Nordic Textile Journal*, 1, 60-69.
16. Njeru, S. N. (2016). Incorporation of Sustainability into Fashion Design Degree Programmes in Kenya, for *Sustainable Energy for All by Design*, ISBN 978-88-95651-23-1, 393-404
17. Nzohabonimana, D. (2016). The creative economy in Africa. *Rwandair Inzazi Magazine*, December 2015-February 2016, 70-72.
18. Ogot, M. M. (2017). *Write winning grant proposals: A step-by-step guide to writing grant proposals that get the funding you need (2nd Ed)*. Kisumu: Anyange Press Ltd
19. Prahalad, C. K., & Ramaswamy, V. (2000). Co-creating value with customers. *Strategy & Leadership*, 32 (3), 4-9.
20. Republic of Kenya. (2015). Kenya Apparel and Textile Industry: Diagnosis, Strategy and Action Plan. Ministry of Industrialization and Enterprise Development [MOIED], Nairobi, Kenya.
21. Visser, E. M., & du Preez, R. (2001). Apparel shopping orientation: Two decades of research. *Journal of Family Ecology and Consumer Sciences*, 29, 72-81
22. Brosdahl, B. J. C., & Carpenter, J. M. (2010). Consumer knowledge of the environmental impact of textile and apparel production, concern for the environment, environmentally friendly consumption behaviour. *Journal of Textile and Apparel Technology and Management*, 6(4), 1-9