13th International SAAFECS Conference

Saint George Hotel and Conference Centre, Pretoria,

5-9 March 2018

Book of Abstracts
Dear Delegate

The conference organisers have introduced a new and exciting 5 day programme for the upcoming SAAFECS Conference in 2018 consisting of Thematic Seminar Sessions on each day of the conference together with research paper presentations to complete the programme on the day. The Thematic Seminar Sessions have been selected to address current and relevant issues pertaining to Consumer Science. A panel of expert speakers have been invited to present different views and facts related to the Thematic Session after which a panel discussion will follow.

It is envisaged that the Thematic Seminar Sessions will create a thought provoking atmosphere, conducive to scholarly discussion and sharing of new thinking and ideas. The conference organisers are hopeful that the 2018 conference will be one to remember through the vibrant and lively academic discourse that will take place from 5 – 9 March 2018. Hope to see you there!

Prof Elizabeth Kempen
SAAFECS president
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<td>07:30</td>
<td>Registration: Veranda Dorian</td>
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<td>07:30</td>
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<td>08:00</td>
<td>Opening and Welcome: Prof E Kempen, SAAF ECS President</td>
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<td>08:00</td>
<td>Introduction to co-host of the SAAF ECS conference: Dr Ashika Naicker representing the COD from the Department of Food and Nutrition Consumer Sciences, Durban University of Technology</td>
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<tr>
<td>08:15</td>
<td>Session Chair: Dr Ashika Naicker, Department of Food and Nutrition Consumer Sciences, Faculty of Applied Sciences, Durban University of Technology</td>
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<td>08:30</td>
<td>Keynote Speakers</td>
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<td>Dietary sugar, obesity and behaviour change</td>
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<td>08:30</td>
<td>Prof Hettie Schonfeldt R Nutri (UK) (SA) PriSciNat (Fd Sci), is Professor Extraordinaire and Research Leader for Public Policy Engagement and for the Biofortification Programme in the Institute of Food, Nutrition and Well-being at the University of Pretoria. She is a rated scientist and a principal investigator in the DST-NRF Centre of Excellence in Food Security. Hettie is a team member of the Bureau for Food and Agricultural Policy (BFAP) which provides a yearly Agricultural Outlook (currently 2014 - 2023) on African Food Systems, with her focus particularly at the nutrition and consumer interface. She is a reviewer of nutrition programmes for the South African Department: Performance Monitoring and Evaluation of the Presidency. She serves as scientific advisor to the South African National Department of Health, which includes tasks such as the development of policies, advisory panels and Codex. She serves as scientific advisor to AFROFOODS, a network on the African continent, training 134 individual participants from 24 different African countries forming part of IUNS/UNU/FAO INFOODS Task Force. Hettie was chief rapporteur of the FAO/WHO Expert Consultation on Protein Requirements for human health. She also formed part of the Evaluation Team that considered FAO’s work in Nutrition worldwide.</td>
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<tr>
<td>08:30</td>
<td>Sugar Tax: A panacea for obesity in South Africa</td>
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<td>08:30</td>
<td>Prof Marjanne Senekal [RD (SA), PhD] is a registered dietitian and currently Professor in the Division of Human Nutrition, Department of Human Biology, Faculty of Health Sciences, University of Cape Town. Over the past 35 years she has been actively involved in research supervision (graduated 57 Honours, 13 masters and 5 PhD students); publication of research papers (34, mostly in international journals), research reports, a dietary assessment and education manual, a weight management manual for female students and chapters in textbooks. She has presented numerous papers at national and international conferences, of which many were invited presentations. Her core research areas over the years have been prevention and management of obesity (including nutrigentic aspects) in different population and age groups, as well as dietary intake methodology. She is regularly invited to comment in the media on controversial nutrition related topics. She is also regularly invited by professional organizations to debate such topics on public and scientific platforms. Career highlights include being an elected member of the Professional Board for Dietetics and Nutrition for a five year period; being a member of the National Obesity Task Team for the development of an Obesity Prevention Strategy for South Africa; receiving the ARP Walker prize for best nutrition research sponsored by South African Sugar Association; being the African representative for the International Union of Nutritional Science Committee on Genetics, Nutrition, Physical Activity &amp; Chronic Diseases; being a director of the International Society of Nutrigenics/Nutrigenomics; and being an invited member of the advisory committee of World Review of Nutrition and Dietetics and an associate editor for the UK based Public Health Nutrition Journal.</td>
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### Health Revolution? How consumers are responding to the health agenda.

Ms Ailsa Wingfield currently serves as head of Thought Leadership across Nielsen’s global Emerging Markets, with responsibility for helping companies ‘future-proof’ their businesses through strategic foresight, knowledge creation and thought leadership curatorship. She has extensive experience in Africa working with global and local brands in multiple countries across the consumer goods and telecommunications industry. Ms. Wingfield has held numerous positions within the company, most recently as head of Africa Marketing and Communications, and previously as Sub Saharan Africa Telecommunications business lead, based in Kenya. She also headed up the South African Product Leadership portfolio, launching the ScanTrack and ‘What’s in Store’ solutions. She began her career at Nielsen in client service where she provided strategic counsel to some of the largest consumer brands in South Africa, including Nestle, Reckitt Benckiser, Tiger Brands, Gillette, AVI, L’Oreal, Danone, Nampak. Ms. Wingfield has also worked for Nokia and Allianz Insurance. Ms. Wingfield has produced and published a number of content features including the bi-annual *Africa Prospects indicator* (APi), *Navigating the Africa Retail Distribution Labyrinth*, *Media and Mobile Strategies in Africa*, and *Tapping into Africa: Turning Opportunity into Possibility*. She studied a Commerce degree at the Nelsen Mandela Metropolitan University (NMMU), and served local and national Vice President roles within the global student economics and commerce organization, AIESEC. Ms. Wingfield currently resides in Johannesburg, South Africa with her husband and two sons.

### Refreshments and Poster Presentations (Food & Nutrition)

Nutritional status and food security of primary school learners participating in the school feeding scheme in Jozini area

**Mr SB Mbokazi, Dr CJ du Preez – University of Zululand**

Selected Clinical Risk Factors of Non-Communicable Diseases in Relation to the Dietary Practices of Sponsored vs. Non-Sponsored University Students

**Miss ZA Mposula, Dr A Naicker – Durban University of Technology**

### Thematic Session 1: PANEL DISCUSSION

**Venue:** Dorian 1
POSTERS PRESENTED:

NUTRITIONAL STATUS AND FOOD SECURITY OF PRIMARY SCHOOL LEARNERS PARTICIPATING IN THE SCHOOL FEEDING SCHEME IN JOZINI AREA

Mr SB Mbokazi, Dr CJ du Preez – University of Zululand

Keywords:
Food security, nutritional status, school feeding.

Introduction:
The purpose of the school feeding scheme, now known as the National School Nutrition Programme (NSNP) is to improve education and health of the learners, alleviation of hunger and improvement of school attendance and punctuality (Department of Education, 2004; Meaker, 2008). This is achieved by providing learners with nutritious meals and educational programs that enable them to maintain good eating and lifestyle habits for life (Nhlapo, 2013; Graham, 2015). The objective of the study was to assess the nutritional status and food security of primary school learners participating in the school feeding scheme.

Methodology:
Six primary schools on the NSNP were randomly selected in Ingwavuma Cluster of Education, under Jozini Municipality. The total sample comprised of 240 grade 6 learners between the ages of 10 and 16. Weights and heights were measured to calculate BMIs and questionnaires were used to interview learners. The information collected using these tools include: Demographic characteristics of learners, household socio-economic characteristics, services and infrastructure, household food production, eating behaviour, household coping strategies, learner dietary diversity and anthropometric measurements. Descriptive analysis was done using SPSS and results are presented as tables and figures.

Results:
The majority of participants had consumed meals at home and school and their diets mainly consisted of cereals. Boys rarely consumed Vitamin A rich vegetables while girls had zero intake. However, both sexes had inadequate intake in certain essential macro- and micronutrient rich foods such as Vitamin A rich fruits, fish and dairy products. Micronutrient intake was severely inadequate with vitamin A rich vegetables constituting only 1.7%, dark green leafy vegetables (6.3%), vitamin A rich fruits (8.3%), with moderate consumption levels of other fruits (20.8%), and satisfactory levels of other vegetables such onions, green pepper and carrots (50.8%). Pertaining anthropometric measurements, height for age values obtained from males indicated that the majority (n=74) were within normal values across all ages. Yet, 43 of them were moderately stunted and six being extremely stunted. The BMI values also indicated that the majority of males (n=111) are within normal values with only two of them overweight and eight being obese. Similarly to the boys, the height for age values obtained from females indicated that, the majority of them (n=83) were within normal values across all ages, 19 of them were moderately stunted and 5 being extremely stunted. The BMI values also indicates that the majority of girls (n=92) were within normal values, with only two of them overweight and sixteen obese. There were no major concerns pertaining to food security, however the main issue was inadequate micronutrient intake. As much as overweight and underweight was not a major concern, but malnutrition is likely to manifest in future due to low intakes of fruits and vegetables. In contrast, overweight may also increase if learners continue to consume high level of sugar and refined cereals which could be a risk factor for diabetes and many other chronic diseases.
Conclusion and recommendations:
School Nutrition Programme serve as an immediate intervention for reduction of hunger and malnutrition, and also enable children to concentrate in class. However, food handlers do not follow dietary guidelines when preparing food and this affects the quality of food consumed in schools. To rectify this, a team of nutrition experts has to be appointed to constantly monitor the quality of foods delivered in schools and its diversity. This team can also evaluate whether food served to children is of quality, prepared in a manner that enables it to retain its nutritional contents and maintains higher safety standards.

References:
Meaker, J. (2008). An observational cross-sectional investigation of foodservice management and general management practices in schools running the national school nutrition programme (NSNP) in the formal and informal urban areas of Pietermaritzburg, KwaZulu-Natal, South Africa (Published Masters Dissertation). Stellenbosch University.

SELECTED CLINICAL RISK FACTORS OF NON-COMMUNICABLE DISEASES IN RELATION TO THE DIETARY PRACTICES OF SPONSORED VS. NON-SPONSORED UNIVERSITY STUDENTS

Miss ZA Mposula, Dr A Naicker – Durban University of Technology

Keywords:
Non-communicable diseases; risk factors; socioeconomic factors; eating habits

Introduction:
There are several health implications associated with the transition of young individuals from school to university. Such health implications include dietary habits that are associated with an elevation in incidence of risk factors related to the progression of non-communicable diseases in South Africa. University students have a high exposure to junk and fast foods, due to such food items being made available through commercial franchises as well as campus food courts and street vendors. The present study was undertaken to determine the prevalence of risk factors for non-communicable diseases among university students in Durban.

Methodology:
Two-hundred-and-sixty African university students, aged 18-35 years, living in Durban were randomly selected for this survey. The group consisted of 130 non-sponsored and 130 sponsored individuals.

The socio-demographic and anthropometric profile, diet, blood pressure, fasting blood glucose, triglycerides and total cholesterol of participants were examined. In order to determine the prevalence of risk markers, the WHO cut-off points were used. Twenty-four hour food recall questionnaires including two week days and one weekend day were used to determine actual intake of nutrients compared to the recommended dietary reference intake. Food Frequency Questionnaires for a period of seven days were completed with the purpose of determining food diversity.
Results:
BMI ≥25, was recorded for 34.62% of non-sponsored participants and 27.69% sponsored participants. Central obesity was defined by waist circumference ≥94 cm for males and ≥80 cm for females, 17.69% non-sponsored participants and 13.85% sponsored participants were classified as centrally obese. Systolic blood pressure >130 mmHg was recorded for 8.46% non-sponsored participants and 9.23% sponsored participants. Diastolic blood pressure ≥85 mmHg was recorded for 7.69% non-sponsored participants and 10.77% sponsored participants. Fasting blood glucose ≥5.6 mmol/L was recorded for 1.54% non-sponsored participants and none of the sponsored participants. Triglyceride levels ≥1.7 mmol/L were recorded for 43.85% non-sponsored participants and 38.46% sponsored participants. Cholesterol levels ≥5.2 mmol/L were recorded for 4.62% non-sponsored participants and 3.85% the sponsored. Carbohydrate intake was high for both non-sponsored and sponsored participants. Non-sponsored males consumed 177.88g and sponsored participants consumed 196.36g of carbohydrates. A consumption of 164.68g for non-sponsored females and 143.38g for sponsored females was recorded, the DRI for carbohydrates in this group was recommended at 100g. Carbohydrates contributed 59.23% for non-sponsored males and 55.68% for sponsored males of the daily energy needs in the group. Moreover, carbohydrates contributed 54.21% for non-sponsored females and 54.63% for sponsored females, well within the levels recommended by the WHO (55-75%). Non-sponsored males consumed 38.72g and sponsored participants consumed 57.97g of fat. A consumption of 46.91g for non-sponsored females and 39.69g for sponsored females was recorded. The total fat intake for both non-sponsored and sponsored males was within the recommended goal by the WHO (15-30%), with non-sponsored males obtaining 26.12% and sponsored males 29.75% of energy from fat. On the contrary, the total fat intake for both non-sponsored and sponsored females was slightly higher than the recommended goal by the WHO (15-30%), with non-sponsored females obtaining 31.55% and sponsored females 30.58% of energy from fat. The protein contribution for non-sponsored males was 47.32g and 54.97g for sponsored males, the DRI for protein in the male group was recommended at 56g. The protein contribution for non-sponsored females was 46.10g and 41.35g sponsored females, the DRI for protein in the female group was recommended at 46g. Protein contribution was 14.67% for non-sponsored males, 14.57 for sponsored males, 14.25% for non-sponsored females and 14.69% for sponsored females, well within the levels recommended by the WHO (10-15%).

Conclusion and Recommendations:
Overall results of the study indicated that only sponsored males consumed more fat and energy when compared to non-sponsored males. Moreover, non-sponsored females were found to consume more fat and energy than sponsored females. It is evident that dietary modification through increased consumption of fruit and vegetables, a decreased intake of fat and energy consumption is required. In conjunction with weight reduction and increased physical activity for a sustainable intervention strategy to reduce and control the burden of non-communicable diseases in South Africa.

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<td>12:00 - 13:00</td>
<td>Lunch: Dorian 1 Theme: Food &amp; Nutrition Session Chair: Mrs BP Lefadola</td>
<td>Lunch: Dorian 2 Theme: Food &amp; Nutrition Session Chair: Dr H Van Staden</td>
<td>Lunch: Dorian 3 Student Session Theme: Hospitality Management and Sustainability &amp; Globalization and Food &amp; Nutrition Session Chair: Mrs H Dreyer</td>
<td>Lunch: Dorian 4 Theme: Clothing, Textiles &amp; New Technologies Session Chair: Prof A Arko-Achemfuor</td>
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<td>13:00 - 13:30</td>
<td>Factors influencing the choice of food intake of students of the Federal Polytechnic, Bida, Niger State, Nigeria Dr AA Folorunso – Obafemi Awolowo University, AS Habeeb – The federal Polytechnic Bida</td>
<td>Consumers’ attitudes regarding the use of salt information on food labels Dr H Van Staden, Prof E Wentzel-Viljoen, Prof D van der Merwe – North-West University</td>
<td>Consumers’ perceptions and experiences of food safety and the contribution to food waste in Gauteng Ms NL Marule, Dr GE du Rand, Dr N Marx-Pienaar – University of Pretoria</td>
<td>Competitive Advantage of South African Clothing Industry: Opportunities and threats Mr S Mbatcha, Mrs BM Jacobs – University of Pretoria</td>
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<td>13:30 - 14:00</td>
<td>What motivates consumers to choose sugared dairy products? Ms J Botha, Dr A Mielmann, Mrs H Dreyer - North-West University</td>
<td>The nutritional status and socio-demographic profile of children attending Early Child Development Centres in Botha’s Hill, Durban Miss O Makanjana, Prof C Napier, Dr A Naicker – Durban University of Technology</td>
<td>The contribution of urban agriculture to food security in Emfuleni Local Municipality, Gauteng province Mr TP Modibedi, Mr MS Maake – University of South Africa</td>
<td>Unexplored Impact of South African public HEI’s Fashion Design Departments on the Competitiveness of the Clothing Industry Mr S Mbatcha – University of Pretoria, Prof A Mastamet-Mason – Tshwane University of Technology</td>
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<td>14:00 - 14:30</td>
<td>Food Waste Prevention and Reduction Practices in Food Service Operations: A Review Mrs BP Lefadola, Dr A Viljoen Dr GE DuRand – University of Pretoria</td>
<td>Anthropometric Profile and Dietary Intake of an Emerging Middle Income Community Miss SN Memela, Prof CE Napier – Durban University of Technology</td>
<td>An investigation on the role of food gardens to food security and community development in Thulamela Municipality Mrs PC Kwinda, Dr MR Masekoameng, Prof F Mudau – University of South Africa</td>
<td>Maintaining and sustaining the Kente weaving tradition through the apprenticeship system in two communities in Ghana Prof A Arko-Achemfuor, Prof P Quan-Baffour – University of South Africa</td>
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<td>14:30 - 15:00</td>
<td>Breastfeeding Practices of Student Nursing Mothers at the University of Education, Winneba Mrs AN Amoah, Mr G Eshun Miss L Tetteh – University of Education Winneba</td>
<td>Comparative assessment of chemical compositions and mineral content of four selected South African herbal teas and the synergistic response of combined teas Ms F Malongane Prof JL Mc Gow Prof FN Mudau – University of South Africa</td>
<td>Risk of non-communicable diseases of taxi drivers by analysing selective lifestyle indicators, physical activity levels and food intake in the eastern cape Mr S Mdlanga – Durban University of Technology</td>
<td>Optimising Syzygium cordatum Dye Extraction and Subsequent Cotton Dyeing Incorporating Organic Electrolytes Mrs NF Gamedze – University of Swaziland, Prof L Hunter – Nelson Mandela Metropolitan University, Prof PE Zwane – University of Swaziland</td>
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<td>15:00 - 15:30</td>
<td>Nutritional quality and consumer acceptance of amadumbe-soya bean composite biscuits Dr FT Tabi, TM Mokhele – University of South Africa, Prof EO Smonsou – Durban University of Technology</td>
<td>The development of an acceptable culinary product using crocodile meat Mrs N Uys, Dr GE du Rand – University of Pretoria</td>
<td>A perspective on parental understanding of child restraint usage – A South African perspective Me E Smit, Prof M Roberts-Lombard University of Johannesburg</td>
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Introduction:
The purpose of this study was to determine the factors influencing the student’s choice of food intake, a case study of the Federal Polytechnic, Bida. A review of the past work was done and many key points were noted.

Methodology:
A sample population of 1000 students were selected randomly (i.e. 200 students from each school) who were in the 2012/2013 academic session.

Results:
The factor influencing the students foods intake ranges from economic factors (Food cost, income, availability of food), physical factors (easy to cook, shortest time), social factors (cultural, family and meal pattern) attitudes, belief and knowledge about food were discovered. The data collected were tabulated in frequency and percentages. It was revealed that ‘easy method of cooking and preparation’ influenced students’ choice of food intake more (34%) and the food frequency questionnaire shows that the students eat more of carbohydrates foods compared to other classes of food. The cooking skills of students were low (1%) which may be responsible for the limitations in the food choices.

Conclusion and Recommendations:
It is therefore recommended that students should be equipped with sound cooking skills to increase their range of food intake. Variety is needed in diet/meal because the required nutrients are scattered among many different foods.
WHAT MOTIVATES CONSUMERS TO CHOOSE SUGARED DAIRY PRODUCTS?

Ms J Botha, Dr A Mielmann & Mrs H Dreyer - North-West University

Keywords:
Sugar; Dairy; Food choice; Motivation; Consumer; Health

Introduction:
Statistics indicate that sugar consumption in South Africa (SA) is problematic (Sheehy et al., 2013:446; Ronquest-Ross et al., 2015:4; Vorster et al., 2014:1484). A constant high intake of sugar can lead to obesity and even type 2 diabetes (WHO, 2014:11). Dairy products are popularly consumed and viewed by consumers as a nutrient-dense food which forms part of a healthy diet (DSM, 2015:2). High concentrations of sugar (sucrose) are however added to these products, posing a risk to its healthfulness (Chollet et al., 2013:5501). Sugared dairy products (SDPs) are dairy products with added sugar (sucrose) and flavourings (Dairy Technology, 2016). Sugared dairy products involved in this study include flavoured milk, yoghurt and drinking yoghurt.

Food choice is the process of decision making within the consumer involving the selection and consumption of foods, further concerning their eating behaviour (Sobal et al., 2006:1). Consumers will not make a food choice without being motivated to do so. The motivation of consumers to choose or to eat specific foods will therefore act as the reason why the consumer makes this choice. This study aimed to explore the motivations of consumers employed at a nutrition company – therefore consumers with health awareness – to choose and to eat SDPs. Although it could not be assumed that all of these consumers are health conscious, it is a probability that they have some kind of health awareness regarding sugar and added sugar in food products. It is likely that these consumers assume and regard flavoured milk and yoghurt products as healthy. This research aimed to explore whether consumers fail to make informed and healthy choices regarding SDPs even though they are employed at a company with strong health values.

Methodology:
This study was a quantitative, non-experimental study with a cross-sectional survey design, using non-probability purposive sampling. The sample group was from regional offices of a nutrition company in SA. Online questionnaires (n=75) were used in data collection regarding adult consumers’ motives to choose (Steptoe et al., 1995:272) and eat (Hawks et al., 2003:154) SDPs. The influence of socio-demographic characteristics on these motives was measured and correlations between motives to choose and to eat were determined. Ethical approval was obtained and statistical analysis was performed.

Results:
The sample consisted of males (53.3%) and females (46.7%). Respondents were from a high socio-economic group (46.7%), while 46.7% of respondents were single and 53.3% were married or living with a partner. The sample is health conscious as the respondents’ Body Mass Index (BMI) scores were normal (25.6) and they lead an active lifestyle (77.4% exercise more than 3 times per week). None of the respondents were diabetics and the majority showed a high awareness regarding sugar intake and its related non-communicable diseases. Respondents may not be fully aware of the high sugar content in SDPs as they thought that one serving of a SDP contains 3-4 teaspoons of sugar, while it is generally higher (6 teaspoons). Respondents also do not show a high concern for the amount of sugar in dairy. Respondents’ motives to choose SDPs are therefore in contrast with their health values and they may be uninformed regarding its high sugar content.

Motives to choose were Sensory appeal (p<0.001; r=0.942), Convenience (p<0.001; r=0.617) and Price (p<0.001; r=0.088). Respondents were therefore motivated by the taste of SDPs in order to choose it, and because it is convenient to consume anywhere and do not require preparation. Respondents also consider SDPs as high quality
and good value in relation to its price. Motives to eat were Physical (p<0.001; r=0.884) and Social eating (p<0.001; r=0.713). Respondents eat SDPs when they are hungry (therefore rather viewed as a meal than a snack) or when they are in social situation or when someone buys it for them. Significant correlations (p<0.001) were found between motives to choose and motives to eat. The influence of socio-demographic characteristics indicated that gender (p<0.001; r=0.088), population group (p<0.001; r=0.200) and marital status (p<0.001; r=0.061) influence the food choice and eating behaviour of SDPs.

Conclusion and Recommendations:
Consumers’ motives to choose and to eat SDPs are therefore significantly influenced by certain aspects as determined in this study. These data provide baseline insight in consumer food choice regarding SDPs within SA and could be important to consider in food marketing, product development and consumer health education. Results from this study indicated the lack of knowledge in terms of the sugar content of SDPs among consumers who are health-conscious – this will complement the dietary survey and health outcome data in process of the food-based dietary guideline evaluation and revision in the future.

References:
**FOOD WASTE PREVENTION AND REDUCTION PRACTICES IN FOOD SERVICE OPERATIONS: A REVIEW**

*Mrs BP Lefadola, Dr A Viljoen & Dr GE DuRand – University of Pretoria*

**Keywords:**
Food waste, Food waste prevention, Food waste reduction, Restaurants, Food service operations, Food service organisations

**Introduction:**

The magnitude and complexity of the global food waste problem has brought it to the forefront of the environmental agenda (Papargyropoulou et al. 2016). It is shown that at least 1.3 billion tonnes of food per year is wasted globally (Gustavsson et al., 2011). Given the magnitude of the problem of food waste and its associated impacts, food waste prevention and reduction strategies are garnering more support than ever in both policy and academic debates (Painter, Thondhlan and Kua, 2016). In addition to that, with the need to address the issue of how to feed 2 billion more people by 2050 (Gustavsson et al., 2011), food waste prevention and reduction practices are key to solving the issue of food access for the future.

Generally, when compared to household food waste studies, there is relatively little known about food waste prevention and reduction in the context of food service operations even though these institutions represent a potentially significant source of food waste. In this study, we reviewed the literature in order to examine the current practices applied in food service operations to prevent and reduce food waste. The study further proposes a framework that can be applied to prevent and reduce food waste in food service operations.

**Methodology:**

In this study, twenty nine scientific journal articles and eleven organisational guides and reports were reviewed, examining the current status of causes of food waste and food waste prevention practices in the context of food service operations. The authors identified potentially relevant research through a structured search based on a combination of several keywords including food waste; food waste prevention, food waste reduction, restaurants, food service operations and food service organisations. The keywords were introduced with the boolean operator “AND” so as to get more focused results. The search was limited to publications written in English language and those published from 2000 to 2017. No geographical restrictions were applied. Titles and abstracts from more than 1000 publications were screened and examined, and then relevant papers were selected based on a number of criteria and were used for this review.

The selection criteria chosen to identify the relevant articles were related to the objectives of this review. The researchers selected studies: (1) focusing on the targeted food service operations including both the profit and non-profit oriented food service operations operating globally; (2) dealing with causes and drivers of food waste from food service operations from which researchers applied a cause-driven approach to identify the most relevant strategies for food waste prevention and reduction; (3) providing suggestions for possible food waste prevention and reduction strategies.

**Results:**

Food service operators have increasingly become more and more aware of the need to prevent and reduce food waste both for environmental, social and economic reasons. The review of the literature indicates that food waste in food service operations can be produced during all stages and processes of the food service system (Heikkilä et al., 2016). This study therefore suggests that a more sustainable resolution to the issue of food waste is to adopt a systems approach in preventing and reducing food waste. Based on the themes that emerged from this study, the authors propose a systems framework for food waste prevention and reduction (Figure 1 and 2). The framework recognises the need to follow a holistic approach and the importance of considering implementation of food waste prevention and reduction...
strategies across the entire system of the food service operation in order to effectively prevent and reduce food waste. To this end, we have provided food waste prevention and reduction strategies with consideration to the inputs, the subsystems that perform the operations, the outputs, controls, management, memory as well as environmental factors of the food service system.

Conclusion and Recommendations:
The paper proposes a framework for food waste prevention and reduction in food service operations. The framework emphasises the need for a holistic approach that considers all parts of the food service system in order to maximise the waste prevention and reduction opportunities. This study provides a foundation for further research on the assessment of the cost-effectiveness and feasibility of the proposed framework in preventing and reducing food waste in different food service operations.

Figure 1: The Systems Model of Food Waste Prevention and Reduction (Authors’ own)
Figure 2: Food Waste Prevention and Reduction in the Operations Subsystem of Food Service Operations (Authors’ own model)

References:
Keywords:
Breastfeeding, knowledge, nursing mothers, infants, breast-milk

Introduction:
The University of Education, Winneba is predominantly a teacher training institution. A greater number of the students are married and mature with many of them having children while studying. The study was therefore conducted to investigate the lactating practices and coping strategies of student mothers at the University of Education, Winneba. Specifically, the study examined the knowledge levels of student-nursing mothers on breastfeeding, described the breastfeeding practices of these mothers, identified the challenges faced by lactating mothers on campus in their attempt to combine academic work, breastfeeding and childcare, identified the coping strategies in dealing with the challenges and suggested measures to help address the challenges.

Methodology:
Purposive and snowball sampling techniques were adopted to select the sample. The purposive sampling technique was used to select student nursing mothers while the snowball sampling procedure was used to identify the student-nursing mothers involved in the study. The respondents who were 100 student lactating mothers were drawn from the three most female-dominated departments at the University of Education, Winneba. Structured questionnaire was the main instrument used to collect data. The data was analysed using SPSS version 18 and presented in frequency and percentage tables and bar charts.

Results:
In the present study, it was revealed that, all respondents were non-residents of the University halls of residence. In terms of the knowledge levels of respondents on breastfeeding, about two-thirds (64%) of them considered early supplementary feeding as a main cause of diarrhoea and breastfeeding failure. Moreover, 78% of respondents reported that colostrum must be fed to the infant for the few days as it contains more antibodies, white blood cells, stimulate baby immature intestine. Concerning the breastfeeding practices of the respondents, a majority of the respondents (88%) breastfed their babies directly by sucking from their mothers’ breast while about 10% of the respondents expressed breast milk using breast pumps. Furthermore, about 76% of the mothers had never owned a breast pump and therefore did not express milk for their babies. It was further revealed that, some of the challenges faced by respondents were the difficulty they had in balancing demands for childcare and academic work (41%). Also there is lack of space or privacy for breastfeeding (18%). Additionally, inflexible lecture schedules (16%) and lack of support from family or baby’s father were among some challenges they faced as student nursing mothers.

In terms of some coping strategies employed by mothers, a little over half of the respondents (54%) reported that they brought their mothers or a relative to campus to help them as a strategy for coping with the challenge while about 34% percent said they went in for the services of a care giver to assist in catering for the child. However, lactating mothers had among their expectations from the University the provision of a day care centre within the University premises where mothers could send their babies when they had lectures to attend and the provision of lactating rooms so that student mothers could breastfeed their babies comfortably during lecture periods. They also suggested that they needed the support and encouragement of their partners and colleague students as student mothers.
Conclusion and Recommendations:
It was therefore recommended that the University of Education Winneba as well as all other Universities should consider making provision for space conducive for breastfeeding where lactating mothers can breastfeed their babies when there is the need to during lecture hours. Moreover, the Department of Home Economics Education should establish a day care centre or a crèche where infants could be taken to during lecture hours since the availability of such a facility would enhance the lifestyle of student nursing mothers.

NUTRITIONAL QUALITY AND CONSUMER ACCEPTANCE OF AMADUMBE-SOYA BEAN COMPOSITE BISCUITS

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Prof EO Smonsou – Durban University of Technology

Keywords:
amadumbe, soya, composite biscuits, acceptability

Introduction:
Amadumbe (Colocasia esculenta L. Schott) is a traditional Southern African tuber crop (DAFF, 2011b), also known as - amadumbe, - cocoyam (in West Africa) taro in the Pacific Islands -. Major growing provinces in South Africa are Kwazulu-Natal, Eastern Cape and Mpumalanga because they have subtropical climatic conditions (Mc Ewan et al., 2010). Currently amadumbe is utilised in South Africa in the form of baked, fried or roasted tubers (DAFF, 2011a). The amadumbe tubers consist of 70 - 80% Starch and approximately 10% mucilage. Micronutrients in amadumbe includes iron, vitamin A and vitamin B2. However, amadumbe contains limited amounts of protein 1 - 3.8% (Naidoo et al., 2015). Therefore, there is a need for protein fortification of amadumbe-based products with protein rich foodstuff such as soya bean. The production of amadumbe biscuits with stable shelf life is essential because biscuits are popular snack that are popular among consumers and can have varied taste. The development of nutritious and protein-rich amadumbe based biscuit may add commercial value to the amadumbe crop. The aim of this study is therefore the development of protein rich amadumbe biscuits that are acceptable to consumers.

Methodology:
Collection of raw materials
Amadumbe corms were purchased from the Jozini Makhatini Research Station, Kwazulu-Natal. Soya beans were purchased from Soya Foods Company, Bryanston, South Africa.

Preparation of amadumbe and soya flour
Amadumbe corms were peeled, washed and cut into small pieces and dried overnight for 12 hrs in an oven set at 55 °C. After drying, the dried pieces of amadumbe were milled and sieved to obtain the amadumbe flour (Alcantara et al., 2013). Similarly, 1kg of soya bean was washed, boiled at 100 °C for 30 min and then dehulled manually. The dehulled beans were dried at 55 °C for 16 hrs and milled and sieved to obtain the soya flour (Oluwamukomi et al., 2005).

Preparation of amadumbe-soya composite flour
Amadumbe and soya flour were weighed separately and mixed to form a composite flour ratios of 90:10, 70:30 and 50:50 proportion of amadumbe and soya flour (Okpala & Chinyelu, 2011).
Preparation of biscuit dough

The ingredients used for making the biscuits consisted 225 g of different percentages of amadumbe and soya composite flour, 56 g sugar, 1.5 g baking powder, 66 g sunflower oil, 100 ml water and 13.5 g vanilla essence. All dry ingredients including the flours were mixed and water was then water, oil & vanilla essence were added to form the dough. The dough was kneaded using a food processor for 3 min at medium speed. The dough was put in a stainless tray and moulded into circular shapes (height 10 mm and diameter of 4.5 cm) (Serrem et al., 2011). The moulded biscuits were baked at 180 °C for 25 min cooled and stored in in vacuumed packed plastic bags. The moisture content, fibre content, mineral content, amino acid composition were conducted using (AOAC, 2000). The protein digestibility was conducted using the Kjeldahl method as described by Hamaker, 1987 while the amino acid score (AAS) of samples were obtained by dividing the content of first limiting essential amino acid (Histidine, Threonine, Valine, Isoleucine, Leucine, Phenylalanine and Lysine) in a test protein (mg/g) by the content of corresponding amino acid in a reference protein (mg/g) multiplied by 100 as described by Caire-Juvera et al., 2013 and FAO /WHO, 1991). The PDCAAS was calculated by obtaining the product of the amino acid score (AAS) and the true faecal N (faecal amino acid digestibility) as described by Schaafsma, 2012. A consumer test was conducted with 50 individuals were screened and recruited from the Durban University of Technology campus. Data collection for colour, aroma, taste, texture and overall acceptability were obtained using a nine point scale with levels that ranged from 9 for “like extremely”, 8 for “like very much”, 7 for “liked moderately”, 6 for “like slightly”, 5 for “neither like nor dislike”, 4 for “disliked slightly”, 3 for “disliked moderately”, 2 for “dislike very much” and 1 for “dislike extremely (Kayitesi et al., 2010).

Results:

There was an increase in Ca, Mg, P, Zn, Cu, Mn and Fe with each increment of the soya ratio in the composite biscuit when compared to biscuits prepared with only amadumbe. The increase in the percentage of soya flour in the composite biscuits gave rise to a significant (p ≤ 0.05) increase in the levels of lysine in the composite biscuits. The increase in the percentage of soya ratio lead to a small increase protein digestibility of composite biscuits up to a value of about 99% at 50%. The addition of soya to amadumbe increased the protein digestibility corrected amino acid score (PDCAAS) of amadumbe composite biscuits.

Conclusion and Recommendations:

Results showed improved the lysine content in amadumbe composite biscuit (70:30 & 50:50). Mineral content (such as Ca, Mg, P, Zn, Cu, Mn and Fe) improved with an increased soya-flour percentage in amadumbe composite biscuits. Lysine showed to be a limiting amino acid in amadumbe biscuits and in the composite biscuits. An increase in the percentage of soya in the amadumbe composite biscuits improved the PDCAAS. An increase in the percentage of soya in the composite biscuit lead to a significant change in the mean taste acceptability and overall acceptability only when 50% soya flour was added.

It is recommended that amadumbe biscuits enriched with soya be used to boost the consumption and commercial value of the amadumbe crop.

References:


DAY 1 (5 MARCH 2018): VENUE 2

CONSUMERS’ ATTITUDES REGARDING THE USE OF SALT INFORMATION ON FOOD LABELS

Dr H Van Staden, Prof E Wentzel-Viljoen, Prof D van der Merwe – North-West University

Keywords:
Attitudes, cardiovascular diseases, food labels, rural consumers, salt behaviour.

Introduction:
Globally and nationally, cardiovascular diseases (CVDs) (including stroke and heart diseases) are a leading cause of death. Risk factors for the development of CVDs, relevant to this study include: metabolic (hypertension) (WHO, 2013), socio-demographic (rural populations) (Bourne et al., 2002), and behavioural risk factors (diet high in salt content) (Vorster et al., 2013). Hypertension (HT), is a primary risk factor for CVDs (WHO, 2014, and a hypertensive blood pressure is ≥140/90 mg Hg (WHO, 2013). Globally measured, South Africans experiences of the highest levels of HT (Lloyd-Sherlock et al., 2014), with 40% adults ≥ 25 years, being hypertensive in 2010 (Day, et al., 2014). A leading risk factor for HT is the excess intake of salt, which comprises of sodium and chloride, with sodium affecting HT. The recommended salt intake is 5g/day (2000mg sodium) (Seedat & Rayner, 2012) and in South Africa (SA) it exceeds 7g/day (Swanepoel et al., 2016). Almost 60% of South Africans are unaware of the recommended daily salt intake (Newson, et al., 2013), and 77% of people exceed the recommended daily intake (Swanepoel, et al., 2016). Sources of salt include: natural (fruit, vegetables, meat, milk), discretionary (added during cooking or at the table), and non-discretionary sources (processed foods) (Wentzel-Viljoen, et al., 2013).
Food labels are sources of nutrition-related information, including sodium content of food (Grunert & Wills, 2007). Such information, presented on the back (BOP) and front of food packaging (FOP), is available in scientific, numerical information in the typical nutritional information panels and % Guideline Daily Amounts (GDA) (Feunekes et al., 2008). For low-literate consumers (as in this study) displaying concrete and pictographic thinking (Viswanathan et al., 2009), it will be difficult to understand. In a South African context, the Heart mark symbol (Byrne et al., 2014), and proposed Salt Watch symbol are symbols that can resonate with low-literate consumers’ pictographic thinking, and can convey salt information on food labels. It is therefore important to investigate consumers’ attitudes regarding salt information on food labels, in order to provide salt information in a manner that they can use and understand. The attitudes include: the cognitive (objective and subjective knowledge and beliefs of salt-related aspects), the affective (like and trust of food label information), and conative components (behavior related to the use of food labels, purchase behavior and salt intake behaviour) (Mpinganjira et al., 2013).

**Objective:**
The aim of this survey study was to explore and describe, from a social cognitive perspective as well as the tri-component model of attitudes, black rural consumers’ cognitive, affective and conative attitudes regarding the use of salt information on food labels.

**Methodology:** A cross-sectional exploratory, descriptive design was followed, and data was collected with face-to-face interviewer-administered structured questionnaires. The setting for this study was a rural area in the Northern Cape Province, South Africa. The respondents included female consumers (n = 268) that was ≥18 years, and had an educational attainment of ≥Grade 5. These respondents were recruited through systematic sampling.

**Results:**
Objective knowledge regarding salt intake, salt content of food, salt/sodium relationship, and knowledge of salt information on food labels were low to average. Knowledge of ‘Cardiovascular diseases’ was good, and respondents’ subjective knowledge of food labels was high. Beliefs and misconceptions about salt possibly contributed to the high use of salt. Results indicated low affective feelings about limiting salt intake, the benefits of it and also the liking and trust of food labels. Respondents indicated that they use labels, but were not able to infer sodium/salt information from it. Sources of salt intake were discretionary and non-discretionary, and mainly from bread and stock and soup powders. They also indicated to purchase takeaway foods. Although salt intake was a concern for respondents, the importance to lower intake was not a priority. Respondents understood the Salt Watch symbol, presented in traffic light colours well.

**Conclusion and Recommendations:**
Although some positive results were found, results in general, examining the cognitive, affective, and conative components of attitudes regarding food labels, indicated that rural consumers had negative attitudes regarding the salt information on food labels.

**References**
Introduction:
In South Africa, 22.3% of households have inadequate access to food and 11% of households experience hunger. Inadequate access to food and hunger contribute to malnutrition. Statistics show that 27% of South African children under the age of five are stunted and 10% are severely stunted. The prevalence of overweight is higher than the global average. Furthermore, 13% of children below five years are overweight (Statistics SA 2016: 27).
For the purpose of this paper, key findings from a baseline survey that forms part of a PhD study will be reported on.

Methodology:
The study design was an experimental randomised controlled trial. Two Early Child Development Centres (ECD’s) were randomly selected from a list of ECD’s in Botha’s Hill in Durban. Simple random sampling techniques were followed. Ethical approval was granted by the Institutional Research Ethics Committee at Durban University of Technology. Consent was obtained from the principals of the ECD’s and from the parents/guardians of the children. The total sample for the study was 116 children between two and five years. Due to the age group of the participants, the socio-demographic questionnaires were answered by a parent or caregiver of the child. The socio-demographic profile of the households of the participants was assessed using an adapted pre-tested socio-demographic questionnaire. Data obtained from this questionnaire was captured on a Microsoft Excel® Spreadsheet and analysed for descriptive statistics using the Statistical Package for the Social Sciences (SPSS), version 24. Anthropometrics measurements that were conducted included the height and weight of the children. Results from weight and height measurements were captured and analysed using the World Health Organization (WHO) Anthro software version 3.2.2 and were used to indicate wasting, stunting, underweight, overweight and obesity.

Results:
The majority of the participants (91.3%) lived in houses made with bricks, 6.8% lived in houses made with clay and 1.9% lived in houses made with grass. Over half (51.72%) of the parents/caregivers of the children were employed. Fifty percent of the participants had grade 12 as the highest level of education whereas 21.5% had a
A higher number of households (36.2%) had an income between R2001.00 and R3500.00 whereas other households had an income from R3501 to R6000.00 and above R6000.00 (25% and 15.5% respectively). Thirty-one percent of the participants spent between R1000.00 and R2000.00 on groceries per month. Some participants (40.5%) reported that sometimes there was insufficient money to purchase food in the household.

With regards to access to essential services, results showed that 41.3% of households had a tap inside the house and 39.6% of households had a flushing toilet. The majority of the participants (75%) indicated that all children in the household had birth certificates. Furthermore, over half (59.4%) of the participants reported that all children in the household had completed immunization. For the analysis of the anthropometric results, boys (n=58) and girls (n=58) were separated. Five point one percent of girls were stunted and 3.4% were severely stunted. Among boys, 10.3% were stunted and none of the boys were severely stunted. The rate of obesity was higher among girls (10.3%) than boys (3.4%). However, more boys were overweight (17.2%) than girls (10.3%). Furthermore, 39.6% of girls and 25.8% of boys were at risk of overweight. None of the girls were underweight and 1.7% of the boys were underweight. Wasting was found in 1.7% of boys. Results from this study were similar to findings by Mwadiwa, Kearney and Napier (2016: 6) who reported stunting in 4.8% of boys and 2.4% of girls under the age of five. Four point eight percent of girls were overweight compared to 2.4% of boys. Furthermore, more girls were wasted (7.1%) than boys (2.4%).

**Conclusion and Recommendations:**
This community had limited access to basic services. Malnutrition exists in this study population. More boys were stunted compared to girls however, more girls were obese compared to boys. There was a high number of children at risk of overweight in both genders however, the risk was higher among girls than boys. Interventions should aim to addressing both under and over nutrition.

**References:**


ANTHROPOMETRIC PROFILE AND DIETARY INTAKE OF AN EMERGING MIDDLE INCOME COMMUNITY

Miss SN Memela, Prof CE Napier – Durban University of Technology

Keywords:
Nutrition, Obesity, Nutrition Transition

Introduction:
Nutrition transition may be defined as changes in dietary patterns and nutrient intakes occurring in individuals, families, groups of people or whole populations when the food environment and other circumstances change (Vorster and Bourne 2008: 234). In a number of Sub-Saharan African studies obesity has been shown to have a significant link to socio-economic status determined by access to water and electricity, smaller numbers of members residing in one household and increased amounts of money spent on food among other factors, which all promote a tendency to leading a more Westernised lifestyle (Micklesfield, Lambert, Hume, Chantler, Pienaar, Dickie, Puaone, and Goedecke 2013: 370). Post-1994 democratic elections in South Africa, economic laws called for the de-racialization of the economy (Visagie 2011: 2). As a result of the annulment of the apartheid laws in the 1990s economic opportunities became available for black people (Escusa 2013: 6, 18). The main objective of the study was to determine the anthropometric status and analyse the food consumption of a community of emerging middle income status.

Methodology:
The study was conducted in Umlazi Township (Ward 84) outside Durban in the province of KwaZulu-Natal. This study established a sample size of n=250 adult men (n=56) and women (n=194) who were heads of households or primary caregivers above the age of 19 years old with households receiving a total household income of more than R100 000.00 per annum/ more than R8000.00 per month. Ethics approval was granted by the Durban University of Technology Research Ethics Committee to commence with the study. The ward councillor granted permission for the study to be conducted and all the participants signed informed consent to participate in the study. The study was quantitative and descriptive in nature with different tools used to measure the sample population. Socio-demographic questionnaires established the socio-demographic profile of the households and Multi-dimensional Poverty Index (MPI) was calculated as an indicator of poverty. Anthropometric measurements were used to extrapolate Body Mass Index and Waist-to-height ratio; a 7-day FFQ and three 24-hour food recalls were administered to participants to determine food intake and variety. Data were analysed using the Statistical Program for Social Sciences (SPSS version 23) and nutrient analysis using the Food Finder Version 3 Software developed by the South African Medical Research Council.

Results:
The mean age for the population was 52 years old and the retired population amounted to 27.2%. The total household income averaged approximately R10 000.00 per month. The majority (80%) of the households indicated that between one to three members contributed to the total household income. Majority (70%) of the community of Ward 84 is ‘food secure’ as indicated by the number of participants’ households indicating never having a shortage of money to buy food. An MPI of 9.09 out of 30 was established (Alkire and Santos 2012). Prevalence of obesity was 37.59% among men and 75.5% for women. Mineral and fat soluble vitamin intake was deficient however protein and carbohydrates were consumed in excess with a mean of 187.7% and 111.4% respectively. Top 20 foods consumed lists indicated that little fruit or vegetables were consumed. The average food variety score was medium indicating the consumption of between >30 but <60 different foods across the total population. A positive relationship of statistical significance was found between food variety score and income (p=0.007).

Conclusion and Recommendations:
Although the Umlazi residents benefited from good housing and infrastructure and appeared to have averted poverty, the prevalence of overnutrition malnutrition was high and linked with an excessive intake of macronutrients. This community appears to be is in the 4th stage/pattern of the nutrition transition (Popkin 2003: 582). It
appears that a ‘westernised diet’ and lifestyle is more accessible and is embraced by this urban community as described in various literature and seen in the top 20 foods lists compiled from the 24 hour recalls. Suggested interventions could include equipping the community with measures to prevent a recession into poverty, the dissemination of information regarding nutrition and practical suggestions to increase physical inactivity to achieve energy balance. In addition, future research could investigate the prospects of introducing participation in urban agriculture.

References:

COMPARATIVE ASSESSMENT OF CHEMICAL COMPOSITIONS AND MINERAL CONTENT OF FOUR SELECTED SOUTH AFRICAN HERBAL TEAS AND THE SYNERGISTIC RESPONSE OF COMBINED TEAS

Ms F Malongane, Prof JL Mc Gaw, Prof FN Mudau – University of South Africa

Keywords:
Bush tea, minerals, total phenolic acid, flavonoids, Monsonia burkeana, honeybush tea.

Introduction:
South Africa has a rich heritage of herbal tea, such as rooibos tea (Aspalathus linearis) and honeybush tea (Cyclopia species) both of which are available in the national and international market [1]. Currently, rooibos and honeybush are exported to international markets with potential for creating jobs and industrialisation in line with both the National Developmental Program (NDP) and the Industrial Policy Action Plan (IPAP) [2, 3]. Other non-commercialised teas in informal markets include bush tea (Athrixia phylicoides DC.) and special tea (Monsonia burkeana) which research leading to commercialisation is currently underway.

Herbal tea contains minerals such as potassium (K), magnesium (Mg), calcium (Ca), phosphorus (P), sodium (Na), manganese (Mn), zinc (Zn), copper (Cu), boron (B), iron (Fe), Sulphur (S), Selenium (Se) and Chromium (Cr) in addition to other bioactive compounds [4]. However, there is large variation in the mineral composition and biological activity among different herbal tea species, part of which is due to differences in plant species and agronomic practices [5, 6].

Among the compounds present in rooibos tea are aspalathin, nothofagin, iso-orientin, orientin and luteolin, while honeybush tea contains xanthones (mangiferin, isomangiferin) and hesperidin [7, 8]. The above teas have a substantial amount of essential minerals such as sodium, magnesium, potassium, calcium, iron, zinc, copper [9]. Bioactive compounds present in bush tea include quercetin, caffeic acid, inositol, kaempferol, apigenin, hymenoxin, myrcene, potassium, calcium, manganese, magnesium and zinc [10, 11]. Special tea leaves are reported to contain chloride, copper, potassium, sodium, manganese, zinc, boron, phosphorus and magnesium [6].
The consumption of herbal teas is therefore regarded as an important source of minerals and bioactive compounds which may exert positive biological effects in humans. Substantial quantities of these compounds are water-soluble and drip into the tea liquor during tea preparation. Therefore, tea drinkers benefit from flavonoids, polyphenols and essential minerals. Tea polyphenols, tea catechins, caffeine, flavour, taste, amino acid and ash content are important parameters to determine tea quality [12]. Thus, tea that exhibits high ash, total polyphenols, total flavonoid content and high essential minerals content will have a high total quality score.

The determination of important quality parameters would help motivate for commercial production, especially if these parameters are comparable to those of commercialised teas. The present study was carried out to determine 1) essential minerals, total polyphenols, total flavonoids, moisture and ash of four selected South African herbal teas and 2) the effect of blending bush tea with other known herbal teas.

**Methodology:**
Four selected indigenous South African herbal teas and bush tea blends were examined for their ash, moisture, mineral compositions, total polyphenols, and total flavonoid content. The method used for moisture and ash contents followed that of the Association of Official Analytical Chemists [13]. Nine minerals, namely potassium, magnesium, calcium, phosphorus, sodium, manganese, zinc, copper and boron were analysed using inductively coupled plasma optical emission spectrometry [14]. The total phenolic and flavonoid contents were determined by Folin-Ciocalteu assay and aluminium chloride colorimetric assay respectively [15, 16].

**Results:**
Results of the study demonstrated that bush tea had high ash content (8.01%) and special tea (9.23%) while honeybush (1.96%) and rooibos tea (2.17%) exhibited a low ash percentage. The mineral content was higher in bush and special tea than in rooibos and honeybush tea with the exception of sodium, which was higher in rooibos tea. Manganese is the only mineral that was found in significant amounts in all teas evaluated. With the highest demonstrated in bush tea (42.24 mg·kg⁻¹). Principal Component analysis showed that bush and special tea were more similar in mineral content while rooibos and honeybush tea shared a common class. All major minerals provided less than 5.56 % (0.02 – 5.56 %) of the recommended daily intake, which is an insignificant but necessary contribution to the daily intake. The daily contribution of manganese was highest of all the minerals in all teas except honeybush tea (1.5 %). Blending of bush tea with special tea improved its potassium content from 22937.00 mg·kg⁻¹ to 23379.20 mg·kg⁻¹. Total phenolic content ranged from 0.48 μg·mL⁻¹ to 1.44 μg·mL⁻¹ of gallic acid equivalents per gram (GAE/g). Bush tea had the lowest total flavonoids (7.82 μg·mL⁻¹). Blending bush tea with rooibos at 25%-75% increased flavonoid content to 12.21 μg·mL⁻¹.

**Conclusion and Recommendations:**
All tea samples contained a considerable amount of essential minerals, although the contribution of selected minerals to the recommended daily intake were insignificant. The results of the study suggest that bush tea and special tea are nutritionally comparable with South African commercial herbal teas (rooibos and honeybush). Thus, the consideration for commercialization of these teas is crucial.

**References:**
The Development of an Acceptable Culinary Product Using Crocodile Meat

Mrs N Uys, Dr GE du Rand – University of Pretoria

Keywords:
Consumer acceptability, crocodile meat, product development, sensory perception, sensory expectation

Introduction:
Acceptability refers to the hedonic response to a food product, which is liking or disliking a product or having a pleasant or unpleasant experience (Cardello, 1994). Sensory characteristics are one of the strongest influences on the acceptability of a food product. The crocodile industry across the world has mainly consisted of crocodile skin trade for the fashion industry and crocodile meat has been considered a by-product in most countries (Hoffman et al., 2000).

There is an increased demand for game meat and unconventional food products by the modern consumer (Hoffman, Crafford, Muller and Schutte, 2003). Research has shown that crocodile meat is lower in fat, sodium and cholesterol than many conventional meat types. To develop an acceptable culinary product from unconventional meat sources, will not only contribute to the health of consumers, but also help the country’s decreasing livestock production to be supplemented with a sustainable alternative.

As stated by the UNDESA (2011), the ever increasing global population is putting a large amount of stress on the food resources in every country. Food producers are, however, aware of the challenges faced in feeding this growing population and have been increasingly exploring and applying biotechnologies such as genetic modification to improve the yields of crops that are utilised for feeding both humans and livestock (Aiking, 2011). Desertification and global warming are decreasing the available land for livestock very rapidly. This phenomenon has prompted animal scientists to consider protein production of certain indigenous species that have adapted over time to survive extreme conditions.
The main aim of the project is to develop a culinary product from crocodile meat that could be introduced to the South African market, to possibly benefit the declining food sources by 2050. The researcher has gained insight into the sensory and physical characteristics of crocodile meat based on literature available. Further, students from the University of Pretoria developed four food products that the mainstream South African market would find acceptable. This was done to explore the potential of such a product to be introduced to the market. To determine if these products were acceptable, a consumer panel was conducted using consumers from the Tshwane Metropolitan area.

**Methodology:**
The preliminary phase of the research is a literature study that has been done to determine the physical and sensory properties of crocodile meat. In addition to this, a small trained sensory panel developed a lexicon for the crocodile meat, due to lack of information in South Africa. In the first phase, culinary product development has been done with the crocodile meat, focusing on the mainstream South African market. An idea was formulated, a prototype developed, the product was standardised and a sensory analysis will then follow in Phase three. The sensory evaluation phase will explore the consumers’ perception and expectation of the crocodile meat and eventually their experience and hedonic reaction of acceptability will be measured in a paper-based questionnaire. A paper-based questionnaire will explore and determine their perception and expectation of such an exotic meat product, before consumption. Once this is determined, a tasting of the four products will be done. The consumers will evaluate the flavour, aroma, appearance and texture of the products and indicate their experienced liking an acceptability of the products.

**Results:**
The statistical analysis will be performed using SPSS. Descriptive statistics will be used to make a summation of the data. To determine the relationships between various factors such as liking scores before and after consumption, PCA as well as correspondence analysis will be performed.

**References:**
CONSUMERS’ PERCEPTIONS AND EXPERIENCES OF FOOD SAFETY AND THE CONTRIBUTION TO FOOD WASTE IN GAUTENG

Ms NL Marule, Dr GE du Rand, Dr N Marx-Pienaar – University of Pretoria

Keywords:
Food safety, Quick service restaurant, Food waste, Food security, Consumer perception, Consumer Experience

Introduction and Problem as well as Objectives:
Food safety has been reported to cause around 5% of deaths specifically in South Africa (Statistics South African, 2013). Public concerns about food safety has led to development and tightening of food safety regulations (Gereffi and Lee, 2009). Food safety regulations often refer to how food is handled, processed and distributed. Despite the emphasis however, food safety in the South African context has been described as “dismal”, (Foodstuff South Africa, 2013). The investigation of compliance in food service establishments and food handling practices aims to indicate how aware and how seriously employees and management regard food safety. Food safety is an essential issue due to its potential to cause harm. Furthermore, research has indicated that consumers have an expectation of safe food and often transfer the responsibility of food safety to food handlers and food service establishments, ((Djekic, Smigic, Kalogianni, Rocha and Zamioudi, 2014). In South Africa, the growth of the quick service restaurant industry demonstrates that consumers choose timesaving, convenience and affordability benefits that these establishments offer. Approximately 40% of consumer sales services are from the quick service food industry (Naidoo, 2015). It is because of their popularity that safe food handling of the products consumed becomes even more imperative due to the large-scale handling of food and the production numbers.

With the above in mind, a question that has not been asked is whether poor food safety, or the perception of it, contributes to the further wastage of food? Food safety has often been studied in a back-of-house context and food waste studies conducted by Nahman, Oelofse and De Lange (2012; 2013), have pointed to waste in South African households. Parfitt, Barthel and Macnaughton (2010) comment that minimal studies of food waste in the post-consumer stage have been published specifically in the developing world. Ignorance of the above contributes to the mishandling of food and potentially, the further wastage of food. It cannot be assumed that consumers are entirely knowledgeable about food safety, but their perception of it may lead to the acceptance or rejection of food, where the latter may contribute to food waste.

This link would enable industry to understand consumer perspectives and experiences in reference to food safety, and how these may contribute to food waste within quick service restaurants, in effort to align protocols versus perceptions and experiences. Food waste has been identified to be a practice that compromises food security. Bagherzadeh, Inamura and Jeong (2014), motivate the investigation of food waste by stating that, even though the reduction of food waste in medium and high-income countries may not directly tackle food insecurity, it may reduce competition on the limited supply of water, land and biodiversity resources, making them available for other uses.

The study will contribute to the existing body of knowledge by improving the understanding of consumer perceptions and management experiences in dealing with food safety not only as a compliance issue but also to enhance customer experience and, in turn, possibly assist in the alleviation of food waste within the food service industry.
Methodology:
The study will employ a quantitative, cross-sectional approach along with making use of qualitative tools. The primary objective of this study is to determine consumer’s perceptions and experiences of food safety when purchasing food and dining at quick service restaurants in the Gauteng area. A quantitative approach is suggested, in which a survey will measure consumer’s perception of food safety, against their actual experience of food safety at the time of purchasing/dining. Consumers will also be asked of their awareness of waste and situations when they wasted food. To understand the extent to which food establishments follow food safety protocol, qualitative tools (observation and in-depth interview) to enable comprehensive analysis and interpretation in targeted restaurants. While random sampling will be used to reach 400 consumers, purposive sampling will be applied to select 40 restaurant managers to answer interview questions. Observation will be conducted in the 20 selected stores, with the aim of determining what and if current food safety protocols exist and are being executed.

References:
Methodology:
The study was carried out with quantitative research approach. The population of interest were beneficiaries of food security programmes in urban community vegetable gardens. About 254 participants from 30 community vegetable gardens in Emfuleni Local Municipality took part in the study. The participants were randomly selected from a list of 485 receiving support from GDARD. The distribution of study areas were as follows: Sebokeng, Evaton, Sharpeville, Tshepiso, Bophelong and Boipatong townships.

Data was collected using through face-to-face interviews using a structured likert scale questionnaire. To ensure validity and reliability, a pilot study was conducted under the supervision of the co-researchers who are experts in the field of study. Statistical Package for Social Sciences (SPSS) version 24 was used to analyse data, the analysis included frequency and percentage.

The research forms part of MSc: Agriculture in the College of Agriculture and Environmental Science (CAES), University of South Africa (Unisa). Ethical approval for this study was obtained from CAES Research Ethics Review Committee and allocated reference number of 2016/CAES/118.

Results:

Table 1: Contribution of community vegetable gardens to food availability in Emfuleni Local Municipality (n=254)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to provide fresh produced vegetables at home.</td>
<td>67</td>
<td>19</td>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I do not know where the next day’s vegetables will come from due to production that is not reliable.</td>
<td>9</td>
<td>45</td>
<td>13</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>The vegetables produced are not enough to feed my family.</td>
<td>18</td>
<td>23</td>
<td>10</td>
<td>38</td>
<td>11</td>
</tr>
<tr>
<td>Eat more vegetables due to high production</td>
<td>28</td>
<td>44</td>
<td>11</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Eat less vegetables due to low production</td>
<td>12</td>
<td>39</td>
<td>11</td>
<td>29</td>
<td>8</td>
</tr>
<tr>
<td>Family is not getting enough vegetables to eat</td>
<td>11</td>
<td>22</td>
<td>10</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>Can afford to eat fresh produced vegetables everyday</td>
<td>28</td>
<td>36</td>
<td>7</td>
<td>22</td>
<td>7</td>
</tr>
</tbody>
</table>

The results presented in Table 1 show that majority (86%) of the respondents were able to provide fresh vegetables at home by participating in community vegetable gardens. However, more than half (54%) of the respondents were sometimes worried that they did not not know where the next day’s vegetables will come from due to production that was not reliable. There were 41% of the respondents who indicated that vegetables produced were not enough to feed their families, but majority of the respondents (49%) disagreed with that notion.
Table 1 shows that 72% of the respondents ate more vegetables due to high production in the gardens. However, this was not applicable to all the members because 51% of the respondents ate fewer vegetables due to low production. The results also illustrate that more than half (57%) of the respondents disagreed that their families were not getting enough vegetables to eat. Majority of the respondents (64%) were able to eat freshly produced vegetables every day since from community vegetable gardens. This shows that food availability is not a concern on daily basis for most beneficiaries of community vegetable gardens in Emfuleni local Municipality.

Conclusion and recommendations:
The study has shown that community vegetable gardens contribute to food availability with regards to providing freshly produce vegetables, high consumption of vegetables, ensuring that families of the beneficiaries ate sufficient vegetables produced from the gardens. Although there is uncertainty among some of the respondents that vegetables produced were not sufficient, only few respondents were concerned. It can be concluded that community vegetable gardens contribute to food security of the respondents concerning availability. It is recommended that community gardens should focus on increasing and sustaining their production to ensure that all the beneficiaries have vegetables are available to feed their families throughout the year.

References

AN INVESTIGATION ON THE ROLE OF FOOD GARDENS TO FOOD SECURITY AND COMMUNITY DEVELOPMENT IN THULAMELA MUNICIPALITY
Mrs PC Kwinda, Dr MR Masekoameng, Prof F Mudau – University of South Africa

Keywords:
Food Security, Food insecurity, Community development, Food gardening, Household income

Introduction:
Food insecurity is a global concern. According to FAO, (2014) one out of nine people in the world have insufficient food for an active healthy life. Today many South Africans are vulnerable to food insecurity. This remains a great concern for many households particularly in rural areas (Abdu-Raheem & Worth, 2011). Consequently, South Africa has to develop food security strategies to ensure that food insecure groups in the country are assisted. One such strategy is food gardening which is an important source of food and income for poor households around the world. It can be a sustainable strategy for improving food security and incomes for many households. Food gardening not only guarantee food security, it addresses community development through empowerment and self-employment opportunities for rural people (Adekunle, 2013). Thus improving availability and access to food and focusing on strategies to improve stability of food supply and proper utilization of food is an important priority.

Statement of the research problem:
The main research problem for this study is food insecurity. Inadequate access to food, poverty, unemployment and lack of income are the main cause of food insecurity in South Africa. Food insecurity is increased by poor availability of food, lack of access to stable food supply and inappropriate utilization of food at household levels. Food security also raises issues that are linked to development particularly the fight against poverty (du Toit et al. 2011)
Main objective:

- The main objective of the study was to investigate the role of food gardens to availability, accessibility, stability and utilization of food at household level and in developing the communities.

Specific Objectives of the study was:

- To investigate the role and contribution of food gardens to food security with regard to availability, accessibility, stability and utilization of food at households.
- To investigate the role and contribution of food gardens to community development.
- To determine the contribution of food gardens to household income.
- To develop a framework of understanding the link between food security and food gardening initiatives.
- To identify strategies for sustainable year round availability of food gardens.
- To investigate challenges to food gardening.

Conceptual framework:

CONCEPTUAL FRAMEWORK OF THE ROLE AND CONTRIBUTION OF FOOD GARDENS TO FOOD SECURITY AND COMMUNITY DEVELOPMENT

**FOOD SECURITY**

At community and household level

- Availability of food
- Access to food
- Proper utilization
- Stable Food supply

**FOOD INSECURITY**

Causal factors:

- Lack of food (no access to food, food not available, food supply not stable and food poorly utilized), lack of income, unemployment and poverty

Other factors:

- Lack of skills, knowledge, water, land, planting materials, technical assistance and climate change

**FOOD GARDENS:**

AT HOUSEHOLDS AND COMMUNITIES

- The role and contribution of food gardens
  - Increased availability, stability, access and utilization of household foods
  - Increased household income

**Improved Food security**

**Community development**
Methodology:
A longitudinal study was conducted in Thulamela municipality in the Vhembe district of Limpopo Province. Non-probability sampling technique was adopted in this study using purposive or judgmental and snowball sampling type (Babbie & Mouton, 2010). Methodological triangulation was ensured wherein both quantitative and qualitative data were collected from a sample of 383 households and focus groups individuals.

References:
RISK OF NON-COMMUNICABLE DISEASES OF TAXI DRIVERS BY ANALYSING SELECTIVE LIFESTYLE INDICATORS, PHYSICAL ACTIVITY LEVELS AND FOOD INTAKE IN THE EASTERN CAPE

Mr S Madlanga – Durban University of Technology

Keywords:
Taxi Driver; Rank; Sphygmomanometer; Bioelectrical Impedance Analysis; Pilot, Systolic; Diastolic

Introduction:
Taxi Drivers are known to eat food on the go. Taxi ranks are convenient locations for taxi drivers to acquire food. However, fast food readily available at these ranks is high in fat, salt and consists of mostly starch (stiff porridge sold by informal vendors). The aim of this research study is to ascertain the risk of non-communicable diseases (NCDs), fat intake, physical activity levels and exposure to lifestyle diseases of taxi drivers operating in the Urban and Rural areas of the Eastern Cape.

Methodology:
A sample size of Urban (n=125) and Rural (n=125) Taxi Drivers in Eastern Cape was established using simple random selection. The nutritional status of taxi drivers was ascertained through anthropometric measurements to determine Body Mass Index (BMI), Waist Circumference (WC). Body Fat Composition was assessed by use of Bioelectrical Impedance Analysis (BIA). Validated and adopted questionnaires used included the physical activity (adopted from the University of Free State), Health and Lifestyle habits, Food Frequency (was piloted separately in 2016 before data collection began), Socio-Demographic and three 24 hour-recall questionnaires. Tools, namely: Pedometers for five days step count and Sphygmomanometer for blood pressure were used. Data was collected by trained field workers and captured on Microsoft Excel spread sheet; analysed on the SPSS software version 23 for descriptive data.

Results:
The mean age for the population was 37 and respondents were all men Taxi Drivers. Based on blood pressure monitor mean Systolic and Diastolic is 136.82 and 88.66 for the Urban group and 136.43 and 92 for Rural group, respectively. Physical Activity Levels (PAL) score for the Rural Settlement group reflected that 55.2% and 27.2% of the Urban settlement group were living a sedentary lifestyles. The total average steps per week for Urban Settlement and Rural settlement groups was 5533.7 and 9212.1 respectively. Waist-to-height ratio (WHtR) reflected that there is a prevalence of central obesity of 80.8% in the Urban taxi drivers and 88.8% in the Rural taxi drivers. BMI results indicated 71.2% of the Urban Settlement group was overweight and obese. Majority (81.6%) of the Rural Settlement was overweight and obese. According to the body fat composition analysis 26.4% of the Urban group and 30% of the Rural group had optimal body fat. Flesh Foods was the most consumed group among both the Urban and Rural taxi drivers namely beef, chicken, tinned fish, all tribe, head and toes.

Conclusion and Recommendations:
Results presented that taxi drivers are exposed to various risk factors that can pose threats to health status of an individual. Risk factors such as work load, irregular diet, sedentary lifestyle, and the stressful work conditions could cause fatigue, road fatality and chronic lifestyle diseases. Further study into the nutrition knowledge, attitudes and perceptions that inform the taxi drivers food choices and behaviors. The department of transport along with the municipality needs to commission inspectors to check and monitor hygiene and quality of the food prepared by the hawkers at ranks for food safety. The municipality must build fitness center behind each taxi rank. The respondents especial the Urban Settlement group must join physical fitness centre e.g. Virgin Active and be part of sports clubs in the community to improve physical activity, in order to expend the quantity of energy taken in for balance because energy taken out must be equal to energy taken in.
References:


COMPETITIVE ADVANTAGE OF SOUTH AFRICAN CLOTHING INDUSTRY: OPPORTUNITIES AND THREATS

Keywords: Quick response, Competitive advantage, Textiles industry, Clothing industry, lead time, IPAP, and Porter.

Introduction:
The South African clothing industry is a significant employer of largely unskilled women contributing to the socio-economic wellbeing of the country. Due to recent job losses resulting from the compliance rules and cost cutting measures to remain competitive, the South African clothing industry is perceived to have contributed to the current high unemployment rate of 26.6%. Despite its employment, market share and competitive advantage decline experienced in previous year, the South African clothing industry is still a significant contributor to the country’s manufacturing sector at 14%. To attempt to restore its employment figures, market share, and reducing the rate of clothing retail imports currently at 60%, the South African clothing industry have to their competitive advantage opportunities and threats. In light of this, the manuscript explores competitive advantage opportunities and threats for the South African clothing industry that may have to enjoy more attention from the South African clothing industry and the government in order to attempt to improve competitive advantage, market share and contribute towards reducing the high unemployment rate.

Methodology:
As part of a broader study, the manuscript purposefully sampled three retail chief sourcing executive from leading South African Clothing, Leather, Textiles and Footwear (CLTF) retail groups, two clothing manufacturers’ association leaders representing over 100 clothing manufacturing companies out of a population of above 900, and a deputy director in the government department responsible for the Industrial Policy Action Plan (IPAP) execution. Information leaflets about the study and consent forms were presented and signed by respondents. Using interviews as a data collection strategy, the manuscript endeavoured to gain human experiences from the respondents about the value chain operations to explore competitive advantage possible opportunities and threats that have not been adequately explored by the South African clothing industry and government as policy champions of reindustrialisation of South Africa. The interviews from one CLTF retail group, two clothing manufacturers’ associations and one government department executing IPAP were transcribed and themes were developed to best describe the competitive advantage opportunities and threats for the South African clothing industry.

Results:
The findings show that South African clothing industry has the following competitive advantage opportunities; CLTF retail group have higher storage costs and markdowns from high-end products styles that did not work from their global suppliers. This results in a competitive advantage opportunity for South African clothing industry since CTLF retail groups can source lesser high-end product styles from global supplies and drop styles that do not work in other to order styles that worked from South African clothing industry. The findings show that South African clothing industry have a competitive advantage to opportunity if the textiles industry is strengthened to ensure it satisfies the raw material demand that forcing CTLF retail group to import. The findings indicate that restructuring of the compliance rules to allow non-compliance clothing industry companies access to incentives can improve the number of well-equipped South African clothing industry to meet the CTLF retail demand.
The manuscript found that the lack of raw materials in the South African clothing industry value chain the implementation of quick response and thus resulting in CTLF retail group having more storage costs from raw material imports they keep to take advantage of domestic quick response. Government IPAP is found to be a threat to the textiles industry’s ability to satisfy the raw material demand since they incentivise the importation of raw materials. Government compliance rules is found to be a threat since it limit the number of clothing industry companies that can supply CTLF retail group efficiently since they are non-compliant.

Conclusion and Recommendations:
The manuscript concludes that South African clothing industry have competitive advantage opportunities that have been less explored by government and industry itself. The manuscript concludes that there may be room to improve the South African government policy strategy to improve its impact on the development of competitive advantage for the clothing industry. This manuscript makes a contribution to the body of literature on competitive advantage opportunities for the South African clothing industry. The manuscript recommends that the South African government, clothing industry and its value chain renegotiate a balance between its policy aspirations and reindustrialisation of the clothing industry value chain.

UNEXPLORED IMPACT OF SOUTH AFRICAN PUBLIC HEI’S FASHION DESIGN DEPARTMENTS ON THE COMPETITIVENESS OF THE CLOTHING INDUSTRY

Mr S Mbatha – University of Pretoria
Prof A Mastamet-Mason – Tshwane University of Technology

Keywords:
PhDs, Fashion design education programmes, clothing industries of South Africa, Knowledge Production, and Competitive advantage

Introduction:
The global clothing industry is a US$ 1.7 trillion industry (Caro & Martinez-de-Albeniz, 2014) with the export industry reaching US$375 billion (Morris & Barnes, 2014). Regrettably, South African clothing industry enjoys considerably a minimal global market share due to its domestic market share being under pressure from global competitors. The global clothing industry is set to reach above US$2 trillion in 2025 (Wazir Management Consultants, 2013), the South African clothing industry needs to explore other strategies beyond those already implemented since 2007 if it is to improve its impact on competitiveness. Scholars highlighted government policy constrains, inadequate value chain, outdated production techniques, poor Research and Development (R&D) expenditure, lack of raw materials, and lack of advance skills as factors impacting on the competitive advantage of the South African clothing industry (Mbatha & Mastamet-Mason, 2015; Das, 2011; Nattrass & Seekings, 2013). Regrettably, scholars have paid little attention to university’s programme qualification mix and academic staff qualifications as possible factors also impacting on the competitive advantage for the South African clothing industry.

Methodology:
The manuscript firstly evaluates how South African Fashion Design Departments’ programme qualification mix is set out to impact on the competitive advantage of the South African clothing industry. Secondly, the manuscript evaluates the impact of academic staff qualifications in the South African Fashion Design Departments to the production of new knowledge that may have an impact on the competitive advantage of South African clothing industry’s competitive advantage. Eight Fashion Design Departments Head of Departments (HoD) were recruited through emails and telephone after they were purposively sampled. A questionnaire containing questions about the programme qualification mix and academic staff qualifications were emailed to eight Fashion Design HoDs. The results from the questionnaire were quantitatively analysed using tables and graphs. Relevant literature and university websites were also consulted for qualitative data resulting in the manuscript.
employing triangulation as a method to evaluate if Fashion Design Departments programme qualification mix and academic staff qualifications could have an impact on the competitive advantage of the South African clothing industry.

**Results:**
The findings of the manuscript from seven Fashion Design Departments indicate that; (a) the qualifications offered by South African Fashion Design Departments are misaligned to the Clothing Industry of South Africa’s competitiveness needs, (b) the academic staff in the South African Fashion Design Departments is under largely under qualified to produce new knowledge that can impact on the competitive advantage of the South African clothing industry, (c) there are limited post graduate qualifications offered by the South African Fashion Design Departments resulting in limited generation of new knowledge that may have an impact on competitive advantage for the South African clothing industry

**Conclusion and Recommendations:**
In light of these findings, the manuscript concludes that the South Africa Fashion Design Departments are among other factors impact on the lack of competitive advantage experienced by the South African Clothing Industry. The manuscript contributes new knowledge to the existing body of knowledge regarding competitive advantage challenges in the clothing industries of South Africa. Lastly, the manuscript brings South African Fashion Design Departments’ programme qualification mix and their academic staff qualifications under the spotlight of competitive advantage challenges for the South African clothing industry.

**References:**
Keywords:
Apprenticeship, clothes, culture, Kente, tradition,

Introduction:
The *Kente* weaving tradition has been in existence among the Akan of Ghana and the Ivory Coast and the Ewe of Ghana over centuries. Legend has it that two hunters saw a giant spider in the bush weaving its web which inspired them to use cotton to practice it at home and turn out to be what the then Ashanti King chose as his royal cloth. Some of the names of the clothes such as *Adwini Asa* (all motifs are used up), *Nyankontong* (the rainbow) and *Emaa Da* (It has never happened before) depict the complex designs and quality standards that are put in the *Kente* weaving endeavor. Many people from other parts of the world have tried to copy and imitate the patterns but Ghanaians and people who know a properly woven *Kente* cloth are able to distinguish between the real from the fake. Any matured Akan is expected to have at least a *Kente* cloth for special occasions and for chiefs, kings and the royalty they are to be worn on all special occasions. The sustenance and maintenance of the *Kente* weaving tradition has been carried out over the years through the apprentice system. “Apprenticeships combine the development of theoretical knowledge about a particular occupation or range of occupations with practical experience gained from doing the job. Apprenticeship training should lay the foundation for occupational competence and the capacity to add to this as required throughout working life” (Macleod and Hughes 2006). The complex nature *Kente* weaving takes patience and many years of training for one to master the craft.

Methodology:
This paper investigates how two communities in the Ashanti Region of Ghana (Bonwire and Adawomaso) have maintained and sustained the tradition over the centuries. The qualitative approach of enquiry was applied in this research to investigate the phenomenon. The main instruments used to collect data for this research are interviews and observations where 12 participants made up of two traditional leaders, four master craftsmen, four apprentices and two traders in *Kente* clothes. The observations were made at the work stations of the weavers and the stores of the traders.

Results:
The finding indicate that the apprenticeship system has been the main method used to train the youth to maintain and sustain the tradition. It also emerged from the research that the *Kente* weaving tradition has created employment for a number of people in the region and across the country through the value chain as well as a thriving tourism business for the two communities. The participants however indicated that they work very hard to produce the clothes but the market is limited which leads to stiff competition where some weavers sell their products sometimes below the cost price. A number of tourists from different countries and Ghana were met on the two days the researchers were in the two towns to collect the data. An interesting phenomenon among the towns’ folk was that almost every one of them knows the craft as it is inculcated in them right from childhood so by the time they are ten they are all competent weavers.

Conclusion and Recommendations:
It can be concluded that the apprenticeship system is what has keep the *Kente* weaving tradition all vibrant and viable over years. It has created a viable business through the value chain across the Akan communities in Ghana most especially in the two communities under study. There appear to be challenges regarding the marketing of the clothes however.
It is recommended that the weavers from cooperatives to procure their inputs as well as marketing their products across the country and among Ghanaians abroad and Africans in the diaspora through the internet and Ghanaian Missions abroad to increase the market for the products. Other alternatives uses of Kente such the scarfs, bags, head gear among other should be explored to increase the market.

References:

OPTIMISING SYZYGIUM CORDATUM DYE EXTRACTION AND SUBSEQUENT COTTON DYEING INCORPORATING ORGANIC ELECTROLYTES

Mrs NF Gamedze – University of Swaziland
Prof L Hunter – Nelson Mandela Metropolitan University
Prof PE Zwane – University of Swaziland

Keywords:
Natural dye, Syzygium cordatum, natural dye extraction, organic electrolyte, cotton dyeing, response surface methodology

Introduction:
Due to environmental awareness created among masses worldwide by environmentalist and hazards of certain synthetic dyes, consumers have realized the potential of natural dyes and tried to use them as an alternative to synthetic dyes. The present investigation was carried out to optimize the extraction of natural dye from bark of Syzygium cordatum, trees and then to evaluate its use in the dyeing of cotton fabric incorporating organic electrolyte as mordants. The use of organic electrolytes, as mordants, was to ensure eco-friendliness of the dyeing, and with a maximum concentration of 3g/L being used to reduce the effluent load.

Methodology:
The bark was collected from recently fallen trees and twigs pruned from old trees, since they have greater dye content than the younger trees, dried for two weeks, crushed with a hammer and ground into powder to ensure uniform particle size with a large surface area to facilitate quick extraction. The relevant conditions for natural dye extraction using a methanol/water mixture were optimized by Response Surface Methodology (RSM), with the use of Design Expert Version 7.0. The central composite design (CCD) was applied to design experiments for the evaluation of the interactive effects of the three most important operating extracting variables namely, temperature, time and liquor volume on 25g bark powder. This approach decreased the required number of experiments, and subsequent dyeing was done using dye extracted under optimized extraction conditions.

To determine the optimum conditions for dyeing cotton fabric with the dye extract, dyeing was carried out in a rotar wash machine, using two different organic electrolytes, namely trisodium nitrilo triacetate (trisodium NTA) and dimethylformamide, as mordants. The effect of trisodium NTA and dimethylformamide mordant concentration on dyeability, colour characteristics, and fastness properties has been studied using CIEL*a*b* system. Three different mordanting techniques, namely simultaneous, pre-mordanting and post-mordanting and three mordant concentrations were investigated so as to determine the optimum dyeing condition. The impact of the two organic electrolyte mordants on certain physical properties of the cotton fabric was also determined.
Results:
The optimum dye extraction conditions, for a 25g sample of *Syzygium cordatum* bark powder, were found to be follows: temperature 70°C, time +51min and 400mL methanol/water solution. Under these optimum conditions, a dark red solution was obtained, and the crude dye yield from the bark was 20.3%.
The dyeing of cotton with the *Syzygium cordatum* bark dye extract, in conjunction with an organic electrolyte, generally showed good results, with trisodium NTA superior to dimethylformamide as a mordant. An increase in trisodium NTA mordant concentration increased dye exhaustion to 23.7% being achieved with 3g/L pre-mordanting. This is still relatively low, and the use of an exhausting agent needs to be explored. The fabric dyed with both mordant, exhibited good wash, rub and perspiration fastness, with trisodium NTA superior to dimethylformamide. Pre- and simultaneous mordanting showed satisfactory colourfastness grade of 3 and above with 1g/L of trisodium NTA. The use of trisodium NTA increased the strength of the dyed fabric whereas the use of dimethylformamide decreased it. In general, pre- and simultaneous mordants were better than post-mordanting.

Conclusion and Recommendations:
The colour shade of the dyed fabric varied from light reddish brown to dark reddish brown depending upon the mordant used. The Mordanting method and mordant concentration, had statistically significant effects on dye exhaustion, colour strength and colour fastness. Nevertheless, the exhaustion and K/S values were still rather low compared to previous natural dyes research indicating the need for an exhaustion agent. Both mordants and the mordanting methods improved the colour fastness of the dyed fabric, to washing, rubbing and perspiration, with the higher concentrations of mordant generally better, and with trisodium NTA superior to dimethylformamide. Pre- and simultaneous-mordanting were always better than post-mordanting. The fastness properties obtained with trisodium NTA generally exceeded the industry requirement (i.e. grade 3 or better). The optimized and standardized conditions of dye extraction and dyeing of cotton need to be provided to Swaziland craft industry to apply in practice.

A PERSPECTIVE ON PARENTAL UNDERSTANDING OF CHILD RESTRAINT USAGE – A SOUTH AFRICAN PERSPECTIVE
Me E Smit, Prof M Roberts-Lombard  University of Johannesburg

Keywords:
Child restraint, usage, parent, Gauteng, South Africa

Introduction:
South Africa has one of the highest per capita road death rates in the world (Smith, 2012). South Africa is ranked second after Nigeria with the highest road traffic death rates in the African Region (World Health Organisation, 2013:4). Motor vehicle accidents are the fifth cause of death among South African children (Hallbauer, Joubert, Ahmed, Brett, Dawadi & Kruger, 2011:43). This is because 84% of South African children do not wear child restraints when travelling in motor vehicles. Child restraints can be defined as secondary safety devices, which prevent or reduce severity of injury or death in motor vehicle collisions (Arrive Alive, 2015; Child Accident Prevention Foundation of Southern Africa, 2013). According to the World Health Organisation (2010), when a driver or passenger is unrestrained, the unrestrained driver or passenger collides against the interior of the motor vehicle. This is known to cause the most injuries in motor vehicle collisions, and can be prevented by the use of restraints such as seatbelts and child restraint systems. Seatbelts and other restraints would not only prevent vehicle occupants from hitting other objects, but also prevent them from being ejected through the windows (Abbas, Hefny & Abu-Zidan, 2011:1).
The aim of the study was therefore to understand the use of child restraints, knowledge and beliefs that parents and drivers of children have on child restraints in lower middle-class areas in the Gauteng Province. No study has specifically focused on knowledge, beliefs and the use of child restraints in the Gauteng province. The results of this research should enable South African organisations to develop road safety advertising and/or social marketing strategies, aimed at decreasing the death toll of children in motor vehicle crashes within Gauteng.

Methodology:
The study was qualitative in nature, exploratory and applied the interpretive paradigm to obtain a deeper understanding of parental opinion on the use of child restraints in their vehicles. The population of the study was lower middle-class parents or drivers in the Gauteng Province with children ranging from infant to 11 years of age. All the participants who were chosen into the sample, therefore shared the same characteristics: parents who own motor vehicles in South Africa with a lower middle-class income. The population members all had to have the abovementioned specifications in order to be selected into the sample. The empirical study sampled 14 parents and drivers of children between the ages of birth - 11 with a motor vehicle in Gauteng. They were randomly selected in lower middle-class groups in the cities of Johannesburg, Tshwane and Ekurhuleni. The study made use of an in-depth interview. The method that was used to analyse the empirical research results, was the Morse and Field Approach.

Results:
The results indicated that there is a lack of knowledge and usage of child restraints among lower middle-class parents and drivers within Gauteng. They have some knowledge of the infant capsule, however succeeding restraints knowledge is poor. The results also indicate that there are variables that are predictive of age-appropriate restraint use and knowledge, and that parents hold behavioural, normative and control beliefs around child restraints. Lastly, the results indicated that parents and drivers in lower middle-class areas within Gauteng have had no education on child restraints and have barely seen any advertisements on child restraints.

Conclusion and Recommendations:
Social marketers can educate parents and drivers regarding the installation of child restraints and seating positions. This should preferably be part of the educational campaign at pre-schools and primary schools within Gauteng, where health practitioners can educate parents and drivers on how to use and install child restraints. Parents and drivers should be made aware of top tethers (a top tether is a clip whereeto the restraint is fastened), Isofix points (International Standards Organisation Fix points), and that it is safer for their children to travel in the rear of the vehicle up until the age of 11 years. Lastly, social marketers must create awareness among parents and drivers regarding the serious consequences that might occur when they don’t use the correct child restraint or when no restraint is used at all.

References:
### DAY 2
TUESDAY, 6 MARCH 2018
ENTREPRENEURSHIP

**Thematic Session 2: Unleash the eagle mind-set: Entrepreneurship in Higher Education**

**Purpose of the Session:** The purpose of this symposium would be to create awareness of the latest trends in facilitating an entrepreneurial mindset of students in tertiary programmes. The panel discussion will focus on four aspects: Connection (networking and support), Access (to opportunities and resources), Risk (to experiment and boldly move forward) and Experience (student experiences). The second part (after tea break) is envisaged to let conference delegates experience the above four aspects at four activity stations in the room. The aim is to let audience experience the difference between traditional approaches to teaching business theory and *action oriented* entrepreneurial approaches that ignite the entrepreneurial mindset of the student.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30 – 08:00</td>
<td>Registration: Veranda Dorian</td>
</tr>
<tr>
<td>08:00 – 08:10</td>
<td>Opening and Welcome: Prof E Kempen, SAAFCS President</td>
</tr>
<tr>
<td>08:15 – 10:15</td>
<td><strong>Architecture for a Higher Education Entrepreneurial Ecosystem</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Prof Alex Antonites</strong> (Associate Prof), is currently the HOD Department of Business Management at the University of Pretoria. Prof Antonites is also the chair for entrepreneurship at the University of Pretoria since 2007 where he founded a Business Incubator. He is adjunct faculty on the GIBS MBA since 2008. Prof Antonites specializes in the field of entrepreneurship and small business development with a specific focus on creativity, innovation and opportunity finding. He has published in national and international journals with a specific focus on entrepreneurship education and training. In this regard, the model that he developed from his research.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:15 – 10:15</td>
<td><strong>Prof Thea Tselepis (Panel member and Facilitator)</strong> is a senior lecturer in the Department of Fashion Design in the Faculty of Art, Design and Architecture (FADA) at the University of Johannesburg (UJ). She majored in Clothing Management at the University of Pretoria graduating in 2000. In the year 2005 she completed her Masters in Consumer Science at the University of Pretoria. The study titled &quot;Die rol van die intrinsieke en ekstrinsieke faktore in die vroeë-adolessente dogter se evaluering van die pas van haar klere&quot; focused on the early adolescent's evaluation of the fit of their garments on various levels. Thea also completed her PhD at the University of Pretoria and graduated in 2014. The study titled &quot;The development of an entrepreneurially oriented design model for the South African small business that offers custom-made apparel&quot; focused on local clothing owner-designers' behavior with regard to entrepreneurial orientation. Thea is currently in the process of driving a post doctoral research focus area on &quot;preneurship&quot;, which mainly involves the development of entrepreneurial orientation and enterprising behavior of small business owners, intrapreneurs and bricoleurs in the clothing industry. Thea lectures business management and entrepreneurship related courses on undergraduate level and supervises postgraduate students in the BTech, M Tech and MA programmes. Thea's research falls within the broader field of Clothing Management. The specific focus of her research is on Entrepreneurial and Small business development, with specialization in pre-incubation and collective creativity.</td>
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Venue: Dorian 1
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| 10:15 - 10:45 | Refreshments and Poster Presentations (Clothing, Textiles & New Technologies)                    | The influence of personal values on evaluative criteria preferences during clothing purchasing decision.  
**Dr J Kasambala, Prof E Kempen – University of South Africa** |
| 10:45 – 12:00 | Thematic Session 2: PANEL DISCUSSION                                                            | Panel member: Mr Russel Rehbock  
Panel member: Mrs Adelaide Sheik  
Panel member: Mr Daniel Carstens  
Panel member: Ms Mariette Strydom |
| 12:00 – 13:00 | Lunch                                                                                             |                                                                                                 |
| 13:00 – 13:30 | Reviewing existing sewing training materials for low-literate participants of rural income generating projects  
Ms N Coetzee, Dr H van Staden – Vaal University of Technology, Prof W Oldewage-Theron – Texas Tech University | Water Ambassador Program: Furthering the Understanding and Protection of Watersheds, Hydrology and Agriculture and their Health Impacts in the USVI  
Ms CM Chanes, Dr D Morris, Dr S Latesky – University of the Virgin Islands  
Children’s responses to healthy food graphics: Using the taste and texture appeal of their favourites  
Miss C Swana – Tshwane University of Technology  
Nutritional status and food security of learners from secondary schools participating in the National School Nutrition Program in Northern KwaZulu-Natal  
Dr CJ du Preez, Mr SB Mbokazi – University of Zululand  
Traditional cowpea based products for enhanced household food and nutrition security in Northern KwaZulu Natal  
Miss TP Kheswa – University of Zululand |
| 13:30 – 14:00 | Cultural Tourism and Socio-Economic Regeneration of Rural Communities: The Apo Festival of Bono Takyiman  
Prof KP Quan-Baffour - University of South Africa | The competitiveness of the South African apparel retail industry  
Mrs BM Jacobs - University of Pretoria, Dr E Karpova – Iowa State University  
The development of an innovative culinary product prepared from green leafy vegetables for the urban consumer  
Miss AD Bupo, Dr GE du Rand – University of Pretoria  
Dietary Intake and Food Security Level of members and non-members of Agricultural co-operatives in Buffalo City Municipality  
Mr A Sofaya, Miss O Makanjana, Prof C Napier – Durban University of Technology  
Effect of vegetable gardening on nutritional knowledge, vegetable preferences and consumption among Grade 3 learners in Soshanguve  
Mr OG Moletsane, Dr BMatsiliza-Mlathi – Tshwane University of Technology, Dr I Louw – University of Pretoria, Prof W van Averbeke – Tshwane University of Technology |
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<td>14:00 - 14:30</td>
<td>Dorian 1</td>
<td>Batik as a Means for Family Sustainability in the United States Virgin Islands</td>
<td>Dr CL Johnson – University of the Virgin Islands</td>
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<td>Explication of urban adults’ food practices in relation to their food knowledge</td>
<td>Miss NF Tsambokhulu, Dr AT Viljoen, Mr H Fisher – University of Pretoria</td>
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<td>Contribution of the urban and home food environments on the food practices of white adults in Gauteng Province, South Africa</td>
<td>Dr AT Viljoen - University of Pretoria</td>
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<td>14:30 - 15:00</td>
<td>Dorian 2</td>
<td>Entrepreneurs at play: proposing a toolkit that supports children's entrepreneurial orientation during a clothing design process</td>
<td>Ms ADV Botha, Prof TJ Tselepis – University of Johannesburg</td>
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<td>Contribution of the local and home food environments on the food practices of black adults in Gauteng</td>
<td>Ms TP Dlamini, Dr A Viljoen, Mr H Fisher – University of Pretoria</td>
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<td>Conserving Indigenous Knowledge for Future use of IsiXhosa Indigenous and Traditional Foods by rural and urban communities of the Eastern Cape</td>
<td>Ms ZN Nxusani – Walter Sisulu University</td>
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<td>15:00 - 15:30</td>
<td>Dorian 3</td>
<td>Community nutrition education intervention with older female caregivers of children</td>
<td>Dr CE Ochse – Vaal University of Technology, Prof WH Oldewage-Theron – Texas Tech University, Prof IC Kleynhans – Tshwane University of Technology</td>
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<td>Consumer behaviour and decision-making</td>
<td>Ms L De Lange – ARC-Animal Product Institute</td>
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<td>Snacking preferences of primary school children from a low socio-economic status community in South Africa</td>
<td>Miss K Govender – University of Zululand, Dr A Naicker, Prof C Napier – Durban University of Technology</td>
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<td>15:30 -16:30</td>
<td>Dorian 4</td>
<td>Biennial General Meeting: Dorian 1</td>
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THE INFLUENCE OF PERSONAL VALUES ON EVALUATIVE CRITERIA PREFERENCES DURING CLOTHING PURCHASING DECISION.

Dr J Kosambala, Prof E Kempen – University of South Africa

Keywords: personal value, evaluative criteria, clothing, purchasing decision, nonlinear canonical correlation analysis (OVERALS), Kahle’s (1983) List of Values

Introduction:
In today’s diverse and dynamic societies, there is probably no other sphere of human activity that reflects individual’s values and lifestyles better than clothes (Vincent, 2013), resulting in a relationship between personal values and the way consumers dress their bodies (Kaiser, 1998). Much of the effort that goes into a purchasing decision occurs at the stage where a choice is made from the available alternative clothing products (Solomon & Rabolt, 2009). In this phase of the decision making process, consumers’ perceptions of the clothing item they anticipate to purchase includes evaluation of the clothing and the application of specific evaluative criteria in order to assess the suitability of the clothing item (Saricam et al., 2012). Personal values are one of the most powerful explanations of, and influence in the way consumers are likely to behave when evaluating clothing products and finally deciding which clothing item to purchase from the available clothing alternatives (Vincent, 2014; Kim et al., 2002; Laverie et al., 1993).

Although a significant amount of research suggests that personal values affect various aspect of consumer behaviour, personal values have not been widely examined to determine the underlying dimensions that influence the clothing purchasing decision (Solomon & Rabolt, 2009) nor has the association between personal values and evaluative criteria preference been established for South African consumers. The purpose of the study was therefore, to determine the extent to which evaluative criteria preference are influenced by personal values during female consumers’ clothing purchasing decisions.

Methodology:
A non-probability purposive, snowball and convenient sampling strategy was used to recruit female respondents aged between 18 and 66 years of age primarily residing in the Gauteng Province specifically from the Johannesburg Metropolitan area. A consumer survey, using group-administered questionnaires was used to collect data. Respondents were requested to rate the nine Kahle’s (1983) LOV items on a seven point scale of importance with end-points (where 1 = not at all important to me and 7 = extremely important to me) in relation to what they would like to portray through the clothing item (casual top/blouse, trouser/skirt and dress) they purchase in general. The pre-selected evaluative criteria that included fit/sizing, style/design, colour/pattern, appearance, appropriateness/acceptable, comfort and fibre content/material, formed the evaluative criteria respondents used to rate the importance of each attribute against each clothing product category (casual trouser/skirt, blouse/top, skirts and a dress) through means of a 5-point Likert rating scale, with end points (where 1 = not at all important to me and 5 = extremely important to me).

Nonlinear canonical correlation analysis (OVERALS) was used to determine the effect of personal values (dependent variable) on the importance attributed of the intrinsic evaluative criteria (independent variable) explored in this study.

Results:
The biplot approximation results of this study confirmed that female consumers associated certain evaluative criteria for the achievement of different personal values such as a sense of belonging, self-fulfilment, being well-respected, confidence, a sense of accomplishment, self-respect, warm relationship, fun and enjoyment and
It was also evident that this association is different for the different clothing categories. This finding, therefore, suggests that personal values ultimately drives the female consumer’s purchasing decision when having to choose clothing products among the alternatives within a clothing category.

**Conclusion and Recommendations:**
Female consumers aspire to communicate their personal values which are the desired states of existence. There should be a paradigm shift in the mind set of clothing manufacturers and retailers to consider consumers as individuals with unique personal values that determine their clothing purchasing decisions. Understanding female consumers’ personal values may enable clothing manufacturers, marketers and clothing designers to improve their product offerings and marketing strategies to better fulfil female consumers clothing preferences.

**References (only references referred to in abstract):**

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**REVIEWING EXISTING SEWING TRAINING MATERIALS FOR LOW-LITERATE PARTICIPANTS OF RURAL INCOME GENERATING PROJECTS**

*Ms N Coetzee, Dr H van Staden – Vaal University of Technology*

*Prof W Oldewage-Theron – Texas Tech University*

**Keywords:**
community based, income generating projects, low-literate, rural, sewing, training materials.

**Introduction:**
Training materials and programmes are major contributors to the effectiveness of community based projects (Oldewage-Theron, Dicks, Napier & Rutengwe, 2005:319). The value of training materials in income generating projects (IGPs) is that it can be used in to address practical skills training needs, such as sewing training. While various types of sewing training materials exist, its suitability for use in rural IGPs have not been reviewed and warrants further investigation. The purpose of this study was to review existing training materials for appropriateness and application in specifically rural sewing IGPs, and to determine the most prominent sewing training needs within these units.
Methodology:
A qualitative research approach was selected to gain understanding of the current uses and needs for sewing training materials within rural sewing IGPs, and to provide insight as to why challenges with textual training material exits. In this study, a two-part investigation was undertaken. Firstly, one-to-one interviews with IGP community facilitators were conducted to review existing training materials for appropriateness and application within the rural sewing IGPs, and to determine their most prominent sewing training needs based on practical skills challenges encountered within these units. An interview schedule contained the pre-determined open-ended questions and sub questions that the interview addressed (Creswell, 2014:139). Secondly, document analysis was undertaken to review the training material formerly developed for these rural sewing IGPs (in the form of a facilitators manual by Van Niekerk, 2005), as well as a variety of other conventional sewing training materials available today.

Results:
The findings of the one-to-one interviews with the IGP community facilitators indicated that the facilitators training manual developed specifically for the rural IGPs have not been implemented in practice. Additionally, the amount of reading and prominence of linguistically unclear words rendered the use of commercial materials questionable by the low-literate IGP facilitators. In terms of sewing training needs, various challenges associated with practical skills were observed in the project units, with the need for achieving accurate pattern layout and body measurements being most prominent.

Document analysis of existing and commercially available training materials revealed that while many of the selected sources were theoretically appropriate in terms of its literacy level and content, challenges related to its appropriateness for use by low-literate end users soon emerged. The first challenge related to the amount of reading required to comprehend the sewing instructions. Most of the sources consisted extensive theoretical materials, presenting an issue of concern for low-literate readers. As these individuals devote more time to the process of reading itself (at the word level), their capacity for content comprehension may be compromised (Jae & Viswanathan, 2012:1674) and the learning process inhibited. The second challenge related to context. The instructional information was presented in a general and idealized manner that does not reflect the setting within the rural sewing IGPs. In such conditions, low-literate end users may lack the ability to apply such general information to address their specific needs (Viswanathan & Gau, 2005:191). The third challenge related to the nature of the material itself, which was designed to be read and not interactively used in the practical skills training process. These challenges rendered the existing and commercially available sewing training materials unlikely to be appropriate for application in the rural IGPs in its current form.

Conclusion:
This study revealed a need to redesign training materials for low-literate participants of rural sewing IGPs. On the basis of the findings, criteria are provided for the development of sewing training materials appropriate for low-literate end-users.

References:
Keywords:
Socio-economic, culture, tourism, regeneration, identity, entrepreneurs

Introduction:
Tourism can be described as any activity concerned with temporary short-term movement of people to destinations outside the places they normally live and work and their activities during the stay at these destinations (Bennet 2007). Tourism is as old as humankind; since time immemorial human beings have been visiting places for various reasons. A number of reasons can attract visitors to various destinations. While some people visit places for educational, medical or religious purposes others visit specific destinations to entertain themselves through participation in cultural events. Cultural tourism takes place when people visit specific destinations to attend, observe, learn or enjoy cultural or festive events of an ethnic group. Ghana is a very peaceful country with a variety of annual cultural festivals which attract both local and foreign visitors to the countryside communities. This paper reports on an investigation into the socio-economic impact of the annual Apo festival celebrated by the people of Bono Takyiman in Ghana. The objective of the paper was to explore the socio-economic effects of the annual Apo festival on the rural communities of Bono Takyiman in Ghana.

Methodology:
This study explored the socio-economic impact of the Apo festival as cultural tourism on the rural communities in Bono Takyiman in Ghana. This study was based on the interpretive paradigm and therefore utilized the qualitative research approaches of interview and participant observation. It was both ethnographic and phenomenological study because it was an investigation into lived experiences of a group of people. Ethnographic study enables the researcher to uncover and explicate the ways a particular group of people understand their settings in order to take action to improve their circumstances (Quan-Baffour, 2015). Phenomenological study on the other hand focuses on the understanding of the social phenomenon from the perspectives of the people involved. (Welman, Kruger & Mitchel, 2007). In order words, phenomenological study focuses on how participants in the study experience a particular phenomenon. The researcher employed the above approaches in this exploratory study to enable him obtain the appropriate information as experienced by the participants. To achieve this goal he purposively selected thirty (30) entrepreneurs comprising owners of 5 Bed and Breakfast, 5 hotels, 5 bottle stores, 5 indigenous clothing design shops and 5 taxi operators. A semi-structured interview guide was used to collect data from the thirty participants. The data collection took place during the 2016 three week Apo festival celebrations. The interviews covered issues that pertained to the effect of the festival on the businesses and the communities of Bono Takyiman.

Results:
The findings from the exploratory study indicated that the annual Apo festival as cultural tourism attracts many visitors, both local and foreign, to the Bono Takyiman area. The presence of the visitors boosts the small businesses in the area and this has positive impact on the socio-economic regeneration of the rural communities in Bono Takyiman.

Conclusion:
The study concluded that annual festivals in Ghana attract visitors from home and abroad. Such events have positive effects on communities and therefore the ministry of tourism should encourage local communities to seize the opportunity to develop the countryside.
Recommendations:
The paper recommended that:
- The municipality of Bono Takyiman should ensure that the physical environment is always clean and healthy.
- The ministries of tourism, rural development and small business should organize workshops to train rural entrepreneurs in business management skills.
- The ministry of tourism should build recreational facilities in rural municipalities to attract more visitors.

References:

BATIK AS A MEANS FOR FAMILY SUSTAINABILITY IN THE UNITED STATES VIRGIN ISLANDS

Dr CL Johnson – University of the Virgin Islands

Keywords:
Family, sustainability, batik, co-op, batik co-op, traditions, culture, consumer science, textiles, community engagement, entrepreneurship, economic empowerment, resilience

Introduction:
The purpose of batik as a means for family sustainability, entrepreneurship and community engagement is to offer training to women on the small island of St. Thomas to learn a marketable skill in order for the women to generate their individual and family income. St. Thomas is part of the United State Virgin Islands which is located in the Caribbean. More than 50% of the population live below the poverty level. The main industry for the island is tourism.

Methodology:
A pilot study has been developed to determine the resilience of the batik project. A batik class was formed five years ago to help women in the community to develop entrepreneurship skills. The class is offered through the Family and Consumer Sciences Department of the Cooperative Extension Service (CES) at the University of the Virgin Islands. The CES program is a community out-reach program. Two separate classes are offered once per week. The classes run each semester. “We live in a time of global uncertainty, multiple crises and natural disasters are testing even the most robust economies and communities. Co-operatives can contribute to building resilience in all regions and all economic sectors.” (Ban Ki-moon, 2013). The United State Virgin Islands just experienced two category five hurricanes. St. Thomas where the classes are taught was badly damaged. The questions are - Do the batik classes have the five main factors that are critical for co-operatives to survive over-time? (Borda-Rodrigues and Vicari, 2013).

The batik program, a community engagement program, which is developing economic empowerment for the women to develop batik skills that will preserve the local textile culture and environment. The women are encouraged to design batik textile that reflects the local African-Caribbean culture and environment. The batik designs reflect island life as seen in sea turtles, tropical fish, historical architecture, Caribbean people and the Caribbean natural environment. Many tourists and locals want affordable hand-made local art. Batik items include purses, cards, bookmarks and small 8” x 10” batiks that can be framed.
Results:
The five main factors that are critical for co-operatives to survive over time are as follows:
(1) Values based membership – the members of the batik co-op all seem to have the same values. They value their membership in the batik co-op as reflected in the number of years they have been involved in the project.
(2) Networks – the members of the batik co-op have established working relationship with various organizations and businesses within the local community where they have been able to sell their batik
(3) Collective skills – each member of the batik co-op shares their knowledge of art and their skills to help develop the other members of the co-op
(4) Innovation – due to the two recent hurricanes (September 2017) this remains to be seen what type of innovation that the co-op will develop in a tourist economy that has been destroyed
(5) The role of the government – the co-op has sought the advice of the local small business development center and will continue to ask for their support in light of the present disaster situation.

Conclusion and Recommendations:
The batik co-op up to this point in time has developed resilience. The batik classes will continue as a community out-reach program engaging women in the development of entrepreneurship skills. For the past three years, the co-op has steadily increased income and sales in this vital cultural tradition to aid them in their economic stability. This batik co-op can and will contribute to the building of economic resilience on the island of St. Thomas.

References:
Ban Ki-moon (July 6, 2013,) Message for the International Day of Co-operatives

ENTREPRENEURS AT PLAY: PROPOSING A TOOLKIT THAT SUPPORTS CHILDREN'S ENTREPRENEURIAL ORIENTATION DURING A CLOTHING DESIGN PROCESS

Ms ADV Botha, Prof TJ Tselepis – University of Johannesburg

Keywords:
Entrepreneurial Orientation, Generation Z, design, creativity

Introduction:
Most children have an inborn playfulness, sense of creativity and drive for experimentation that is often suppressed as they grow up, by societal standards and the education system (Oduho & Ogutu 2012:67). The playfulness, creativity and drive for experimentation are important with regard to entrepreneurship or entrepreneurial orientation (innovativeness, risk taking and pro-activity) (Taylor & Rogers 2001; Mata García 2014:27). It would therefore make sense to rather stimulate and develop this innate creativity at a young age instead of inhibiting it, especially when one considers the challenges that Generation Z learners face regarding creating their own enterprising future opportunities.
It is suggested that extracurricular activities can be very useful to cultivate creativity and entrepreneurial orientation through active learning (Claudia 2014). The argument in this study is made that facilitating children to apply clothing design as an extra curricular activity might enhance their entrepreneurial orientation. The objective of this paper is therefore to report the findings that informs the development of a toolkit that supports the entrepreneurial orientation of primary school children through a clothing design extracurricular activity.

Methodology:
An action research design was implemented in this study. This paper reports on the first phase of the study relating to the development of an intervention purposed to stimulate and support the entrepreneurial orientation of the participants. The participants of this study were between the ages of 7 and 13 years old (Generation Z) and all were enrolled for an extracurricular clothing design programme. A total of 13 participants took part in all the phases of the study. Qualitative research methods were applied to this study: 1) observations (of participants’ behaviour during training sessions) and 2) visual analysis (of participants’ prototype products designed during the sessions). Observations were documented with an occupational intelligence scale and visual analysis of the participants’ prototype products was guided with the product innovation pyramid of Rampino (2011).

Results:
It was evident that the innovativeness of participants were low (on the occupational intelligence scale) in terms of: aesthetic innovation, product meaning (symbolic innovation) and the purpose of the prototype products. Furthermore, it was apparent that a linear approach traditionally associated with extracurricular sewing programmes, enhanced the participants’ technical skills, yet did not seem to enhance creativity. The findings indicate that participants’ pro-activity, risk-taking and innovation were low when a linear design process was followed and that an intervention was needed to support entrepreneurial orientation.

Conclusion and Recommendations:
The toolkit developed to address the issues identified above, is devised to support the analysis phase of the design process in a pro-active way by guiding a vison strategy. The toolkit also developed allows experimentation (risk-taking) with less instructions and more collaboration between participants so that creative synthesis takes place during the design process. Finally, the toolkit is developed to promote task awareness by allowing participants to evaluate their ideas against an envisioned end result (evaluation) and plan a more innovative product. In this regard, the proposed toolkit is developed to support entrepreneurial orientation and is highly recommended for enhancing creative problem solving.

References:
Introduction:
A culturally acceptable Nutritional Education Programme (NEP), based on four of the South African Food based dietary guidelines (2012), was developed for Sesotho speaking female caregivers of children (5-15 years) in the district of Boipatong, Vaal region, South Africa. This presentation will focus only on the third and fourth (implementation and evaluation) phases as per the Food and Agriculture Organisation’s framework (1997) for nutrition education (NE). In the preparation phase, the main objective was to obtain a profile of the community by means of a socio-demographic survey. During the second phase (formulation phase) the NEP and accompanying NE material in Sesotho were developed to be used in the next phases.

Sound nutrition is important throughout the lifecycle to combat under- and overnutrition and nutrition-related diseases. Poor nutrition can be seen as both a cause and a consequence of poverty (Vorster 2010). In a study in an informal settlement in the Vaal region, Oldewage-Theron and Slabbert (2008:4) found that the sample was poverty-stricken and suffered from chronic food insecurity.

Methodology:
In the implementation phase the effect of NE on nutrition knowledge was quantitatively measured in a pre- and post-test design in the short term, using paired t-tests in the experimental group of caregivers. The evaluation phase tested the impact in the longer term. Nutrition knowledge and dietary intake were measured quantitatively in a before-after intervention. The mean nutrient adequacy ratio (MAR) was calculated in both instances. Perceptions of the caregivers about the intervention were analysed qualitatively in the experimental group. A non-randomised control group that was not exposed to any of the activities was used for nutrition knowledge pre- and post-intervention.

Results:
In the short term (implementation phase) there was a significant increase in knowledge at each session in each of the FBDGs. When viewing the change in nutrition knowledge as a percentage, the FBDG ‘variety’ changed from a median of 50 to 59 percent; the FBDG ‘plant protein’ changed from median pre-test 61 to 80 percent; and the FBDG ‘animal protein’ from 55 to 60 percent (IQR 55-70%). In the longer term, median nutrition knowledge before the intervention was 49 percent (IQR 46-57) compared to 70 percent (IQR 68-73) after the intervention – a significant increase of 21 percent. In contrast, the control group showed an increase of only five percent. The MAR remained relatively stable before the intervention and after the intervention - confirming little change in eating habits. The qualitative analysis identified core themes regarding the benefits of health education, purchasing behaviour on what to buy and how to save money, and guidelines for the layout and design of the Sesotho booklet.
Conclusion and Recommendations:
The NEP and NE materials were effective to bring about an increase in nutrition knowledge in the experimental sample of child caregivers. The findings of the present study confirm that dietary intake is poor both in the before- and after-intervention nutrient analysis, typical of a low socio economic status community. Therefore, although the NE intervention was effective in increasing nutrition knowledge, it did not increase dietary intake. The sample was too small to generalise findings to a larger population. However, valuable lessons were learnt that will contribute to the body of knowledge on NE in the South African context. Tailored NE interventions, including behaviour change models, are important for the health of the women themselves and for that of the households and grandchildren in their close environment. The study also led to a better understanding of food patterns of the Sesotho community in Boipatong and of the nutrient inadequacies observed in the sample of caregivers.

References

DAY 2 (6 MARCH 2018): VENUE 2

WATER AMBASSADOR PROGRAM: FURTHERING THE UNDERSTANDING AND PROTECTION OF WATERSHEDS, HYDROLOGY AND AGRICULTURE AND THEIR HEALTH IMPACTS IN THE USVI

Ms CM Chanes, Dr D Morris, Dr S Latesky – University of the Virgin Islands

Keywords:
water resources, water quality, nutrition, health, climate, weather, agriculture

Introduction:
The United States Virgin Islands is a small territory in the Caribbean Sea, just to the east of Puerto Rico that consists of four main islands, Saint Thomas, Saint Croix, Saint John, Water Island and a few smaller, mostly unpopulated islands (Allen 1992). A significant proportion of the population of all of these islands draws their water from cisterns filled by collecting rainwater off of rooftops (USVI BER 2012). The others are dependent upon groundwater sources. There has been and continues to be a need for data collection on the status of streams and watersheds and a better understanding of climate and its impact on agriculture which affects health and nutrition in the territory. The project goal was to prevent or reduce nonpoint source pollution (NPS) of underground and surface water as well as bring to attention of the youth the importance of water quality and how that directly relates to food, water, overall health and climate in our region.

Methodology:
The programs offers lessons in health and nutrition education and as well as six lessons in hydrology then ties them together to focus on water conservation and water quality which impacts agriculture which is a main food source in the territory and throughout the region. This project also engages youth in STEM concepts by allowing them to work with GEOCAS the department which conducts GIS services at UVI to expand the existing networks of weather stations in the schools and community and
allow youth to contribute to data collection and mapping of their observations of such things as pot holes, marine life, trash and debris as well as where deer are located among other things.

**Results:**
For over three years, more than 1000 youth have been educated in weather climate and health impacts relating to water and water quality through a six lesson program in each subject to help them sustain their quality of life through better nutrition and the need for expanded agriculture in the territory. In the program they learned about and presented on such topics as human consumption, food safety and healthy nutrition along with water quality, hydrology including the water cycle and created a booklet of their essays about the topics listed.

**Conclusion and Recommendations:**
Creating the Water Ambassador Program allows youth to advocate and work to sustain their environment through water conservation and contribute to their local food source through agriculture in the schools by building school gardens. The demand for the program outweighs funding and staffing capabilities. The program is hands on, supports STEM learning and allows youth to meet with and engage in Citizen Science projects while promoting higher education and science career pathways.

It also engages a variety of teachers and UVI professors in working collectively to allow youth to participate in science and research in real time that is ongoing at the university as well as assist youth with videotaping and audio recording their findings and presenting them on the WUVI college radio station so that the broader community can learn about their efforts and they can share their messages of conservation, health, the importance of good nutrition and the impact extreme weather and climate has in our region. Ultimately, from a Family and Consumer Sciences education perspective, this project has helped individual youth and families living in the USVI apply these nutrition and water quality lessons and is meant to do so throughout their lifespan, thus dealing not only with families but also with their interrelationships within the community tying it back to better and healthier families across the territory.

**References:**
THE COMPETITIVENESS OF THE SOUTH AFRICAN APPAREL RETAIL INDUSTRY

Mrs BM Jacobs - University of Pretoria
Dr E Karpova – Iowa State University

Keywords:
competitiveness, retail industry, South Africa, Porter’s model

Introduction:
This paper aims to assess and analyse the current and future factors affecting the competitiveness of the South Africa’s (SA) apparel retail industry which is regarded as a growth sector in the SA economy (W&R Seta, 2013). Porter’s (1990) diamond model was used to analyse the competitiveness of SA’s apparel retail industry as it provides a framework to understand the competitive position of an industry on both a domestic and global level. Porter included four important dimensions affecting the competitiveness of an industry namely, (1) factor conditions (i.e. natural resources, location, labour, skilled employees, infrastructure, technological advancements and research institutions); (2) demand conditions (i.e. local demand of consumer markets); (3) related and supporting industries (i.e. complementary industries adjacent to the retail industry); and (4) firm’s strategy, structure, and rivalry factors (i.e. governance, creation and organization of the industry).

Methodology:
To assess the competitiveness of the South African apparel retail industry, secondary data analyses were conducted. The data sources accessed and used included: data bases of international and national organizations (e.g. World Economic Forum; World Bank; Statistics SA), secondary statistics (e.g. Marketline, 2015), existing literature and scholarly publications, news websites (e.g. Media Club SA; Oxford Business Group), industrial and consumer reports (Coca-Cola Retailing Research Council report, 2010; PwC, 2012; PwC 2016; Wholesale & Retail Sector Education and Training Authority Report [W&R Seta], 2013) and performance indices (e.g. World Bank’s logistics performance index; Global Competitiveness Index). Data were analysed according to the four competitive determinants identified by Porter.

Results:
Findings indicated that the factor conditions present the most challenges in terms of competitiveness. Even though the wholesale and retail sector alone is the fourth largest contributor to the Gross Domestic Product (15%) in SA and employs about 22% (1,950 000 people) of the total active workforce of the country major skills shortage exists. In addition to the skills shortage in the retail industry, the effectiveness of the higher education institutions (HEIs) of South Africa is also problematic. Currently, the effectiveness and quality of SA’s HEIs scored 77th out of 138 countries world-wide. Specialist skills are considered vital to any country’s competitiveness but currently SA is lagging behind as there is a shortage of graduate supply from HEIs. Regarding demand conditions, the expanding Black consumer market with their fast-growing spending power translated into the demand for more unique and luxury apparel products. In terms of related and supporting industries, insufficient government backing in terms of apparel imports have unfortunately had a negative impact on the competitiveness of the SA apparel retail industry and consequently many apparel retailers moved their production outside SA and source globally to be more price competitive. Findings further revealed that the entry of international retailers (e.g. Zara, H&M and TopShop) into the South African retail industry became a viable strategy because of market saturation in other international markets and the opportunity to target new upcoming consumer markets. Similarly the expansion of SA apparel retailers into global markets and online retailing increase their earnings through foreign revenue and leverage local expertise in new locations.
Conclusion and Recommendations:
In conclusion, SA’s competitive advantage lies in its established retail sector, with a considerable mix of major and independent domestic competitors. However, the only way to sustain a competitive advantage in the global market is to focus on improving the advanced (modern technology and research and development) and specialized factors (discipline skilled personnel, specialized infrastructure and knowledge bases) of SA. The number one strategy would be to address future skills requirements and gaps. In addition, creating strong brands and influencing the consumption patterns of local target markets are critical for SA apparel retailers to become more competitive. Substantial investment in research and development can contribute significantly to segmenting markets (local and global), training sales personnel, and effectively focused marketing strategies. As SA is a cultural rich country, aligning SA’s retail industry with global drivers such as offering diverse and unique products and creating strong SA brands will enhance competitiveness. Lastly investment in online retailing can also make SA’s retail industry more competitive. Retailers can reach consumers more effectively by utilizing omni-channels such as the Internet. Upgrading technology and communication infrastructure will be a high priority for this strategy.

References:

ENVIRONMENTAL AND CULTURAL SUSTAINABILITY IN ECOTOURISM THROUGH BELIEF SYSTEMS: THE CASE OF FIEMA-BUABENG MONKEYS’ SANCTUARY, GHANA
Prof A Arko-Achemfuor – University of South Africa

Keywords:
Culture, ecotourism, environment, sanctuary, tradition

Introduction:
This study investigates how two communities in the Brong Ahafo Region of Ghana have sustained an ecotourism initiative over centuries through a particular belief system. Members of the two communities believe that their ancestors turned into monkeys in order to avoid an attack by an enemy tribe which would have annihilated the communities. Based on this legend, the two communities dedicated about 4.5 kilometres square land for the monkeys to inhabit. The monkeys live in the forest, which is at the edge of the two communities but come to the villages in the morning and the evenings for food. The community members are not do deny the monkeys food or harm them in any way as it is believed that any person who does so will experience a calamity in his/her family.

Research purpose and research questions:
The purpose of the research is to investigate how two communities in rural Ghana have maintained and sustained a monkeys’ sanctuary over the years through some belief systems. The research questions for this paper are:

- What belief systems have the two communities used to create and maintain the monkeys’ sanctuary?
- What are the experiences of the communities regarding the living with the monkeys?
- What impacts does the monkeys’ sanctuary have on the surrounding communities?
Theoretical/conceptual framework:
This paper is underpinned by Murphy’s (1983) ecological theory. The theory is used to explain the relationship between tourism and local ethnic groups and emphasises the participation of the local ethnic group in comparison to the outsiders. Murphy’s ecological model also stresses that the local ethnic group’s participation in various stages of planning and implementation will determine a holistic ethnic group development equipped with ethnic group participation and empowerment.

Methods:
The qualitative method based on observations, and individual and focus interviews were the main instruments that were used to collect data to investigate how the communities have maintained and sustained the monkeys’ sanctuary over the years through their belief systems. The participants in the study included a tourist guide, a chief from one of the villages, six communities and another six members from the two communities for the focus group. The purposeful sampling technique was used to obtain relevant and useful information from knowledgeable people from the two communities who were recommended by a key informant from one of the two communities.

Results, conclusion and recommendations:
The findings indicate that the belief systems have enabled the two communities to maintain their traditions and culture as well as the preservation of the environment and as a result creating a sustainable ecotourism endeavour which is generating income and employment for the community and the municipality at large. The sanctuary it was noted also according to the visitors’ book showed that a lot of both local and international visitors and researcher visit the place throughout the year. It was also observed that the sanctuary apart from the monkeys also hosts a number of other game and wild life as well as a number of plant species which cannot be found around the degraded surrounding environment. It is recommended to communities, governments and local municipalities to find niches within their traditions and cultures that can be applied for the sustainable development of their communities as these two communities have done.

Significance and implications:
The study sheds light and makes significant contribution to the field of indigenous knowledge and cultural systems which are sometimes regarded as backward and unscientific irrespective of the fact that the belief system is achieving results that are needed for sustainable livelihoods. The belief system that is applied in the two communities has also attracted researchers from Ghana and other parts of the world to who are conducting various types of research to try to understand the phenomenon.

References:
INVESTIGATING COLLEGE STUDENTS’ CONCEPTION OF LEARNING AND PREFERENCES FOR COURSE TEACHING: IMPLICATIONS FOR INSTRUCTIONAL DESIGN

Mrs AA Emmanuel - Michael Otedola College of Primary Education
Mrs IA Aderibigbe - Oyo State College of Africa and Technology

Keywords:
Conceptions, learning, preferences for courses

Introduction:
For decades, research studies in education has tackled an important area of research on how students learn. Results of these research works revealed that individuals differ in their conceptions of learning and knowledge (Entwistle and Entwistle, 1992; Sternberg, 1985), and that these conceptions influence how they approach learning tasks. As stressed by Biggs (1987), students mostly embrace a deep or surface approaches to learning; depending on their interpretation of the teaching environment in relation to their own preconceptions and motivations. A deep approach to learning is when conception of learning is sophisticated and understanding of knowledge is thorough; but when they see learning as meeting course requirements or memorising of facts they tend to adopt a surface approach to learning (Entwistle and Peterson, 2004). Students’ conceptions of learning, or perception of what learning means have been found to play an important role in how they choose to approach their learning (Dart, et al., 2000; Edmunds & Richardson, 2009). Consequently, a lower level conception of learning lead to students taking up surface approaches to learning and which invariably hinder satisfactory learning outcomes. Students' conceptions of learning are relatively stable, research has shown that learners' previous experiences, which may be formed by culture and possibly the learning environment, influences these conceptions (Tynjälä, 1997). This means that learning and teaching innovations can help bring about variation in students' conceptions of learning. Knowledge of these variations in students' conceptions of learning is important for educators to perceive appropriate learning and teaching innovations that can address students misconceptions about the courses learnt (Lucas & Meyer, 2005). This research therefore is driven by the desire to enhance the quality of learning and teaching of students who study Home Economics at the college level in Nigeria. Three questions were therefore posed and answered. (i) What learning conceptions are held by college home economics students? (ii) What are college students’ preferences for different types of course teaching in Home Economics courses? (iii) How can the knowledge of college students' learning conceptions and preferences for course teaching be utilized to bring about teaching and learning innovations in Home Economics?

Methodology:
Using a descriptive survey research design, two research questions and one hypothesis were stated. The population comprised students who took the course, “Method of teaching Home Economics’ (HEC 227) and twenty students were sampled out of the population using a purposive sampling technique. The instrument used to elicit responses from the respondents was the Approach for Study Skills Inventory (ASSIST) which was developed in 1997 by Noel Entwistle. The instrument is a 72-item standardised questionnaire which was divided into four sections - background information, conceptions of learning, approaches to studying and preferences for different types of course organisation. Mean, standard deviation and t-test were used for data analysis.

Results:
The result shows some of the students preferences for different types of course teaching are transmitting understanding (mean = 15.95, Std. = 2.481), and supporting information (mean = 16.85, Std. = 2.455). Students learning conceptions are reproducing knowledge (mean = 14.05, Std. = .999) and transforming taught material (mean = 14.20, Std. = .894). Result of the hypothesis shows no significant difference between students’ learning conception and preferences for different types of course teaching. The findings of the study guided the researcher in bringing new innovations that can improve students understanding on the course.
Conclusion and Recommendations:
It was recommended that teachers need to be aware of students conceptions of learning and preferences for course teaching and learning as this will guide in bringing in new innovations that can address students misunderstandings on a particular course.

References (only references referred to in abstract):

DAY 2 (6 MARCH 2018): VENUE 3

CHILDREN’S RESPONSES TO HEALTHY FOOD GRAPHICS: USING THE TASTE AND TEXTURE APPEAL OF THEIR FAVOURITES
Miss C Swana – Tshwane University of Technology

Introduction and Problem as well as Objectives of your study:
Childhood obesity is a worldwide epidemic that is fuelled by children’s excessive consumption of unhealthy foods and beverages that are high in sugar and fat. Children generally prefer these foods and beverages because they are biased towards the taste of food and drink more than being concerned with the nutritional value thereof (Nguyen, Girgis & Robinson, 2015). The majority of foodstuff advertisements televised in South Africa and aimed at children market fast and convenient food, desserts, sweets (Pengpid & Peltzer, 2015; Mchiza, Temple, Steyn, Abrahams & Clayford, 2013), refined breakfast cereals, potato chips and sugary colddrinks (soft drinks) (Temple, Steyn & Nadomane, 2008). The healthier options that are advertised are yoghurt and peanut butter at 42% (Temple, Steyn & Nadomane, 2008). The literature on the topic has well documented the promotional appeals that are used for unhealthy foods and which include premium offers, themes of action/adventure, magic/fantasy (Warren, Wicks, Wicks, Fosu & Chung, 2008), bright colours, child-like fonts, unlicensed characters (Mehta, Phillips, Ward, Coveney, Handsley, Carter, 2012), movie or television characters and competitions (Chapman, Nicholas, Banovic & Supramaniam, 2006). However, the same cannot be said for healthy alternatives such as fruit and vegetables.

The unhealthy food marketing environment that children are persistently exposed to in South Africa was the focus of my master’s research and which sought to describe the graphics found on the packaging of unhealthy food aimed at children. Measuring the compliance of these graphics to applicable laws and advertising codes was also
an explicit aim of the aforementioned study. The direction of research in this field now seeks to identify and/or establish strategies to promote a healthy food environment to children. Currently there is some evidence of children’s positive responses to healthy food that is paired with cartoon characters (De Droog, Valkenburg & Buijzen, 2011; Kotler, Schiffman & Hansen, 2012; De Droog, Buijzen & Valkenburg, 2012). Further investigation in this field requires a focus on graphics that highlight the sensory aspects (for example taste and smell) of healthy food (Bublitz & Peracchio, 2015).

The aim of this study is to investigate children’s responses to the use of taste and texture graphic appeals for healthy food and in particular when used on fruit and vegetables package designs.

The study has the following objectives:

1. To identify children’s preferred fruit and vegetables (hereinafter referred to as ‘favourites’).
2. To ascertain children’s perceptions regarding existing packaging designs pertaining to their favourites.
3. To determine children’s descriptions of the taste and textural qualities of their favourites.
4. To develop graphics that promote the taste and textural qualities of children’s favourites and to test the children’s reception of the graphics relating to the particular fruit and vegetables they like and dislike.
5. To suggest a practical framework that marketers can implement to promote children’s favourites.

Methodology:

This study will adopt a mixed methods approach as this can provide varying data on any particular finding which in its turn can aid in strengthening the overall findings of the study (Nabors, 2013). The first part of the study will determine the children’s preferences and the extent of the preferences through an attitudinal scale (Likert scale) that minimises possible ambiguity in the responses (Babbie & Mouton, 2012). The study will then proceed by conducting focus groups with the children where they will verbally express their preferences. Qualitative methods with participants allow enough flexibility for them to be able to adequately express themselves (Kumar, 2011). The focus groups will further provide a relaxed setting (Liamputtong, 2011) where the children can provide in-depth responses (Nabors, 2013).

The study’s purposive sample will consist of Grade 4 learners (girls and boys) between the ages of nine and ten (n = 240). This age group has developed a critical eye (Berk, 2009) that is needed for the children to discuss their perceptions and preferences. Context is essential in selecting research participants considering that it influences their development (Nabors, 2013; Berk, 2009), and so the selection variables such as gender, age, geographic region, food culture, and language need to be homogenous. The pupils will be selected from schools in an urban area in Johannesburg (n = 4) and schools in a rural area in Lusikisiki (n = 4).

The focus group discussions will be video and tape recorded as there may be non-verbal expressions from the children that can only be accurately and reliably captured in a video format and which may enrich the meaning of their descriptions (Nabors, 2013). These recordings will subsequently be transcribed for efficiency in long-term use (Bazeley, 2013) and follow a thematic analysis. The Likert scale measurements will be cross-tabulated. The analysis will also include a Chi-squared assessment, a multivariate analysis of variance (MANOVA) test and appropriate non-parametric statistics.

References:

THE DEVELOPMENT OF AN INNOVATIVE CULINARY PRODUCT PREPARED FROM GREEN LEAFY VEGETABLES FOR THE URBAN CONSUMER

**Miss AD Bupo, Dr GE du Rand – University of Pretoria**

**Keywords:**
African green leafy vegetables, Morogo, Recipe development, Consumer-led product development, Sensory evaluation

**Introduction:**
In most developed countries, indigenous leafy vegetables are regarded as weeds, but in Africa these vegetables are important to rural households. In South Africa these vegetables are referred to as morogo which means edible green leafy vegetable. Indigenous or wild leafy vegetables are very nutritious foods which are underutilised. They have made a positive impact on the nutrient intake of local communities for many years due to their contribution of vitamins, minerals as well as phytochemicals and antioxidants. These vegetables were used traditionally as a relish or potherb (cooked in a pot) and served as an accompaniment to carbohydrate staples such as maize meal.

The increase in desire and need for convenience foods makes it imperative that healthy options are made available amongst other convenience food products as time is very valuable to the modern urban consumer. Using African green leafy vegetables helps traditional foods to not become lost in a westernised environment as well as to allow a healthier alternative product to be made available. In order to do this consumers are vital to the process of product development as it is them who have the final say whether a product will be successful or not.

**Methodology:**
The aim of this study is to investigate and determine the characteristics and specifications desired in African green leafy vegetable products, to develop the culinary product using these vegetables and lastly to determine and evaluate the culinary product by means of sensory evaluation and consumer acceptance. This study will be
conducted in three phases. During the first phase a quantitative research approach will be followed to collect demographic, background knowledge on these vegetables, product characteristics as well as consumption information of the participants to determine what type of convenience food product is needed in the food industry. A trend analysis will also be done in order to observe the trends in the industry regarding indigenous foods, health and convenience. This will be conducted in order to obtain a background knowledge on the subjects. During phase two the product will be developed which was indicated in phase one and will follow an experimental procedure. In the last phase, phase three, the product developed in phase two will be evaluated by means of sensory evaluation which ultimately aimed to describe and evaluate the final product. The target population for this study is male and female consumers who are over the age of eighteen (to be able to make purchasing decisions) and reside in the province of Gauteng. The participants will also need to be able to read and understand English. This study aims to contribute to the gap of knowledge in the development of innovative indigenous leafy vegetable products. The process used would enable one to follow it to develop another innovative culinary product. It also promotes the use of indigenous leafy vegetables which are sometimes seen as inferior but have the potential to be developed. This growth in the consumption of the local ecosystem is also recognized internationally and is becoming more novel. Value will also be added to the study as a combination of culinary innovation and traditional recipe development will be used in the development process.

Results and Conclusion:
This master’s project is still in progress but aims to be completed by February 2018

EXPPLICATION OF URBAN ADULTS’ FOOD PRACTICES IN RELATION TO THEIR FOOD KNOWLEDGE

Miss NF Tsambokhulu, Dr AT Viljoen, Mr H Fisher – University of Pretoria

Keywords:
Food practices, Food literacy, Food knowledge, urban adults.

Introduction:
South Africa is one of the Sub-Saharan countries that has one of the fastest rates of urbanisation and nutrition transition (Nojilana et al., 2016; Okop et al., 2016; Philips et al., 2016; Sartorius et al., 2015). The process of urbanisation, modernisation, industrialisation, and globalisation has subsequently changed the structure of food practices in short period of time, as food practices include all food-related behaviours that are typical of an individual or group and how the chosen food is used (Kremer & DeLiberty, 2011; Viljoen, 2009:23). A shift in food practices has simultaneously changed the relationship people have with food in terms of health and well-being, including knowledge about the foods they consume (Goldstein, 2014). Food literacy seems to be a key requisite to achieve “food well-being”, which is ultimately understood as a positive relationship with food at both the individual and societal levels, that fosters economic, social, and environmental sustainability, and plays a significant role in the enhancement of consumer well-being (Palumbo, 2016). This view is supported by Vidgen and Gallegos’ (2014) definition of food literacy, that defines food literacy to include knowledge, skills, and behaviour. This implies that consumers who are food literate will not only possess some knowledge regarding food and nutrition, but will also have the skills to select and prepare healthier foods and thus have a positive relationship and behaviour with food. Consumers in urban settings are time constrained by their busy lifestyle, which includes work, social gatherings, and entertainment. They then tend to rely on the food industry to provide them with convenient food options, such as eating away from home or purchasing convenient foods that are easy to prepare (Bublitz, Peracchio, Andreasen, Kees, Kidwell, Miller, Motley, Peter, Rajagopal & Scott, 2011; Goldstein, 2014). Although health and wellness are a major concern to consumers, they seem to be food illiterate, as they often lack the necessary food-related knowledge, skills, attitudes, and values to make informed food choices.
Problem as well as Objectives of your study and theoretical perspective:

A new approach to food is, therefore, required to educate consumers and create food literate and well-nourished populations (Colatruglio & Slater, 2014). Understanding consumers’ food literacy as well as their awareness and application of the core components of food literacy (food knowledge, skills and behaviour), including aspects that determine the ability to access, choose, use, and understand a food product (Vidgen & Gallegos, 2014), will help identify consumers’ current relationship with food towards adopting healthy food practices. This study, therefore, aims at exploring the food knowledge component of food literacy of South African adults and how this relates to their food practices since there is limited knowledge about the food literacy of urban South African adults and how this contributes to their food practices. It will fill the gap regarding the food knowledge of urban adult South African consumers and how it relates to their food practices, and further provide information to consumer facilitators and nutrition educators on how these could relate to consumer’s health and well-being.

The human ecological perspective will be used as a theoretical perspective for the study. As it provides a holistic approach to understand the interacting factors of how the food knowledge component of food literacy contributes to the food choice process and resulting food practices. (Bubolz & Sontag, 1993:419).

This study on the food knowledge of South African adults and the consequences thereof on their food practices will be guided by the following objectives:

1. To explore and describe the food practices of urban adults
2. To explore and describe the food knowledge component of food literacy of the study group.
3. To explicate the study group’s food practices in relation to their food knowledge and the consequences thereof.

Methodology:

A quantitative research approach will be followed in this explorative, descriptive and cross-sectional study. The unit of analysis will be South African urban adults, (25 years and older) and respondents will be sampled conveniently. An online survey questionnaire will be used to collect data containing the following sections: Section A: Socio-demographic information, Section B: Usual eating patterns, and Section C: Food knowledge. Objectives 1 and 2 and sub-objectives, will be analysed to explicate objective 3. Descriptive and inferential statistics will be used to describe the results in terms of summarised tables, graphs, frequencies, and percentages.

References:


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Viljoen, A.T. 2009. The meaning of the food practices of the peoples of Mmotla, near Pretoria, South Africa: A socio-cultural and socio-psychological approach. university of Pretoria (Faculty of Natural and Agricultural Sciences), (PhD Consumer Science).
CONTRIBUTION OF THE LOCAL AND HOME FOOD ENVIRONMENTS ON THE FOOD PRACTICES OF BLACK ADULTS IN GAUTENG

Ms TP Dlamini, Dr A Viljoen, Mr H Fisher – University of Pretoria

Keywords:
Food practices; Food environment; Home food environment; Food choice: Nutrition transition; Eating pattern; estern-oriented food practices

Introduction:
The South African society can be described as being in a process of transformation and the greatest change observed is in the lifestyle of the black population group (Nnyepi, Gwisai, Lekgoa & Seru, 2015; Phillips, Comeau, Pisa, Stein & Norris, 2016). As part of lifestyle, this group’s food practices have simultaneously changed. Food practices, is defined as how the chosen foods are used and consumed, which further includes all associated food-related behaviour of an individual or group, which is also subject to change, due to the shifts in lifestyle (MacIntyre, Venter, Kruger & Serfontein, 2012; Popkin, 2017; Pretorius & Sliwa, 2011). Upon exposure to the urban food environment, black South African’s tend to abandon tradition for Western-oriented food practices that are associated with a higher status. Furthermore the use of convenience food products has also become more popular due to the busy lifestyle of urban people. Home-cooking has practically vanished from many households, as food consumption has shifted towards an increased reliance on convenience and processed foods. Eating away from home more often, particularly in fast food restaurants also seem to have become a major part of people’s lives in recent times (MacIntyre et al., 2012; Nnyepi et al., 2015; Popkin, 2017; Steyn & McHiza, 2014). These shifts in food environments and changes in food practices have contributed to overweight, obesity and non-communicable diseases (NCD’s) (Cannuscio, Tappe, Hillier, Buttenheim, Karpyn & Glanz, 2013; Neff, Laestadius, DiMauro & Palmer, 2017). Rapid urbanisation and exposure to Western-oriented food practices, has resulted in a nutrition transition. Nutrition transition is defined as a shift in food and consumption patterns, associated with social, cultural and economic changes (Nnyepi et al., 2015; Steyn & Mchiza, 2014).

Problem statement and justification:
The number of deaths from NCDs are rising globally and accounted for 43% of total deaths in South Africa in 2014 (Nojilana, Bradshaw, Pillay-van Wyk, Msemburi, Somyala, Joubert, Groenewald, Laubscher & Dorrington, 2016; Puoane & Tsokile, 2008; Steyn & McHiza, 2014). Motivated by the concern about the rising number of urban black South African adults suffering from NCDs, there is a need to explore how the existing food environments contribute to the food practices of urban black adults (Jiao, Moudon, Kim, Hurvitz & Drewnowski, 2015; Sartorius, Veerman, Manyema, Chola, Hofman & Zeeb, 2015). This study will add to the limited body of knowledge on food environments and food practices of urban black adults. The information obtained could be used in nutrition and consumer facilitation and education and to create an awareness of the risk factors that may contribute to obesity and non-communicable disease. The study will also contribute to the knowledge about food environments and food practices of urban black adults in Gauteng.

Aims and objectives:
The aim of the study is to explore and describe the food practices of urban black adults (25 years and older) in the Gauteng Province and how the local and home-food environments contribute to the food practices of the study group.
The main objectives of the study are to;
1. To determine and describe the food practices of urban black adults (25 years and older) in the Gauteng Province.
2. To explore and describe the contribution of the local urban food environment on the food practices of the study group.
3. To determine and describe the contribution of the home-food environment on the food practices of the study group.
Theoretical perspective:
The human ecological perspective is used as a theoretical perspective for the study as it recognises humans as both biological and social beings in constant interaction with their environments. This perspective provides an opportunity to explore how the local urban and home-food environments contribute to the food practices of the study group.

Methodology:
A quantitative research approach was followed in this explorative descriptive and cross sectional study. Urban black adults (25 years and older) from the Gauteng Province participated in this study. A pretested self-administered questionnaire consisting of closed-ended questions was developed to collect the data from respondents who were willing to participate after giving their informed consent. Information gathered focused on the socio-demographic background of their households, their usual food shopping and eating patterns. Descriptive statistics (percentages, means and frequencies) summarised as tables and graphs will be used to interpret and present some of the preliminary data.

References:
Keywords:
Muscle profilee, beef, consumers, meat colour

Introduction:
In South Africa, the steak yielding cuts such as the loin and rump also sell for considerably more per kilogram than the ‘cheaper cut’ such as the chuck, thin flank and topside. For forthcoming times it might be beneficial to offer the consumer a choice of steak that is perhaps not as expensive as the traditional steaks but also more of a luxury than the original primal cuts which need to be slow cooked in order to achieve palatability traits which are satisfactory. There is a growing demand in consumers that rate tenderness as the most important trait at the point of consumption. Many consumers are also willing to pay more for guaranteed tenderness. Many cuts do not measure up to steaks from the traditional cuts for steak such as the loin. These cuts (chuck, thin flank and topside) have been identified by consumers as cuts of a lower quality and accordingly are sold at a lower price. Not only would these beef cuts, increase the overall value of the carcass but it would also offer the consumer a more ‘luxury cut’ at a cheaper price than the traditional steaks which would be beneficial in. Tenderness is accepted as the most important attribute for consumer satisfaction, however flavour plays a major role in the ultimate consumer satisfaction. The aims of the projects is to, investigate the utilization of individual muscle of the chuck, thin flank and topside primals as high quality dry-cooked cuts, as well as to investigate the quality properties of these cuts (Sensory, Warner Bratzler shear force, MFL, purge and colour shelf life). This study investigates meat quality in terms of sensory attributes, mechanical tenderness as well as colour and moisture characteristics. If these tests show potential for value adding to these cheaper cuts it might be beneficial to do further analyses to confirm these results.

Methodology:
Each muscle of the different cut’s, chuck, thin flank and topside will be looked at separately and the best method of cutting will be identified. Various methods could be used to measure quality, such as trained consumer panels or instrumental methods (e.g. Warner Bratzler shear force, *L*a*b instrumental colour measurement, drip loss and water and fat content etc.). To complete the sensory study on the different meat cuts, the expert assessors that is familiar with the general principles of sensory analysis will participate in this study. Panellists will be selected from a pool of candidates according to their ability to discriminate between differences in the sensory properties among the beef samples. Special training will enable the panellists to perceive the differences between the test products and to conduct quantitative descriptive analysis. Ten, trained panellists will be seated in individual sensory booths and evaluated the samples under red light. Descriptive Analysis will be used to measure the type and intensity of the attributes in the cooked beef. An eight-point category scale (intensity scores for each attribute will be evaluated), this is used to determine the sensory attributes of each sample. Finally, chemical analyses and fatty acid composition could present information on basic nutritional content but also verify health claims that are often made in this regard. All of these methods are extensively used in research to get a better understanding of physical and sensory meat quality and to verify which factors in the process of meat production and processing, have an effect on final quality.

Conclusion and Recommendations:
These new steaks could be sold at a higher price but also can offer consumers a cheaper steak in times of economic uncertainty. The quality of these muscles also needs to be reinvestigated since the introduction of beta-agonists which have become standard practice at most feedlots.
DAY 2 (6 MARCH 2018): VENUE 4

NUTRITIONAL STATUS AND FOOD SECURITY OF LEARNERS FROM SECONDARY SCHOOLS PARTICIPATING IN THE NATIONAL SCHOOL NUTRITION PROGRAM IN NORTHERN KWAZULU-NATAL

Dr CJ du Preez, Mr SB Mbokazi – University of Zululand

Keywords:
Nutritional status, food security, National School Nutrition Program, school feeding

Introduction:
In 2004, the national school feeding scheme was transferred from the Department of Health to the Department of Education (now Basic Education, DBE) and it was renamed the National School Nutrition Program (NSNP). The NSNP, which initially was only offering meals to primary school learners, started offering meals to secondary school learners in 2009. Some of the objectives of the NSNP are to feed learners and provide them nutrition education. The broader vision of the NSNP though is to improve education by enhancing learning capacity and school attendance (DBE 2009 and 2010). Although South Africa as a country is food secure, there are households and individuals who are food insecure or at risk of being food insecure. In addition to this, poor dietary habits and obesity are on the increase amongst children and youth placing them at risk of developing lifestyle diseases such as diabetes later in life. The aim of this research was to assess the nutritional status and food security of learners from selected secondary schools participating in the NSNP in the Jozini area in Northern KwaZulu-Natal

Methodology:
Six secondary schools located in the Jozini area were randomly sampled for in the study. For this purpose a complete list of all the schools in the Ingwavuma cluster was obtained from the district office of the Department of Basic Education. A total of 210 Grade 10 learners were purposively sampled from these schools. Consent for the study was obtained from the district office, the parents or guardians of the learners and the learners. Structured interviews were conducted with the learners to collect data on amongst other the demographic and social-economic characteristics of learners and their households, and the food security and dietary practices of the learners. Food security was assessed using the Household Food Insecurity Access Scale (HFIAS) and the reduced Coping Strategy Index (CSI). Dietary intake of learners was determined using a 24 Hour Recall from which Dietary Diversity Scores based on 16 groups were calculated. In addition to this a record sheet was created to record the weight and height measurements of the learners. Preliminary descriptive data analysis was done using SPSS.

Results:
The sample included 95 males and 115 females, with the majority of learners aged 17 to 19 years and a few learners aged 20 years and older. The learners came from households with an average of 8.47 members, which is more than the 4.7 recorded for the region during the 2011 Census (Statistics South Africa, 2011). The majority of the learners (48%) reside in two or three generation households. The majority (52.4%) of households had access to one or more government grants and 37.1% of them did not have any formally employed members. Individual food security, measured by means of a list of questions on the eating behavior of the learners indicated that the majority of learners seldom (less than once a month) went to sleep hungry or had to go without food for an entire day. It was also evident that learners did not know whether other members of the household experienced food shortages, where households had to borrow money to buy food or ask family or neighbours for assistance, even though many of them participate in food preparation. Dietary diversity showed that all learners consumed cereals, mainly maize meal porridge, during the last 24 hours. For the majority of learners meat was the main source of protein with very little consumption of eggs, dairy and legumes. It was determined that food intake lack diversity and that very few (approximately 5%) learners consumed Vitamin A rich fruits and or vegetables and green leafy vegetables. Although the school menu is
meant to include fruit, it is seldom supplied. In addition to this the school menu hardly ever includes vitamin A rich and green leafy vegetables. Anthropometric measurements showed that the vast majority of learners were in the normal weight range for their height and age, with only a few learners being either underweight or overweight.

**Conclusion and recommendations:**
Although the results of this study did not conclusively indicate widespread food and nutrition insecurity, there are many learners who are at risk of malnutrition, obesity and the development of lifestyle diseases later in life as result of poor dietary intake. Although this cross sectional study shed light on nutritional and food security status, it is recommended that a longitudinal study be conducted in the area to include the same and other learners to observe nutritional status of learners in future since poor eating habits and risk of overweight and obesity of children and youth remains a concern. It is further recommended that the DBE review the implementation of the NSNP to supply vitamin A rich fruits and incorporate vitamin A rich vegetables and green leafy vegetables in the school meal and to support this with nutrition education.

**References:**

**DIETARY INTAKE AND FOOD SECURITY LEVEL OF MEMBERS AND NON-MEMBERS OF AGRICULTURAL CO-OPERATIVES IN BUFFALO CITY MUNICIPALITY**

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**Keywords:**
Food security, agricultural co-operatives, food intake, hunger

**Introduction:**
Close to 30.4 million South Africans live under extreme conditions of poverty and food insecurity. More than 25% of the SA workforce is unemployed resulting to high levels of poverty and food insecurity. In 2015 one in two South Africans were poor and the poverty headcount increased from 53.2% in 2011 to 55.5% in 2015. Moreover, agriculture has been identified as one of the most effective strategies to fight food insecurity, with more than 20% of SA households that are actively involved in farming, and two thirds of the households rely solely on agriculture for livelihoods. However, the extent in which agricultural co-operatives contribute to food security has not been well investigated.

**Methodology:**
This was a descriptive study consisting of 256 randomly selected participants, 127 members of agricultural co-operatives and 129 non-members. Participation was on a voluntary basis. Ethical approval was obtained from IREC at DUT. Consent was obtained from the municipality manager and participants before the study commenced. An adapted socio-demographic and agricultural practices questionnaire was used to assess the socio-demographic profile and agricultural practices of the participants. The Food Frequency Questionnaire (FFQ) and 24 Hour Recall Questionnaires were used to determine dietary intake and food variety. All questionnaires were administered by trained fieldworkers in an interview situation. Data obtained from the socio-demographic questionnaires and FFQ’s was captured on an excel
spreadsheet and analysed for descriptive statistics using SPSS version 24. The 24 Hour Recall Questionnaires were captured and analysed using the Food Finder version 3 computer programme.

Results:
The rate of unemployment was higher among members (96.1%) compared to non-members (76.4%). Most members (61.3%) and non-members (68.3%) had a total monthly household income that was less than R2000 whereas 1.6% and 0.8% of members and non-members respectively, received income between R5001 and R10 000. Additionally, the majority of members (68.3%) and non-members (71.5%) spent R1000 or less on food monthly, and only 4.7% of members and 7.2% of non-members spent more than R2001.
The energy distribution of macronutrient consumption from both groups was within the amounts recommended by World Health Organization of 15-30% for total fat, 10-15% for protein and 55-75% for carbohydrates. The top 3 most consumed foods among members and non-members were sugar, maize meal and rice. However, results from the 24 hour recalls indicate that there was a low energy intake (8103.27 kJ for members, 7253.50 kJ for non-members).

Both groups had a low food variety score (<30 individual foods). The non-members had a slightly higher mean intake of 28.68, SD±15.692 with a range of 6-77 individual foods whereas the members had a mean of 26.77, SD±9.916 with a range of 7-55 individual foods. The Food Group Diversity Score was high (6-9 food groups) among the majority of members 94.6% as well as 93% of non-members.

Forty-one percent and 42.5% of members and non-members respectively reported that sometimes there was not enough money to buy food in the household and this was reported to happen often in 22.5% of households of members and 21.3% non-members. However, some households of members (46%) and non-members (20.5%) produced crops. Out of the households growing crops, 91.7% of the members reported that the crops were used for household consumption and 8.3% used the crops for both household consumption and selling to the markets. Ninety-two percent of the non-members from the households that were growing crops used the crops for household consumption, whereas the other 7.7% used the crops for both household and selling to the markets.

The household hunger score indicates that the majority of both members (82.17%) and members (76.38%) experienced little or no hunger. Some members (15.5) experienced moderate hunger compared to 23.62% of non-members, and only 2.32% of members experienced severe hunger.

Conclusion and Recommendations:
The results show that both groups experienced food insecurity even though only members experienced severe hunger. Furthermore, the average intake of protein, carbohydrates was higher for members compared to non-members. The high level of food insecurity and the inadequate intake of some nutrients in the diet from both groups may be attributed to high unemployment rate observed from both groups. There were no major noted differences in the dietary intake of both groups. However, members benefited by receiving additional income and foods from the agricultural co-operatives.

References:
CONTRIBUTION OF THE URBAN AND HOME FOOD ENVIRONMENTS ON THE FOOD PRACTICES OF WHITE ADULTS IN GAUTENG PROVINCE, SOUTH AFRICA

Dr AT Viljoen - University of Pretoria

Keywords:
food environments, White adults, food practices, eating patterns, food shopping patterns

Introduction:
Recent studies confirmed the extent and severity of the problem of overweight and obesity in the white South African population group (National Department of Health, 2017; Gitau et al., 2014). Over two thirds (69.4%) of white South African females and nearly one third (31%) of males are overweight or obese. The magnitude of this problem, taking in consideration the increased risk of developing nutrition-related chronic disease, emphasises the urgent need and importance to assess the food practices of South Africans. Food practices imply not only how the chosen food is used, but has embedded within this construct, all food-related behaviours that is typical of the individual or group. To understand the process of food choice requires that the influences that contribute to it, be investigated within the specific context where people live. Food choice is multidimensional and steered by numerous factors from various interrelated environments (Antin & Hunt, 2012). The urban food environment for example, comprises amongst others, of the local food and home food environments. The food choices of an urban population are therefore, not only driven by how accessible food is to consumers in the local food environment, but also the circumstances of the family and home food environment. What is chosen and consumed, in turn, determines the quality of the diet and ultimately the nutritional status of the individual.
Research is needed to better understand the local food environment and its influences on food choice and food-related behaviour. In exploring the urban food environment, this study will contribute to the limited body of knowledge available on the food practices of white adult South Africans in Gauteng. The aim of the study was to explore and describe how the local urban and home-food environments contribute to the food practices of white adults residing in Gauteng.

Methodology:
A quantitative research approach was followed in this explorative and descriptive cross-sectional study. Data collection was administrated through a data collection company specialising in consumer-related research during May 2016. White adult consumers (25 years and older), residing in Gauteng were conveniently sampled from the company’s data base. Respondents were required to understand English, and had to have access to a computer and the internet as the survey questionnaire was submitted on-line in English.
Data was collected by means of a structured electronic survey questionnaire. Apart from gathering demographic information the questionnaire included sections to measure constructs related to usual food shopping and food consumption patterns including the frequency thereof. Factors influencing food choice as well as the accessibility to good quality healthy food in the urban and home environments were measured using reliable and validated Likert-type scales. Descriptive statistical analysis techniques were used to analyse and present the results by means of frequencies, percentages and means. Exploratory Factor Analysis was also applied were applicable.

Results:
A total of 523 usable questionnaires were collected from white adult respondents with a mean age of 54 years from both genders. An equal representation of both English and Afrikaans speaking respondents participated in the study. The majority (82%) of the respondents were in possession of a tertiary qualification.
Food shopping patterns: The majority of the respondents indicated that they purchased most of the food categories listed (i.e. cereal products, vegetables, fruit, meat, eggs, milk and dairy products, oils and fats, legumes and nuts) from supermarkets. Supermarkets were visited by the majority (84.7%) more than twice a week. Fresh meat, fruit and vegetables were purchased by less than a third of the respondents from commodity specific shops such as butchers and green grocers.
**Eating patterns:** The majority of the respondents (62%) eat three meals a day, and 69.2% indicated they eat breakfast daily. More than half of the respondents (52.8%) eat meals away from home in restaurants 1-2 times per month. Of concern is the low daily intake of certain food groups (starchy food, fruit, vegetables and dairy products).

**Conclusion and Recommendations:**
In spite of relative easy access to healthy food in the immediate urban food and home environments, the preliminary results show that the respondents’ food intake is not according to the South African Food-based Dietary Guidelines.

**References:**
National Department of Health (NDoH), Statistics South Africa (Stats SA), South African Medical Research Council (SAMRC), and IFC. 2017. *South African Demographic and Health Survey 2016: Key Indicators*. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC, and ICF.

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**CONSERVING INDIGENOUS KNOWLEDGE FOR FUTURE USE OF ISIXHOSA INDIGENOUS AND TRADITIONAL FOODS BY RURAL AND URBAN COMMUNITIES OF THE EASTERN CAPE**

*Ms ZN Nxusani – Walter Sisulu University*

**Keywords:**
Indigenous and traditional foods, Food security, Conservation

**Introduction:**
Food and Agriculture Organization of the United Nations describe food security as when people have sufficient access to physical, social, financial and nutritious foods that meets dietary needs and food preferences for an active and healthy person at all times (FAO, 2014). Indigenous and traditional foods can contribute to food security by eradicating hunger and poverty, as well as the prevention of certain diseases in South Africa. Literature shows that there is sufficient evidence of studies globally and South Africa substantiating that indigenous and traditional foods are consumed by many households, especially in areas where they are available, and thus can play an important role in alleviating food insecurity (Skinner *et al*., 2014). Knowledge of these indigenous and traditional foods tend to erode rapidly and the basic reason for this erosion is the low value attached to them. Indigenous and traditional food knowledge is possessed by indigenous people and is passed on from generation to generation. A drive to conserve indigenous knowledge is vital to preserve these foods. The objective of the study was to argue that the transfer of knowledge on indigenous and traditional foods will ensure the availability and utilisation of this important food source for both rural and urban communities.

**Methodology:**
The research adopts a mixed method approach. Purposive sampling methodology was adopted by conducting face-to-face semi-structured interviews with respondents using a questionnaire to assess the present use of traditional foods in East London and rural Xhosa villages in the Eastern Cape Province of South Africa. To assess the knowledge, attitudes and perceptions of people towards the use of indigenous and traditional foods and to assess the difference in knowledge and use of these...
indigenous and traditional foods between the rural and urban communities. The main variable measured were indigenous and traditional food utilization, knowledge and attitudes of rural and urban Xhosa speaking people from a gendered perspective.

Results:
The study found significant similarities and differences in relation to knowledge, attitude and preferences towards indigenous and traditional foods. Although indigenous and traditional foods are readily available, there is less knowledge especially in the urban areas and a decline in the use of these foods in both rural and urban communities. There is also a negative attitude towards the use of indigenous and traditional foods. Overall, both rural and urban communities’ indigenous and traditional foods eating preferences were not only influenced by their knowledge but seem to be influenced by many factors such as taste, preferences, availability and accessibility. There was a significant difference between rural and urban communities in indigenous and traditional food utilization.

Conclusion and Recommendations:
There is clear evidence that indigenous and traditional food future use is threatened. The loss of knowledge of these valuable food source and negative attitude towards them is a reality. Therefore, the transfer of the associated indigenous knowledge from older to younger generation holds the key to the potential future use of indigenous and traditional foods. Altered perceptions of indigenous and traditional foods are crucial for the conservation of these food sources. Consequently, there seem to be a constant need to conduct awareness campaigns in promoting the use of these indigenous and traditional foods relating nutritional education and improved cooking methods.

References:

SNACKING PREFERENCES OF PRIMARY SCHOOL CHILDREN FROM A LOW SOCIO-ECONOMIC STATUS COMMUNITY IN SOUTH AFRICA

Miss K Govender – University of Zululand
Dr A Naicker, Prof C Napier – Durban University of Technology

Keywords:
snacking preferences, children, snack consumption, snack purchase

Introduction:
There is a growing concern about energy dense snacking preferences in developing countries and its impact on the prevalence of lifestyle diseases. Identifying snacking trends in particular among children bears great importance in developing interventions towards promoting healthy eating habits at an early age. Very few interventions are food based; in addition, these interventions lack alignment towards current food preferences. Snack food consumption has increased along with the prevalence of obesity. It can, therefore, be assumed that a relationship exists between these factors. Snacks are not renowned for the high nutrient content; actually, the opposite is more likely. Snacks are synonymous with high fat and carbohydrate content and are generally not nutrient rich. The South African Youth Risk Behaviour Survey 2002
identified that South African children in grades 8-11 displayed frequent consumption of foods high in fat and sugar. Encouraging healthy eating practices among children could aid in maintaining healthy eating habits throughout adolescence and adulthood.

Methodology:
The aim of this study was to determine the snacking preferences among primary school-going children. The study was set in a peri-urban area in KwaZulu-Natal, South Africa. The study comprised of three parts, namely, the focus group discussion, tuck shop observation and SSFQ. Firstly, the focus group discussion was conducted at one school with ten parents/caregivers of children in grade 4–7. During the focus group discussion an interview schedule comprising of themes was used to obtain as much information as possible. The focus group study was recorded on a digital voice recorder and the researcher also transcribed notes during the focus group discussion. The second phase included viewing of tuck shop purchases at one out of the four schools. This was done to identify actual snacking practices of the children. It was identified that all four tuck shops stocked the same items. This was due to these items being popular in quintile 1-2 schools which are typical of low SES areas, hence snack purchases were only observed from one tuck shop. The researcher compiled a list of the main snack items stocked at the tuck shop after viewing the inventory and used a tally table to record the number of purchases of each item, in order to indicate the most popular snacks purchased. Once the focus group discussion and tuck shop purchase records were completed at one of the four schools, the information was analysed and the ten most common/preferred snack food items formed part of the SFFQ. The SFFQ was developed using a validated Likert scale and piloted in order to ensure reliability. Two hundred children in grades 4–7 completed a Snack Food Frequency Questionnaire.

Results:
Three focus group discussion identified crisps as being a popular snack. It was also revealed that most children carried a packed lunch to school, which was supplemented with tuck shop money. The observational study findings showed that candy (39%) and crisps (34%) were the most popular snacks purchased from the tuck shop. This was further confirmed from the results of the Snack Food Frequency Questionnaire.

Conclusion and Recommendations:
It was evident that snacks most commonly purchased were inexpensive and energy dense, enabling quick satiety, in a country grappling with both food security and lifestyle diseases. Thus, information on snacking preferences will be valuable in selecting a suitable vehicle for nutrient enrichment aimed at children in a low socio-economic area.

References (only references referred to in abstract):
DAY 2 (6 MARCH 2018): VENUE 5

TRADITIONAL COWPEA BASED PRODUCTS FOR ENHANCED HOUSEHOLD FOOD AND NUTRITION SECURITY IN NORTHERN KWAZULU NATAL

Miss TP Kheswa – University of Zululand

Keywords:
Traditional cowpea, product development, household food security

Introduction:
Globally, there are almost 842 million people (representing 12 percent of the global population or one out of every eight people) who are undernourished in terms of dietary energy supply. It is projected that by 2050, the total world population will reach 9 billion people implying a growing demand for food (The World Bank, 2016). The Comprehensive Africa Agriculture Development Program (CAADP) and New Partnership for Africa’s Development (NEPAD), represent global frameworks that encourage countries to allocate 10% of the national budget towards agricultural production in order to address food insecurity. In the 11th CAADP annual meeting in Johannesburg in 2015, it was resolved that hunger and malnutrition in Africa can only be eliminated by 2025, through the promotion of local foods in various countries (Siwawa, 2015). In line with international agendas, the Sustainable Development Goals (SDGs) highlight the need to end poverty, achieve zero hunger and maintain well-being. These goals stress the centrality of food security in people’s livelihood (Maziya, Mudhara and Chitja, 2017). South Africa has committed itself to reduce poverty and hunger through adoption of the new Food and Nutrition Policy of 2015 that seeks to use a multi-sectored approach in addressing food insecurity. Food security still remains a great concern for many households in South Africa (Labadarios et al, 2008; Raheem - Abdum and Worth, 2011; and Ngidi & Hendricks, 2014; Maziya et al, 2017). One third of households in KwaZulu Natal had insufficient money for food (Shisana et al, 2013) while 65% of household in UMkhanyakude district experience food insecurity (D ‘Hause et al, 2013). The above figures confirm that most of the Food and Nutrition interventions have not been successful. Programs such as fortification have indirectly excluded agricultural rural communities. Therefore, promotion of local interventions based on local resources and climate resistant crops are encouraged. Traditional food crops directly link to cultural needs and preserve the cultural heritage of local communities (FAO, 2013). The proper use of Indigenous Knowledge (IK) is a cost-effective and sustainable survival strategy, empowering local communities while increasing the sustainability of food security efforts (Gorjestani, 2000; Shiuan-Huei Wu,Chi-Tang Ho, Sui-Ian nah, and Chi-Fai Chau, 2014). South Africa lags behind because of under-utilization and negative perceptions that result in declining consumption of indigenous foods (Mathew, 2010; Ebert, 2014; FAO, 2014). South Africa has a rich, unique culinary heritage that can be explored to fight poverty, food and nutrition insecurity. Cowpea (Vigna unguiculata) is one of the indigenous crops that communities cultivate in South Africa (DOA, 2013). Cowpea provides valuable nutrients, often lacking in staple crops. The ignorance and perceptions on indigenous foods among the youth can be changed through awareness and value addition for better nutrition.

Problem:
In South Africa, at the national level, food insecurity affects one in five households, many of which are located in rural communities (Govender et al., 2017). Efforts in developing countries to alleviate food insecurity have overlooked nutrition considerations, including South Africa. While policies and programs brought some improvements, the focus has been on the availability and food distribution component. The accessibility and quality of food consumed by communities has received less attention (Hwalla, El Labban & Bahi, 2016).
The aim is to investigate the potential of cowpea product prototypes in addressing food and nutrition insecurity. Objectives are to describe local meanings of food security and livelihood security concepts; assess household food and nutrition security; assess perceptions and utilization of cowpea by local community; develop cowpea based product prototypes of acceptable quality; characterise sensory properties of cowpea biscuit and instant soup; determine consumer acceptability of cowpea products and assess the nutritional composition on selected nutrients of developed products

**Methodology:**
The study area is UMKhanyakude district, in the Big 5 Hlabisa local municipality. The tribal wards, KwaMduku and uMngobokazi rural communities, will be used. The study design is a mixed research approach integrating the explorative and experimental research designs. A non-probability purposive sampling will be used to select households for a survey. Food and nutrition security will be assessed using food frequency questionnaire, household dietary diversity score and Hunger household food security access scale. Descriptive stats, chi square, correlation between variables will be used for analysis. Youth participants 18-40 years and adult female farmers will participate in focus group discussions. Semi structured interview guides will sought reasons for the perceptions, popular cowpea dishes and utilization patterns. Qualitative data will translated, transcribed, themes identified and content analysis performed manually. Data on perceptions will be collected through likert scale statements and analysed using descriptive statistics.

Experimental method will involve development of cowpea products from two varieties of cowpea: the cowpea biscuit and the cowpea instant soup. Physico-chemical properties will be determined using Olapande and Adeyemo, (2014) methods and consumer acceptability tests conducted using youth participants. Nutritional composition of developed products on selected nutrients will be conducted. Descriptive statistics will be used in the experimental method to compare means, standard deviations, analysis of variance (ANOVA) on formulations.

**References:**


EFFECT OF VEGETABLE GARDENING ON NUTRITIONAL KNOWLEDGE, VEGETABLE PREFERENCES AND CONSUMPTION AMONG GRADE 3 LEARNERS IN SOSHANGUVE

Mr OG Moletsane, Dr BMatsiliza-Mlathi – Tshwane University of Technology
Dr I Louw – University of Pretoria
Prof W van Averbeke – Tshwane University of Technology

Keywords:
Food gardens, nutritional knowledge, vegetable preferences, vegetable consumption

Introduction:
Malnutrition is one of the most critical issues affecting the nutritional status of all South Africans (Faber & Wenhold, 2006). It is particularly prevalent among women and children in disadvantaged communities and includes both under-nutrition and over-nutrition (Faber & Wenhold, 2008). Under-nutrition develops from the intake of food that fails to provide the recommended daily allowance of important micronutrients (Faber & Wenhold, 2006). Food insecurity has been identified as one of several underlying causes of under-nutrition (World Food Programme, 2006). Whilst under-nutrition is reported as being most common among children living in rural communities, Over-nutrition appears to be more dominant in urban areas (Kruger, 2014). The poor nutritional status of children in South Africa is partly linked to low consumption of fruit and vegetables (Naude, 2007). The average daily consumption per capita of fruit and vegetables in children aged one-to-nine years is between 110g and 205g, depending on the province they live in (Naude, 2007). National School Nutrition Programme has been introduced in trying to address the nutritional status of children in South Africa. However, little is known on the impact of gardening activities in combination with nutritional lessons in a school setting on the vegetable preference, attitude, consumption and knowledge retention of human nutrition among primary school learners in poor urban settlements of South Africa.

Objectives:
The main objective of the study was to determine the impact of nutrition education in combination with gardening on fruit and vegetable preference, attitude, consumption and nutrition knowledge among primary school learners in poor urban settlements of South Africa. The specific objectives were to:
• Assess the frequency and variety of fruits and vegetables preferred and consumed by the learners; and
• Assess and compare the learners’ knowledge of the benefits of consuming vegetables using a fruit and vegetable and nutrient identification survey before and after the intervention at the school.

Methodology:
The two areas were selected due to the overall socio-economic status and household income levels. Three schools were randomly selected from the same area (extension 11& 12). The Grade 3 class teachers did a random selection of participants. A pre- and post-test experimental design was used to test the effect of 3 interventions: G (gardening treatment group), N (nutrition education treatment group) or NG (nutrition education and gardening treatment group). Two hundred and thirty four eligible leaners participated in the study. Data was collected using a “taste and rate” instrument, fruit and lunchroom observation to measure preferences and attitudes of the learners with regards to fruits and vegetables. Learners’ knowledge on the different food-groups, nutrient-food and nutrient-function associations
and learners’ ability to identify fruits and vegetables was also measured. ANOVA was used for analysis, t-tests for knowledge related variables and chi-square for preferences, attitudes and consumption variables.

Results:
Results indicated that there were significant differences between the treatments for learners’ ability to identify fruits and vegetables and to match food types with nutrient-function for pre- and post-test scores overall. Nutrition education combined with gardening had the greatest improvement in fruit and vegetable identification scores than the nutrition education only and the gardening only interventions. Learners from the gardening treatment showed significant improvement in preference, attitude and consumption for a larger spectrum of fruits and vegetables than the nutrition education combined with gardening and nutrition education only treatments.

Conclusion and Recommendations:
The results show that nutrition lessons in combination with gardening interventions can make a difference in learners’ fruit and vegetable preferences and ultimately nutritional consumption. However, the preference for fruits and vegetables does not guarantee consumption. Moreover, the gardening only group showed better results than the nutrition education group for consumption of fruits. These findings highlight the importance of establishing vegetable gardens at schools as part of the curriculum and by actively involving learners in its formation as this can positively influence their preferences, attitudes and ultimately consumption of a wider variety of fruits and vegetables. Establishments of vegetable gardens at home or community gardens to try improving access to fruit and vegetable consumption at home, as a continuation from schools and vice versa is critical. Therefore, inclusion of food decision makers at home will be necessary for future studies in order to encourage the consumption patterns of fruits and vegetables by leaners.

References:
Keywords: nutrition knowledge, food choices, primary school learners

Introduction:
Poor nutrition knowledge is one of the main factors in the development of malnutrition and needs to be addressed (Briggs et al., 2010). According to Hawkes (2013), unhealthy eating patterns are increasing around the world and there has been an increase in snacking, skipping meals, eating meals out of a family setting and eating out of the home. Appropriate nutrition education that will equip people with knowledge on healthy eating is necessary for the changes in dietary habits and to address malnutrition. Children develop major cognitive, physical and social skills during their school years and the cognitive maturity level of a child particularly influence the ability to gain from nutrition education (Oldewage-Theron and Abdulkadir, 2012). Establishing healthy eating habits in young children may prevent various chronic health disorders in childhood and adult life.

Methodology:
This descriptive study involved 474 primary school learners (Grades 3 – 7) aged 10 – 15 years with the aim of assessing their nutrition knowledge and food choices. The study used qualitative and quantitative methods of data collection and analysis. Qualitative data was collected through focus group discussions that were recorded using a tape recorder, observations, note taking and document analysis. The analysis of qualitative data involved repeated reading of field notes, listening to, transcribing and translating of recorded data from focus group discussions. The data was then organised, sorted, coded into meaningful units. The different codes were clustered into meaningful groups called themes. Quantitative data was collected using a pre-tested and validated dietary knowledge questionnaire. The questionnaire was self-administered and it assessed the learners’ knowledge of food groups (including types of food, nutrients and their functions), healthy food choices and diet-disease relationship. Quantitative data was analysed using the statistical package STATA version 14 to compute descriptive statistics and the data was presented in frequency tables, pie charts and bar charts for each discrete variable of study. The Pearson chi-square test of association (two-by-two crosstab analyses) was used to test the null hypothesis (H₀) at the 5 % level of significance.

Results:
The learners in this study had theoretical knowledge of some components of nutrition but they did not have a wide range of knowledge of what constitute a healthy diet. Although learners showed satisfactory levels of nutrition knowledge in some components of nutrition, they failed to apply the knowledge when buying food. Most learners reported to buy unhealthy snacks (sweets, chips). The learners agreed that school meals are healthy and the null hypothesis (H₀) = school meals are not healthy (with a P-value of 0.000 and observed value of the Pearson chi-square statistic of 54.4988) was rejected at the 5 % level and it can be concluded that school meals are healthy. The quantitative results corresponded with the qualitative results in terms of learners’ food choices. Their choices were based on preferences, taste, peer pressure and availability. All learners received meals at school through the school feeding programme, and they mentioned that the food at school is healthy. Small sections of nutrition education are included in the Life Skills and Life Orientation curriculum, and this is the main source of nutrition education information for these learners.
Conclusion and Recommendations:
The findings from this study suggest that there is a serious need for nutrition education and interventions that will equip the learners with the necessary knowledge and encourage them to apply the knowledge to make healthy food choices. However, it should be noted that while nutrition education and knowledge is important, it may not be sufficient to improve the learners’ food choices because there are other factors such as food preferences, taste and cost that may influence food choices. Therefore, interventions that will improve the learners’ nutrition knowledge and results in the application thereof or behaviour change in terms of healthy food choices and eating patterns are required as the results would impact positively in their health now and in future. School feeding programmes present a great opportunity to teach nutrition education in terms of healthy eating. The learners should be encouraged to follow the meal plan of the school feeding as an example to plan their meals and to include a variety of food alternatives where possible.

References:

CONTRIBUTIONS OF AGRICULTURAL PRODUCTION TO FOOD CONSUMPTION PATTERN AND DIETARY DIVERSITY OF RURAL HOUSEHOLDS IN SOUTH AFRICA

Ms QN Molefe – University of Pretoria

Keywords:
Food security, Household food security, dietary diversity, consumption patterns, poverty reduction, inequality.

Introduction and Problem as well as Objectives of your study:
With our population growing at a rate of at least 2% each year in South Africa, there is a strong chance that we will run out of food by 2050. At least 35% of population leaves in rural areas where poverty rate is very high. Poverty is more pervasive in South Africa’s rural areas - particularly in the former homelands (Ndobo & Sekhampu 2013). Therefore Household food security issues have become the concern of provincial and national governments as well as international communities during the last few decades. As a multi-dimensional concept, Food security tries to capture the relationship of food and poverty (Hendriks, 2005; Webb et al., 2006). Food security has many different and overlapping factors indicating the levels at which nations, households, and individuals can be vulnerable to food insecurity (Jones et al, 2013). Food consumption pattern and Household Dietary Diversity

South Africa is food secure at the national level. However, in very recent years this has been challenged (Hendriks, 2014). Although the country is viewed food secure at national level, the level of household, individual food insecurity and under-nutrition are unacceptable high. South Africa’s food security situation requires serious and urgent attention because of high unemployment, high inequality and depressed economic growth (Hendriks, 2013). Household food insecurity results from an inability to meet daily food requirements and anxiety about the ability to produce and/or access food in future. Rural households are food insecure mainly because of socioeconomic and environmental factors such as unemployment, low incomes, and lack of access to arable land, lack of resources, poverty (Labadarios et al 2011).
The study looked at the influence engagement in production had to the household's dietary diversity and consumption patterns. Food consumption pattern and Household Dietary Diversity correlates with issues such as the sufficiency of a household’s intake of calories, protein and other nutrients (Goshu et al., 2013) therefore it is an important proxy indicator of food security. Using food groups based dietary diversity than those based on individual foods predicts nutrient adequacy is better (Hoddinott & Yohannes, 2002). This is because a household might meet the energy requirements of its members, but they may be unable to live active, healthy lives because their intake of other nutrients is deficient (Goshu et al., 2013). Dietary diversity shows how varied the foods typically consumed by a household are (Smith & Subandoro, 2007), as well as the household’s economic capacity. Thus, it is important to include indicators of nutritional quality when analysing household food security. This study aims to determine the role that agriculture plays in food security by investigating the impact of household agricultural activities. This also examined the contribution of agricultural activities over two seasons of the year (winter and summer) taking into account the influence of seasonality in agricultural production in the study area.

The main objective of this study is to assess the impact of agricultural activities on food security of households in rural areas of the three poorest provinces in South Africa.

1. Assess the impact of participating in the agricultural activities in terms of households’ consumption patterns and dietary diversity for the households who participate in crop production

**Methodology:**

The data for this study was collected in the poorest rural districts of three provinces (Eastern Cape, KwaZulu-Natal, and Limpopo) in South Africa. Two panel surveys were conducted at each site—one during the drier and less agriculturally productive winter season and one during the summer season. A multi-stage stratified random sampling technique was used to identify the Sample households. The sampled households were drawn, using computer-generated random numbers, from the total number of homesteads in each EAU obtained from orthophoto maps. The inclusion criterion for households was that there should be at least one child aged between 24 and 59 months and a caregiver present in the homestead who is willing to participate in the study. The data were collected in two phases; quantitative data, which were, collected through household surveys and the qualitative data which were collected using the focus groups. The Ethics Committee of the university conducting the research granted ethics approval for the study. Caregivers signed a standard informed consent agreement. Enumerators from the communities with at least 12 years of completed education were identified, recruited and trained to carry out the fieldwork. Translation for all questions and terminology were done into the local language in the area. Statistical Package for the Social Sciences (SPSS version 23.0) was used to analyse the findings.

**References:**


Jones AD, Ngure, FM, Pelto, G & Young, SL, 2013, What Are We Assessing When We Measure Food Security? A Compendium and Review of Current Metrics


Ndobo, F, Sekhampu TJ., 2013. Determinants of Vulnerability to Food Insecurity in a South African Township: A Gender Analysis

Introduction:
At the national level South Africa may be considered as a food secure country. However, several food security studies show that many households, especially those in the rural areas, are food insecure (Maponya and Moja, 2012; Masekoameng, 2015). Household food insecurity, hunger, poverty, malnutrition and stunting in children exist in South Africa (Mjonono et al., 2009; Maponya and Moja, 2012). There are few studies in South Africa that empirically estimate the extent of household food insecurity and how indigenous knowledge systems (IKS) can contribute to household food security. This study discusses and document the role of IKS in ensuring household food and nutrition security.

Methodology:
Small-scale farming households from seven villages of Sekhukhune district were purposively sampled to participate in this study. Two focus groups consisting of 10 to 12 individuals were included from each of the seven villages. This sample size was justified by McMillan and Schumacher (2010) who stated that qualitative samples can range from 1-40 or more. Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) were used to collect data from the participants. The following RRA and PRA tools were used to collect and record data: focus group interviews; semi-structured interviews; direct observations, note taking, photographs, village resource mapping; village social mapping; seasonal calendars; Venn diagrams and daily routines. The use of various data collection methods allowed for triangulation (Frank, 2009; Fouché and De Vos, 2001). The quantitative data were analysed using tallying, coding, text analysis, content analysis and thematic analysis.

Results:
The results showed that rural women have rich source of indigenous knowledge in terms of food gathering, production, processing, preservation and preparation to ensure household food and nutrition security. This knowledge was acquired through socialization with household members, peers and social networks within the communities. The participants indicated that the natural environment around their villages offers them some edible indigenous fruits and vegetables that they gathered to ensure household food security. The seasonal calendar indicated that the participants knew when to plough, plant, weed and harvest their crops using their indigenous knowledge. Indigenous methods of threshing, processing and preserving crops and vegetables were used. Some of the indigenous vegetables were sold (fresh and/or dried) for income generation and ensuring food availability at household level. The participants used various indigenous food accessing strategies such as exchanging, borrowing, lending, bartering and outright gifting. In this study, food utilisation included household factors such as food processing and preservation, methods of preparation, meal patterns, household food distribution that include gender issues, household size, cultural and religious beliefs pertaining to food and social status. During times of food shortages, households would use various coping strategies (e.g. reducing number of meals and/or portion sizes in a day) to ensure household food security.

Conclusion and Recommendations:
The study shows that IKS has a significant role in ensuring household food security in rural communities. This is demonstrated by the knowledge that participants have in terms of cultivating, harvesting, gathering, processing, preserving and preparing indigenous foods. The participants also demonstrated indigenous knowledge that enabled them to identify edible indigenous fruits and vegetables found in their natural environments. Despite the important role played by indigenous foods, literature
reviewed indicated that the use of indigenous vegetables is declining. It is important to emphasize and educate the participants and rural households about the nutritional value of indigenous vegetables, ways to preserve their nutrients during food preparation and storage and ultimately, their contribution to household food and nutrition security. Therefore, there is a need to promote the use of indigenous foods (wild and cultivated) through education and extension programmes. Indigenous knowledge is evolving and might slowly disappear; therefore; it is highly recommended to document it and integrate it to modern knowledge so that the two complement each other in ensuring household food and nutrition security. The researchers propose a new policy direction, which link IKS and food security.

References:
**Thematic Session 3: Fashion with a purpose: “Fashion for, Fashion with and Fashion as”**

**Purpose of the Session:** The purpose of this symposium would be to introduce the three approaches to design with a special focus on fashion design. The main aim will be to create awareness on the three approaches to fashion design: 1) Design for... 2) Design with...3) Design as... (this translates to “Fashion for, Fashion with and Fashion as”). Experts on each aspect will be included in the first panel discussion after the keynote speaker has inspired the audience with his design thinking. The proximity or role of the consumer or end-user in relation to the design approach will be highlighted throughout the panel discussions.

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<tr>
<th>Time</th>
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<th>Speaker Information</th>
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<tr>
<td>07:30 – 8:00</td>
<td>Registration: Veranda Dorian</td>
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<td>08:00 – 08:10</td>
<td>Opening and Welcome: Prof E Kempen, SAAFECS President</td>
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<td>Session Chair: Dr Desiree Small, Department of Fashion Design, University of Johannesburg</td>
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| 08:15 – 10:15 | Design in the African Context  
Prof Mugendi M’Rithaa is employed at the Cape Peninsula University of Technology for the past 12 years and he is an industrial designer, educator and researcher. He has been appointed as the president of the World Design Organization since 2015 and he has been involved on the board of directors of this organization since 2009. Prof M’Rithaa completed his doctoral degree at the Cape Peninsula University of Technology on Universal Design. He holds a Master’s degree in Industrial Design from the University of Bombay and completed his undergraduate degree in Industrial Design at the University of Nairobi. In addition, Prof M’Rithaa holds a diploma in Higher Education and Training and is passionate about Africa, Design and Technology. |                                                                                      |
|            | Fashion for a reason: A Holistic Approach to achieving “fit for purpose”  
Prof Anne Mastamet-Mason is a professor at Tshwane University of Technology (TUT). She currently holds the position of Head of Department of Fashion Design and Technology at the Faculty of the Arts, TUT. She has extensive experience in supervision of postgraduate students pursuing research in Fashion and Textiles related topics. Her research focus area include: Product Development, Sustainable Development in the Fashion and Textile Industry and Fashion Entrepreneurship. |                                                                                      |
|            | Designing with...the human-centered approach to sustainable fashion  
Dr Kenelwe Munyi is currently programme Manager at Hasso Plattner Institute of Design Thinking at the University of Cape Town UCT d-school. She is responsible for the developing and spearheading of the planning and implementation of design thinking programme offerings at the HPI UCT. She is passionate about using design as a strategic tool for development in Africa. Design education, IKS and Design for sustainability, Craft for community development. The use of local knowledge for economic development. She is also passionate about finding sustainable ways of leather tanning and dying. |                                                                                      |
|            | I-we-us: Using Fashion Design as the catalyst in change  
Dr Desiree Small is currently Head of Department, Fashion Design at the Faculty of Art, Design and Architecture (FADA, at the University of Johannesburg (UJ). She lectures undergrad students in the discipline of Fashion Design and supervises several masters candidates. Her research focus area is environmental sustainability, fashion design praxis and fashion design education. |                                                                                      |
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| 10:15 – 10:45| Refreshments and Poster Presentations (Sustainability & Globalization)        | The influence of social media marketing on South African consumer’s online purchase intentions and behaviour  
*Dr JF Vermaas, Miss S Steyn – University of the Free State*  
Entrepreneurship as part of the implemented Consumer Studies curriculum: trends in South Africa  
*Ms A Du Toit – North-West University*  
Optimizing traditional apprenticeships in tailoring with a curriculum model  
*Dr EA Apunda, Prof HM de Klerk, Dr TA Ogina – University of Pretoria*  
Recycling opportunities and pitfalls of eateries and bars in Central South Africa  
*Miss C Denner, Dr J Vermaas - University of the Free State*  
The Use Of Information And Communication Technology By Consumer Science Teachers, In The Hhohho Region of Swaziland  
*Ms CL Thusi, Dr PJ Musi – University of Zwaziland* |
| 10:45 – 11:45| Thematic Session 3: PANEL DISCUSSION                                           |                                                                        |
| 11:45 – 12:15| Introduction to the Clothing Management Unit at the Durban University of Technology  
Ms Roz Havenga, Programme-Coordinator |                                                                        |
Keywords:
Social media, marketing, purchase intentions, purchase behaviour, pop-up advertisements.

Introduction:
Online shopping has taken off as an increasing number of consumers purchase diversified products on the internet. To attract and retain consumers is critical to the success of online retailers; research on the antecedents of consumer acceptance of online shopping has attracted widespread attention. There has yet to be a holistic view of online shopping acceptance from the perspective of consumers in South Africa (Zhou, Dhai & Zhang, 2007). Online transactions currently account for less than 1% of the retail market in the South Africa. South Africa is picking up steadily with an e-retail growth rate of between 30% and 40% per annum (Holmes, 2014).

According to Noyes (2016) of Zephoria digital marketing, “Worldwide, there are over 1.65 billion monthly active Facebook users, which is a 15 percent increase year over year.” March 2016, 1.09 billion People logged onto Facebook daily, which represents a 16% increase year after year. The implication is a big and vastly growing number of Facebook users are active and consistent in their visits to the site, making them an assuring audience for future marketing production. Forty two percent of marketers report that Facebook is critical and very important to their business.

The purpose of this study is to identify the obstacles in the South African online market, as well as the manner that consumers approach online shopping or social media marketing. The effect that social media marketing has on the South African consumer will be evaluated, to conclude if it is effective for South African businesses to advertise on social media platforms.

Methodology:
A quantitative research method was suitable for the study, utilizing an exploratory survey design. An electronic self-administered questionnaire was sent electronically with Evasys© to selected respondents. The sampling technique was random. Respondent return rate was good, and 119 respondents took part in the survey. The data was extracted directly from the questionnaires on the Evasys© system to the Statistical Package for Social Sciences (SPSS version 24) for Windows 7 program for analysis.

Results:
The majority of respondents indicated that they do online shopping (61%), although they still indicated that they prefer to physically go to a shop and buy there. Seventy five percent of respondents prefer to use South African online shopping websites rather than international shopping sites. Reasons listed include that International sites have a bigger variety, quality of specific products are better, international websites are more orientated with online shopping.

Most respondents indicated that they do not trust pop-up ads. The majority of the respondents, who submitted reasons for this answer agreed on a few points regarding pop-up ads. Respondents are very weary of viruses and spam connected to pop-up ads. They feel irritated when the pop-up ads appear. The minority of the respondents had neutral or positive feedback. They stated that they would trust pop-up ads that were from trustworthy retailers that they know, and often use.
The respondents were almost evenly divided when asked if social media marketing motivate them to make a purchase. Forty eight percent are influenced, while fifty two percent are not influenced by social media marketing.

**Conclusion and Recommendations:**
We could clearly conclude that South Africans are still hesitant to buy online because of factors such as not trusting the system, problematic postal services as well as the possibility of scams and hackers. South Africans feel unsafe because of our corrupt government and are still sceptical even though the online market is growing vastly in South Africa.

Respondents are triggered by online advertisements but this will not necessarily assure a purchase from the consumer. It is still important for marketers to invest in online advertisements as consumers does show interest, although they should adapt the manner in which they convey their advertising.

**References (only references referred to in abstract):**
The insights gained from such an investigation serve the purpose of informing educational role players about good practices, as well as areas which need to be developed or improved, when the topic of entrepreneurship is taught. Good practices, as well as suggestions for addressing various challenges, could be shared between teachers to enhance each other’s effectiveness in the implementation of this topic in Consumer Studies. Improving the overall effectiveness of the implementation of entrepreneurship in Consumer Studies will contribute to the entrepreneurship education of learners, which in turn will contribute to addressing the problem of youth unemployment in South Africa.

**Methodology:**
A social constructivist perspective framed the research. A semi-structured online questionnaire was used to collect data pertinent to Consumer Studies teachers’ implementation of entrepreneurship education as part of the subject. Commencing with an invitation to Consumer Studies teachers known to the researcher, snowball sampling was used. Focus group sessions, employing semi-structured interview techniques, were subsequently conducted in each of South Africa’s nine provinces. Participants had to have completed the online questionnaire, and an open invitation was issued to all. The sessions were digitally recorded and transcribed verbatim, after which the text was analysed concurrently, but separately, by two researchers. The two analysts compared and combined their findings to add to the trustworthiness of the research.

**Findings:**
Many of the participants had no training for entrepreneurship, and less than half of them have any personal experience of being an entrepreneur. Teachers rely mainly on the curriculum document and school textbooks as resources, and often make reference to local entrepreneurs as part of teaching the topic. Active, learner-centred teaching-learning strategies, together with problem-solving and real-life learning, is implemented most often to support learners’ learning and understanding of entrepreneurship. More than half of the participants emphasise entrepreneurship links when teaching other topics in the Consumer Studies curriculum. ‘Costing calculations’ is the section in entrepreneurship which most teachers find difficult or are experiencing challenges with. Several teachers made concrete recommendations for the potential improvement of the implementation of entrepreneurship in practice, including that they would prefer to have a more comprehensive, real-life teaching plan for entrepreneurship, as well as dedicated training for this topic.

**Conclusion and Recommendations:**
The implementation of entrepreneurship as a core topic in Consumer Studies varies across provinces and schools. Teachers are positive and enthusiastic about its importance and relevance in the Consumer Studies curriculum. They described several examples of how Consumer Studies learners became successful entrepreneurs using the knowledge and skills that they gained in the subject. Teachers also mentioned that they need additional training, more guidance and topic-specific teaching-learning materials to support them in increasing the effectiveness of their teaching of this topic in Consumer Studies. Several recommendations were made, including that Consumer Studies teachers (and the learners in their classes) would benefit from dedicated entrepreneurship education training and the development of resources and structured guidance to support them in this task.

**References:**
Keywords:
Informal tailoring; clothing quality; traditional apprenticeships; a curriculum model; Kenya

Introduction:
Informal tailoring and garment manufacturing Micro- and Small Enterprises (MSEs) are still valuable sources of employment and livelihood to many people across most countries in Africa (Rogerson, 2004; Kamau and Munandi 2009; Anikweze 2012; Langevang and Gough 2012; Apunda 2017). The majority of individuals seeking to work as tailors and dressmakers in these MSEs particularly in Kenya (Apunda 2017), Ghana (Langevang and Gough 2012), Nigeria (Olayiwola et al. 2012), Tanzania (Nu¨bler et al. 2009), and Senegal (Shiohata and Pryor 2008) among many other African countries still rely on Traditional apprenticeships (TAs) as major sources of skills development. While TAs enable individuals to cultivate aspirations for acquisition of competencies needed to work and earn a living within this economic sub-sector, fulfilment of these aspirations often remain elusive due to a focus on limited and basic practical skills (Apunda 2017; Apunda et al 2017). The theory of clothing product quality however suggests that knowledge of clothing quality (design, fabrics and materials, construction and finishing and functional and aesthetic performance dimensions) is particularly important to clothing manufactures in the delivery of quality products (Brown and Rice 2014). Furthermore, it is increasingly becoming apparent that product quality forms an important dimension of the contemporary competitive global market (Kadolph 2010). We therefore argue that providing tailoring apprentices the opportunity to acquire knowledge of clothing quality alongside practical technical skills acquired through TAs may resolve the challenge of knowledge deficit. Empirical studies of this nature are only beginning to be published. This study is based on a completed doctoral thesis that explored curriculum practices for TAs in custom tailoring in Kenya. The purpose of this paper is therefore to highlight challenges that custom tailoring enterprises that provide TAs face in terms of finding a suitable curriculum to equip apprentices with knowledge needed to perform optimally as future tailors.

Methodology:
A qualitative instrumental case study design was chosen to explore the least understood phenomenon of curriculum for TAs in tailoring in depth (Yin 2003). Four custom tailoring enterprises that offer TAs were purposefully selected based on some criteria to generate comprehensive data for in-depth learning (Merriam 2009). A total of four master-tailors and 27 apprentices distributed across the cases participated in the study which occurred within three city council markets (Kenyatta, Uhuru and Kariobangi) in Nairobi. Data were obtained through participant observation and semi-structured interviews. A semi-structured observation schedule guided the prolonged documentation of observation data across the cases (Merriam 1998). Two semi-structured interview schedules for master-tailors and their apprentices guided the interview process (Merriam 2009). A total of 14 interviews (four master-tailors and 10 apprentices) were conducted and conversations were audio taped. The qualitative data were analysed thematically based on theories of knowledge of clothing quality per case followed by cross case analysis (Nieuwenhuis 2012).

Findings:
Findings revealed that master-tailors and apprentices across the cases relied on practical activities within the enterprises as curriculum. The participants perceived the curriculum in use as deficient in knowledge related to design, fabrics and functional and aesthetic performance features, but they acquired skills relating to construction and finishing. As a consequence, meeting vocational aspirations such as the need to design attractive garments that entice customers to order more garments and/or create original and/or unique garment designs to meet customers’ specific design and functional needs whenever challenged to do so, was rather difficult. The participants’ perceived limitations in knowledge of clothing quality, aspirations to acquire knowledge to produce quality products, limitations in solving challenges
relating to clothing quality alongside practical tasks performed within the workshops informed the compilation of a comprehensive curriculum model that is grounded in empirical data.

**Conclusion and Recommendations:**
It is hoped that the curriculum model may be helpful in optimising skills acquired through TAs in tailoring, improve knowledge of clothing quality, and enhance tailors’ adaptive capabilities. This may result in improved productivity, sustainable livelihoods and business growth. Successful implementation of the model however requires the support of training professionals from institutions of higher learning and formal practice as tailors lack the requisite knowledge to implement it. Policy recognition of TAs is also needed to foster sustainable implementation of the curriculum model, mainly provision of funds.

**References (cited in abstract)**

Keywords:
Recycle, reduce, reuse, and waste management

Introduction and Problem as well as Objectives of your study (you may include a theoretical perspective your study is adopting or a proposed conceptual framework):
According to Godfrey & Nahman (2007:2-3) the South African government is either unable or unwilling to enforce pollution and waste related legislation. Most (59.7%) of local municipalities in South Africa could not, under legislation, effectively perform their waste management functions because of insufficient equipment, staff and budgets.

Recycling could be defined as “the reusing of materials and parts that would have been thrown away but is now being turned into new products” (U.S, EPA, 2014). Recycling serves many functions such as (1) Reducing the amount of trash going to landfills, (2) preserve precious resources, (3) saves energy and (4) reduce the carbon footprint we so often leave behind (Denchak, 2016:2).

On the 9th of March 2015 in White River the minister of Environmental Affairs held a “War on Waste” waste summit. She made/concluded 9 very important points/facts:
- Waste Management is an integral part of our lives and therefore needs to be prioritised.
- Improper waste management in South Africa poses a serious challenge to society.
- A radical approach is required in order to “turn the tide” to intensify this “War on Waste”.
- Unsafe, unhealthy and undignified conditions continue to perpetuate our landfill sites.
- Transformation and levelling the playing.
- Waste service delivery and infrastructure in waste management requires urgent attention.
- Institutional capacity for waste management in South Africa needs to be strengthened.
- There are viable economic opportunities that need to be unlocked.
- Waste in many instances can be a resource.

Solutions for environmental sustainability is mainly narrowed down to technology, economy, an informed society and social development (Wyngaard & de Lange, 2013:314). For a waste management system to work, a definite link or relationship between legislation, the institutions, economics, environment, social culture and the technical aspects is necessary (Guerrero et al., 2013:228). Eco initiatives can be considered in any setting, from household to larger organisations, businesses and factories, which can improve sustainability in different aspects (Wyngaard & de Lange, 2013:315).

Waste has become a global issue and the management regarding it a priority. Plans and/or systems must be in place providing adequate services to all communities in local municipalities. Some of the main problems in South Africa include: (1) the lack of information and education, (2) waste collection services, (3) reusing and recycling is not encouraged, (4) illegal dumping, as well as illegal dump sites, and the biggest problem of all (5) the lack of waste related regulations and enforcement by the government and municipalities (Fiehn & Ball, 2005:2).
In South Africa there are provinces such as Gauteng and the Western Cape provinces have some recycling programs in place. Bloemfontein is an overnight destination for many tourists and consist of (759 693) people (Stats SA, Community Survey 2016). Participating in recycling, many jobs can be created, not to mention the influence on the environment. The municipality could play a major role in this, but there is also many private stakeholders.

Eateries according to the Cambridge dictionary translates to: restaurant, coffee shop, drive-through, à la carte, food court, pizzeria etc (Cambridge Dictionary). By understanding the pitfalls and barriers preventing these businesses from recycling, a solution could be found. The local municipalities and authorities will be informed of these results. All businesses who participate in the study will receive the results as well as the conclusion to assist them with a practical solution to their recycling problems.

Research questions include:
Are any of the eateries and bars, participating in recycling?
If they are not recycling at all, what are the barriers preventing them from recycling?
How are they recycling and to which extend?
Will government enforcement make a difference in the recycling habits of these businesses?
Will privately owned recycling institutions make a difference regarding the recycling habits of these businesses?
Will participating businesses recycle more if a recycling institution will collect recyclables on a weekly basis?
Will these businesses be willing to sort recyclables on site?
Will these businesses encourage customers to purchase or order products from recyclable containers?
Will they be willing to work together with the municipality to reach an agreement about less taxes regarding waste disposal?
Will the enforcement of recycling by the government reduce the amount of waste going towards landfills?

A program or method can be worked out and supplied to businesses willing to participate in recycling, they can be connected with recycling industries who are dependent on recyclables.

Methodology:
To understand and identify the current problems, barriers and opportunities regarding recycling in central South Africa mixed methods will be employed to gain information. These approaches include the following: (1) distribution of a questionnaire, by hand and online, to owners and managers, (2) interviews with recycling industry representatives and coordinators. Purposeful sampling will be used to choose respondents. Eateries and bars in Bloemfontein, Welkom, Kroonstad, Bethlehem and Clarens will be asked to participate. Exclusions will include: specialised venues, shebeens and food carts. The data collected will be statistically analysed to indicate significance.

Expected results or potential impact: Areas selected for this study is not yet educated, informed and encouraged to recycle. There exists an opportunity pertaining to the collecting of recyclables and the collection of waste. Waste collection services on the other hand will rely on the people who recycle. If by law people, institutions, businesses and households are forced to collaborate and recycle, proper waste collection services can be developed.
This will reduce the amounts of waste ending up in landfills, job opportunities will be created, a sustainable environment will be created, natural resources can be conserved, and energy can be saved by the reduced amounts of raw materials used. Recycling will save energy, money and resources by creating jobs for the different recycling and manufacturing industries.

References:

THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY BY CONSUMER SCIENCE TEACHERS, IN THE HHOHHO REGION OF SWAZILAND

Ms CL Thusi, Dr PJ Musi – University of Zwaziland

Keywords:
information and communication technology (ict) consumer science teachers

Introduction:
Effective communication is of great importance in the teaching and learning situation(Eze & Aja, 2014). That is why some countries provide Information and Communication Technology (ICTs) devices that improve communication as well as for expansion of instructional techniques in schools. Hornby (2004) defined ICT as electronic-based technology that is generally used to retrieve store, process, and package information as well as provide access to knowledge. Empirical evidence regarding the use of ICT by Consumer Science teachers in high schools is lacking, therefore, it is in response to this study that was undertaken to determine the availability and use of Information and Communication Technology (ICT) devices by Consumer Science teachers in high schools in the Hhohho region. The objectives of the study were to identify the types of ICT devices available in the schools; determine the frequency with which the ICT devices are used by Consumer Science teachers in the schools; determine the purposes for which the ICT devices are used by the Consumer Science teachers in the schools and to determine if there are differences in the use of ICT devices with regards to teachers' demographic characteristics.

Methodology:
Data was collected from 16 schools with Consumer Sciences, using self-administered questionnaire. The instrument had a Cronbach Alpha of 0.807. Data was analyzed using mean, standard deviation, frequencies, percentage, T-test and ANOVA.
Results:
The results revealed that most of the ICT devices were available but not adequate for use by teachers. There were no significant differences in the use of ICT devices with regards to sex, age, teaching experience, highest academic qualification and ICT education obtained. There were significant differences in the use of ICT devices by teachers from different types of schools. Teachers from Government schools use ICT devices more often than others. These findings are expected as the government schools can be supplied by government with the ICT devices, in that way the devices can be made available in the schools. There were significant differences in the use of ICT devices by teachers from different school location. Teachers from rural areas and semi-urban schools use ICT device more often than others. Students in the schools. The available ICT devices are rarely utilized by the teachers for teaching and learning process, the ICT devices are mainly used for typing tests, typing examination and typing practical exercises.

Conclusion and Recommendations:
It was concluded that ICT devices are available but not adequate in the schools. The available types of ICT devices are rarely utilized by the teachers for the teaching and learning process. The ICT devices are mainly used for typing tests, typing examination and typing practical subjects in the schools.

It is recommended that each school should form its own ICT committee, and develop an ICT policy which will ensure that school ICT devices are fully utilized to support the whole school curriculum, keep ICTs usable and empower both teachers and students to use the devices. This study was conducted with Consumer Science teachers, a similar study should be conducted with teachers in other subjects of the school curriculum to render a better picture on the use of ICT devices in schools in Swaziland. An investigation of the enablers and barriers to ICT use in schools for teaching and learning process would be beneficial.

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<td>12:15 - 13:00</td>
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| 13:00 - 13:30 | The influence of body shape on female consumers' evaluative criteria preferences during the clothing purchasing decision  
**Dr J Kasambala, Prof E Kempen – University of South Africa** |
| 13:30 - 14:00 | Evaluating garment sizing and fit for petite women using 3d body scanned anthropometric data  
**Miss MM Phasha, Ms R Pandarum, Prof S Harlock – University of South Africa** |
| 14:00 - 14:30 | Empirical study exploring body perception and apparel sizing and fit for South African women  
**Ms R Pandarum, Prof S Harlock – University of South Africa**  
**Prof L Hunter - Nelson Mandela Metropolitan University / CSIR** |
| 14:30 - 15:00 | Body Cathexis, Peer Pressure and Choice of Clothing among Female Students of Great Zimbabwe University  
**Dr BM Mantyi-Ncube, Mrs E Nyasha – Solusi University** |
| 15:00 – 16:00 | Fashion Show                                                            |

**Venue: Dorian 1**

Theme: Clothing, Textiles & New Technologies

Session Chair: Ms R Pandarum

**Venue: Dorian 2**

Theme: Consumer Behaviour & Decision Making

Session Chair: Dr BM Mantyi-Ncube

**Venue: Dorian 3**

Student Session

Theme: Consumer Behaviour & Decision Making

Session Chair: Prof AC Erasmus

**Venue: Dorian 4**

Theme: Entrepreneurship & Community Engagement

Session Chair: Dr VI Abusomwan
THE INFLUENCE OF BODY SHAPE ON FEMALE CONSUMERS’ EVALUATIVE CRITERIA PREFERENCES DURING THE CLOTHING PURCHASING DECISION

Dr J Kasambala, Prof E Kempen – University of South Africa

Keywords:
Culture, ecotourism, environment, sanctuary, tradition

Introduction:
This study investigates how two communities in the Brong Ahafo Region of Ghana have sustained an ecotourism initiative over centuries through a particular belief system. Members of the two communities believe that their ancestors turned into monkeys in order to avoid an attack by an enemy tribe which would have annihilated the communities. Based on this legend, the two communities dedicated about 4.5 kilometres square land for the monkeys to inhabit. The monkeys live in the forest, which is at the edge of the two communities but come to the villages in the morning and the evenings for food. The community members are not do deny the monkeys food or harm them in any way as it is believed that any person who does so will experience a calamity in his/her family.

Research purpose and research questions:
The purpose of the research is to investigate how two communities in rural Ghana have maintained and sustained a monkeys’ sanctuary over the years through some belief systems. The research questions for this paper are:
- What belief systems have the two communities used to create and maintain the monkeys’ sanctuary?
- What are the experiences of the communities regarding the living with the monkeys?
- What impacts does the monkeys’ sanctuary have on the surrounding communities?

Theoretical/conceptual framework:
This paper is underpinned by Murphy’s (1983) ecological theory. The theory is used to explain the relationship between tourism and local ethnic groups and emphasises the participation of the local ethnic group in comparison to the outsiders. Murphy’s ecological model also stresses that the local ethnic group’s participation in various stages of planning and implementation will determine a holistic ethnic group development equipped with ethnic group participation and empowerment.

Methods:
The qualitative method based on observations, and individual and focus interviews were the main instruments that were used to collect data to investigate how the communities have maintained and sustained the monkeys’ sanctuary over the years through their belief systems. The participants in the study included a tourist guide, a chief from one of the villages, six communities and another six members from the two communities for the focus group. The purposeful sampling technique was used to obtain relevant and useful information from knowledgeable people from the two communities who were recommended by a key informant from one of the two communities.
Results, conclusion and recommendations:
The finding indicate that the belief systems have enabled the two communities to maintain their traditions and culture as well as the preservation of the environment and as a result creating a sustainable ecotourism endeavour which is generating income and employment for the community and the municipality at large. The sanctuary it was noted also according to the visitors’ book showed that a lot of both local and international visitors and researcher visit the place throughout the year. It was also observed that the sanctuary apart from the monkeys also hosts a number of other game and wild life as well as a number of plant species which cannot be found around the degraded surrounding environment. It is recommended to communities, governments and local municipalities to find niches within their traditions and cultures that can be applied for the sustainable development of their communities as these two communities have done.

Significance and implications:
The study sheds light and makes significant contribution to the field of indigenous knowledge and cultural systems which are sometimes regarded as backward and unscientific irrespective of the fact that the belief system is achieving results that are needed for sustainable livelihoods. The belief system that is applied in the two communities has also attracted researchers from Ghana and other parts of the world to who are conducting various types of research to try to understand the phenomenon.

References:

EVALUATING GARMENT SIZING AND FIT FOR PETITE WOMEN USING 3D BODY SCANNED ANTHROPOMETRIC DATA

Miss MM Phasha, Ms R Pandarum, Prof S Harlock – University of South Africa

Keywords:
Petite women, pear body shape, garment sizing and fit, size charts, shirt garments, trouser garments, fit test trial evaluations, South Africa

Introduction:
Currently, very little is known about the body shapes of South African petite women and their anthropometric measurements (Bailey, 2010:1) for manufacturing ready-to-wear garments. Petite women’s garments are manufactured principally with an emphasis on the body height measurements, which ranges from 5’1” (156 cm) to 5’4” (163 cm) (Winks, 1990:74-76; Defty, 1988:16-18; Yoo et al., 1999:220; Barona-McRoberts, 2005:10; Bailey, 2010:1). However, there is no single clear definition of a petite woman (Crenna, 1990; Boston, 1992; Bello, 1994; Alterations Needed, 2010). Nonetheless, Kim’s (1993) study suggests that petite woman require their own sizing categories for ready-to-wear garments, as petite women are differently proportioned in comparison to the average woman.

The aforementioned lack of relevant information for petite women’s body size and the confusion that currently exists in the apparel industry as to the definition of what constitutes a petite woman prompted the study. The aim of the study was to investigate the shape and sizes of a sample of petite South African women by developing upper and lower body size charts for them using data obtained from 3D scanned images of their body shapes and to evaluate the accuracy of the charts by assessing the fit of garments manufactured using the size charts data.
Methodology:
A mixed-method; purposive, non-probability sampling method (Maree, 2007:76) was used to achieve the objectives of the study. A TC² NX16 full 3D body scanner and an Adam’s® medical scale was used to collect the body measurement data of 200 petite South African women aged between 20-54 years with an average height range of 157cm, residing in Pretoria and Johannesburg. The data collection instruments included a demographic questionnaire form to gather the petite subjects’ perceptions and preferences on currently available ready-to-wear shirt and trouser garments. The collected data was analysed and interpreted in Microsoft Excel and the IBM SPSS Statistics 24, (2016) Software package using Principal Component Analysis to produce experimental size charts for the upper and lower body dimensions necessary for creating shirt and trouser garments.

Regression analysis was used to establish primary and secondary body dimensions for the size charts and distributing the subjects within the size ranges. The experimental size charts were developed for sizes ranging from size 6/30 to size 26/50. Subsequently the accuracy of the size charts was evaluated by analysing the fit of the shirt and trouser garments manufactured using the charts data for a subset of the sample of women conforming to size 10/34 in the charts and the measurements from a 3D body scanned size 10/34 petite mannequin currently commercially available for use in the production of garments for petite women in South Africa.

Results:
Of the 200 subjects, the most prominent body shape profile was the pear body shape which was evident in 180 of the subjects. The experimental size charts were developed for the pear shaped subjects. The quality of fit of the shirt and trouser garments which was assessed by a panel of two assessors for 9 subjects was overall, better for the garments created from the size 10/34 size chart measurements than the garments made to fit the current, commercially available size 10/34 mannequin. The findings from the demographic questionnaire showed that 16% (n=29) of the 180 pear shaped subjects stated that they were satisfied with their current ready-to-wear garment sizes; 84% (n=151) of the subjects specified that they were not satisfied. South African petite women also found that the fit of their shirt and trouser garment lengths were mostly too long, which shows that improvements must be made on garment sizing for South African petite women.

Conclusions and recommendations:
The majority of the subjects in the study found that trouser garment sizes that would fit their waist resulted in a tight fit on their hips; as a result, they purchase bigger sizes to accommodate their hip measurements and having to alter the waist to obtain a better fit. It is therefore, recommended that the waist-hip ratios be taken into consideration when manufacturing trouser garments.
On the evidence of this study, it is recommended that the South African garment manufacturing industry needs to revise the current sizing system for petite women to accommodate the body proportions and shape variations that currently prevail amongst consumers

References:
EMPIRICAL STUDY EXPLORING BODY PERCEPTION AND APPAREL SIZING AND FIT FOR SOUTH AFRICAN WOMEN

Ms R Pandarum, Prof S Harlock – University of South Africa
Prof L Hunter - Nelson Mandela Metropolitan University / CSIR

Keywords:
Food safety; knowledge; awareness; food handlers; managers; school feeding programme

Introduction:
The developed and developing countries’ school feeding programmes have demonstrated the ability to raise and sustain school enrolment rates, as well as combat malnutrition among low-income families (WFP, 2013; Bukari, & Hajara, 2015). The use of school feeding programmes as a policy intervention with the objectives of addressing hunger, nutrition and long-term educational needs of school children is gaining popularity in many countries (Bundy, et al., 2009; WFP, 2012). The South African government has provided meals to school children through a government-sponsored programme called the National School Nutrition Programme (NSNP) with primary and secondary public schools as targets (DBE, 2012). The NSNP targets schools of quantum 1 to 3 as these schools are considered to be located in impoverished communities. In the year 2013/14, the NSNP reached a total average of 9 131 836 learners in 19 383 schools nationally. A variety of vegetables such as cabbage, spinach, beetroot and onion were planted making available essential nutrients in school meals. To ensure that learners are fed daily, the programme engaged the services of 52 998 food handlers, who prepare, cook and serve nutritious meals to learners on all school days (DBE, 2014). The WFP (2013) contends that school feeding programmes require significant institutional capacity to run and often governments tend to underestimate the resources required to run an efficient and effective food safety school feeding programme. The net result is that governments often experience challenges in ensuring food safety in school feeding programmes (WFP, 2013; Rendall-Mkosi et. al., 2013; Abushelaib et al., 2016). In order to assure high quality meals for learners, school feeding programmes need to enforce the regulations of the Foodstuffs, Cosmetics 13 and Disinfectants Act, 1972 (Act 54 of 1972) and the food hygiene and safety-related provisions of the Health Act, 1977 (Act 63 of 1977) (DoH, 2012). The foodborne diseases are a major challenge to school feeding programs because the inadequate food safety knowledge and skills of staff can result in unsafe food handling practices and cross-contamination, thus cause foodborne outbreaks. The objective of this study is to investigate the food safety knowledge and awareness of food handlers and managers of School feeding program.

Methodology:
The research design was cross-sectional quantitative method. A combination of purposeful and stratified sampling methods was used to sample schools in Mpumalanga. A total of 300 NSNP food service managers/nutrition coordinators and 440 food handlers from 300 schools participated in the study. Data collection was done by self-administered structured questionnaire. The questionnaires consisted mostly of questions to determine the participants’ opinions on food safety knowledge and awareness and the administrative support of the NSNP. The questionnaires consisted of various closed questions of various point scale such as ‘agree’, ‘disagree’ and ‘not sure’ for participants and an open questions to clarify participants purposes. To reduce the response bias, the multiple choice answers included “not sure”. The
questionnaire was piloted with 30 food handlers in eight schools. After the pilot study, the structure and wording of the questions were revised. The reliability and validity of the different sections of the research instrument were determined and the Cronbach’s alpha (\(\alpha\)) for the different constructs were found to range from 0.689 to 0.821.

**Results:**
The vast majority (98.9%) of the food handlers were females of 36 years and older with a high school education and managers with teaching qualification. The majority of schools offering NSNP meals were located in informal settlements and most were found to lack basic resources such as electricity (power supplies to the food preparation facility) and potable tap water in their kitchens. Up to 93.2% of food handlers did not know about HACCP. The NSNP food service managers in some schools, especially in schools located in rural settlements were found to have little knowledge and awareness of HACCP. No school was found to have implemented the hazard analysis and critical control points (HACCP) programme, and only a few staff had received food safety training. Food safety knowledge is worst in informal schools in rural areas due to a lack of training. Up to 60% of food handlers did not know the correct procedure for washing a cutting board after it had been used. In addition, 95.5% of the food handlers did not know how to sanitized utensils and cutting surfaces after cutting up raw meat.

**Conclusion and Recommendations:**
The NSNP is faced with many challenges such as a lack of kitchen infrastructure, equipment and utensils, staffing and training as well as the lack of monitoring and management commitment to provide safety food to learners. These challenges are limiting the capacity of the NSNP to provide safe food to the learners. Food handlers and managers of the NSNP are lacking knowledge and awareness in many important aspects of food safety hazards. It is recommended that newly recruited food handlers and managers of the NSNP be trained on food safety procedures and thereafter be provided with continuous food safety training on various aspects of microbial food safety hazards.

**References:**


THE RELATIONSHIP BETWEEN CONSUMER BEHAVIOUR AND EMOTIONAL RESPONSE TO THE SENSORY PROPERTIES OF CHOCOLATE

Ms I Taljaard, Dr A Mielmann, Ms N Le Roux – North-West University

Keywords:
Consumer, mood, familiarity, acceptability, attitude, emotion, emotional response, sensory properties, chocolate

Introduction:
Sensory properties are assumed to influence emotional product conceptualisations (Thomson et al., 2010b), and thus recent studies have investigated the potential of analysing emotions alongside sensory acceptability for food products, to better understand consumers’ choices. However, to date, the link between the specific sensory properties of food products and the emotions they evoke has not been adequately measured. Furthermore, no emotional response studies have considered the impact of consumer behaviour variables on this response.

From a commercial point of view, emotional response can be applied as a product development and differentiation tool, as the emotional linkage between brand and consumer is important in building strong brands (Hultén, 2011), ultimately ensuring a positive product experience. If emotional response could be related to the sensory properties of foods, the insights would aid not only in the understanding of the emotional signature of a product or product category, but will also assist in the development of products for target consumer categories, alongside a marketing mix which clearly conveys this emotional profile. Furthermore, if the consumer is incorporated from a behaviour point of view, consumer response and product adoption could be anticipated.

Methodology:
A literature review regarding emotion, emotional response to food products (specifically chocolate), emotion measurement, sensory science, consumer mood, familiarity, food acceptability as well as attitude was conducted. In the literature review, operationalisation of concepts served to define concepts within the subject field. This will be followed by a quantitative, descriptive cross-sectional study, implementing a questionnaire to collect quantifiable data. The questionnaire was compiled by incorporating an existing mood scale (Woodruffe-Peacock et al., 1998), an attitude questionnaire (Benton et al., 1998), an acceptance scale (Schutz, 1965), the EsSense25 emotion tool (King & Meiselman, 2010), a consumption frequency questionnaire based on the Quantitative Food Frequency Questionnaire (Labadarios et al., 2005), and a sensory questionnaire which was developed based on a review of 13 chocolate studies. Consumers (n=220) will be included in the study through non-probability purposive sampling. Exploratory factory analysis, confirmatory analysis, and principle component analysis will be conducted to determine whether a relationship exists between sensory properties and emotional response.

Results:
Sensory properties are assumed to influence emotional response, however this link has not been adequately measured, and no emotional response studies have considered the impact of consumer behaviour variables. By showcasing the relationship between emotional response and the sensory properties of food, it could assist in the development of products for target consumer categories, based on an understanding of the emotional signature of a product or product category. Furthermore, by incorporating consumer behaviour, response and product adoption could be anticipated. Investigating and describing these relationships for a product such as chocolate which is highly associated with emotion can provide insight into the role of emotion and consumer behaviour in shaping the response of consumers.
Conclusion and Recommendations:
Data collection is currently underway and all results will be available end August 2017. This study will indicate the importance of considering consumer behaviour components when scientific food research is conducted, to put a new lens on the design of and approach to true consumer-focused studies. It will bring together the fields of sensory and consumer science, and highlight the importance of consumer behaviour components in sensory studies. The study will further be of value to all those involved in product development and marketing, as a design, differentiation and communication tool and platform.

References

THE PURSUIT OF SUBJECTIVE WELL-BEING AND THE COMPLEXITY OF CONSCIENTIOUS CONSUMER DECISION MAKING IN THE SOUTH AFRICAN WHITE GOODS INDUSTRY: A LITERATURE REVIEW AND PROPOSED CONCEPTUAL FRAMEWORK
  Ms L Christie, Dr NC Sonnenberg, Prof IGP Gous – University of South Africa

Keywords:
emerging economy, affluenza, overconsumption, relative deprivation, subjective well-being, future discounting

Introduction:
Emerging economies (EE) value an increasing GDP since it symbolises economic growth. South Africa’s GDP increase has in part stemmed from the consumption patterns of consumers who have since 1994 been awarded equal opportunities and thus have been able to join the emerging middle class consumer segment. However, global trends established that the population’s consumption practices already exceed Earth’s bio-capacity by 50%. In this regard, the question remains whether consumption should be encouraged, especially in EE such as South Africa where economic growth is much needed. Current literature does not adequately address this question, yet experts suggest that economic, environmental and social well-being needs to be considered to ensure the sustainability of natural resources. These are the resources that will support consumption on a national level, satisfy human needs on a personal level and maintain the integrity of natural reserves for future generations. Since consumption of products has a direct and indirect impact on the well-being of both the individual and the larger population, consumers also have a responsibility to improve consumer choices thereby reducing the nation’s social imbalance. Although macro level intervention is important, consumers (particularly in higher-income groups), should make conscientious decisions that may elicit economic, environmental and social responsibility as a measurement of well-being instead of maintaining the prevailing hedonic treadmill. White goods serve as a typical example of products that require more conscientious deliberation. These products are deemed objects
of affluenza, but simultaneously bear long-term economic and environmental implications due to their required energy and water consumption. Based on the aforementioned arguments, this theoretical review proposes a unique conceptual framework that includes the pursuit of subjective well-being amidst the interplay of various constructs such as relative deprivation and affluenza to guide future research endeavours in achieving deeper insight into the complexity of conscientious consumer decision making in the South African white goods industry.

Conclusion and Recommendations:
Although several studies have investigated consumers’ decision making in the South African white goods industry, none have explored the underlying influence of eudaemonic and hedonic goals such as RD, affluenza in the pursuit of SWB with subsequent conscientious decision making in consumers’ evaluation and selection of these products. These concepts may provide valuable insight into the dilemma of overconsumption by middle/upper-income segments of the local population. Limited research has been done to explore the detrimental consequences of overconsumption in relation to consumers’ well-being within an emerging economy. The primary overconsumption expenditure in affluent societies relates to the home environment, which includes the typical home appliances that are found in upper-income households. To investigate consumers’ evaluation and selection of these appliances in an EE, the focus must be on affluent consumers who are in the position to acquire such white goods and who can select products with eco-friendly features from a wide merchandise assortment such as those found in urban retail outlets. Since affluenza and RD allude to the fact that less affluent consumers will emulate the wealthier consumers, encouraging responsible decision making among the upper-income consumer segments may eventually filter through to other segments of the population.

In adopting the underlying assumptions of the social cognitive and self-determination theory, empirical research could offer a unique perspective on the relationship between consumption and well-being in an EE. Gaining such an understanding may be applied to guide policy decisions that promote SWB and conscientious consumption which in turn may benefit the pursuit of sustainability for all South Africans. On a macro level, policy formulation could for example be guided by alternative measures such as the GNH Index to determine South Africa’s overall SWB with the inclusion of economic prosperity in addition to the goals of sustainability. Since the GNH considers citizens’ personal SWB as part of a country’s national index, more attention can be focused on those who have not yet attained appropriate levels of SWB. From a practical point of view, efforts are needed to encourage conscientious decision making and promote white goods with eco-friendly features. Empirical findings may contribute to such efforts. Even though eco-friendly appliances are usually priced at a premium, the economic savings that such an appliance will offer in the long term will add to the economic well-being of an individual. Apart from economic benefits, purchasing appliances with eco-friendly features may demonstrate an individual’s social willingness towards sustainability by contributing toward solving the larger energy and water supply problems of the country and in so doing satisfy the concept of environmental and social well-being.

In developing policy that may promote conscientious decision making in the South African white goods industry, examples can be taken from existing initiatives that compel manufacturers to create and supply goods with less harmful consequences so that products with low eco-efficiency are eliminated from the consumer market; including Thaler and Sunstein’s (2003) concept of “nudge”, whereby government and other relevant stakeholders encourage conscientious decision making through “choice architecture”.
DIFFERENCES IN CONSUMERS’ DECISION-MAKING STYLES ACROSS PRODUCT CATEGORIES WITH VARYING COMPLEXITY: A SOUTH AFRICAN PERSPECTIVE

Ms S Olyott, Dr S Donoghue, Prof AC Erasmus – University of Pretoria

Keywords:
Consumer decision-making styles, major household appliances, career wear, groceries, product categories

Introduction:
Previous studies on consumer decision-making styles have applied the construct in a general product context, implying that consumer decision-making styles are not product or category-specific, (Sproles & Kendall, 1986, Potgieter Wiese & Strasheim, 2013), or limited the investigation to a single, specific product category such as clothing (Wang et al., 2004, Radder, Li & Pietersen, 2006, Cowart & Goldsmith, 2007), or to a specific purchase context such as online shopping (Sam & Chatwin, 2015) or mall shopping (Alavi Rezaei, Valaei, Wan Ismail, 2016), while sometimes distinguishing demographic- and personal differences (Potgieter et al., 2013; Sangodoyin & Makgosa, 2014). Although most of the studies have been done in First World contexts (Mitchell & Walsh, 2004; Bakewell & Mitchell, 2006), evidence of investigations in emerging and Third World contexts exist (Radder et al., 2006; Potgieter et al., 2013). However, to date researchers have not explicated the application of consumers’ decision styles in terms of different product categories denoting varying degrees of purchasing complexity. This study therefore investigated the notion that consumers’ shopping styles can be linked to the complexity of a particular purchase decision.

Methodology:
Relying on Sproles and Kendall’s (1986) Consumer Style Inventory (CSI) that conceptualises the construct in terms of eight shopping styles, namely perfectionistic, high quality consciousness; brand consciousness, price equals ‘value for money; novelty-fashion consciousness; recreational, hedonistic shopping consciousness; confused by over choice; impulsive/carelessness; habitual, brand-loyal consciousness, a questionnaire was developed to investigate consumers’ shopping styles when purchasing a complex product (major household appliance), a moderately complex product (career wear) and a fairly easy product (groceries). The discrimination of the complexity of the products was based on empirical evidence gathered in a previous research project (Erasmus, Donoghue & Dobbeltstein, 2013). Respondents had to complete the shopping style inventory for each of the three product categories. This survey was done in Tshwane a major urban area in South Africa. A total of 1727 questionnaires, completed by 32.8% male and 67.2% females older than 25 years, were collected through a convenient, quota sampling approach.

Results:
EFA’s for each of the tree product categories provided a five factor extraction, though not completely the same, compared to the original eight factors for each product category. Consumers’ application of three decision styles is fairly similar for the different products, i.e. perfectionism being the most pertinent shopping style (fairly strong); followed by shopping styles directed by a heuristic approach and confused due to overchoice (both moderately strong). Other shopping styles were unique to certain product categories. A shopping style that is moderately strong and based on the novelty of products that instigate impulsiveness, is only relevant to groceries, while a recreational approach that entails a consumers’ time allocation to the shopping endeavour, is true for clothing as well as groceries, but not for major household appliances (probably due to the complexity and time required to appreciate all the products that are available in terms of brands, models and price ranges that cannot be associated with a recreational experience). Impulsive purchase approaches are relevant for clothing, probably due to the changing nature of fashion and difficulty to anticipate what to expect in a store, as well as for major household appliances. When faced with a complex purchase decision, a consumer may eventually make an impulsive decision realising that the product is very important, (for example the need for a washing machine or refrigerator) and that the product choices are overwhelming (as confirmed through the relevance of a confused by overchoice decision style in this product category).
**Conclusion and Recommendations:**
While some consumer decision styles concur across the different product categories, it is clear that certain decision styles can also be product-specific, probably due to differences in the complexity of products as well as the associated risk, having implications for the way in which retailers promote products and facilitate consumer decisions in the retail environment.

**References:**


**BODY CATHEXIS, PEER PRESSURE AND CHOICE OF CLOTHING AMONG FEMALE STUDENTS OF GREAT ZIMBABWE UNIVERSITY**
*Dr BM Mantyi-Ncube, Mrs E Nyasha – Solusi University*

**Keywords:**
Body cathexis, peer pressure, female students, clothing selection

**Introduction:**
Females have in various ways attempted to manage their appearance by participating in activities such as cosmetic surgery, weight loss, body building and clothing selection (Seock & Merritt, 2013). Choosing clothes can be challenging to some but is thought to be a sensible way of modifying and/or changing one’s physical appearance; and thus, make alterations in order to suit the ideal body. Shin and Baytar (2013) observed that thin models often regarded as the cultural ideal body, impacted the self-perception of many female consumers, thereby affecting their body cathexis. While clothing can be used to improve a woman’s physical appearance, in some cases, it can be associated with one’s body dissatisfaction; as the difference between assumed standards compared to one’s physical self may lead to total discontentment with one’s body (Kim & Damhorst, 2010). The study therefore, was designed to determine the relationship between body cathexis, peer pressure and choice of clothes among female students of the Great Zimbabwe University.
Methodology:
Descriptive correlation research design was used. The population of the study was 1646. Convenience sampling technique was used to select 200 participants for this study. The method involves selection of participants for the study through the use of definite conditions such as convenience, obtainability, and nearness to the researcher (Farrokhi, 2012); close proximity and easy access to the researcher (Etikan, Musa, & Alkassim, 2016); hence, female students from the Faculty of Social Sciences were chosen because of the proximity of the campus to the researcher’s residence. That is also where most of the fashion conscious young first year degree female students were found. A close-ended questionnaire consisting of a body cathexis scale to measure the level of body cathexis was used to collect data. The Software Package for Social Sciences (SPSS) Version 24 was used for data analysis. Descriptive statistics using percentages were used for demographic data analysis, means and standard deviations were used to summarise university female students’ level of satisfaction with their body parts, satisfaction with types of clothes they used, and influence of peer pressure on respondents’ choice of clothes. The relationship between body cathexis, peer pressure and choice of clothing among the respondents was analysed using the correlation coefficient Analysis of Variance (ANOVA) to determine predictors in students’ choice of clothes.

Results:
Study results are based on 187 female participants who responded to the questionnaire out of the 200 distributed questionnaires. Study findings revealed that female students were moderately satisfied with their body parts, and all the other types of clothes, save for backless tops with a mean (M=2.42; SD=1.319). Peer pressure also influenced their choice of clothes with a mean (M=3.93; SD= 0.70). The correlation of body cathexis on the choice of clothes and factors in the choice of clothes showed a significant relationship with r-value of 0.572 and 0.337 simultaneously and significant at 0.000. The results revealed that age (younger), marital status (single), economic potential (amount of money) and religion (Christian) can predict the choice of clothes of university students as they were a concern of their body cathexis; and therefore, predictors for their choices of clothes. Study results are supported by Lawan and Zanna’s (2013) observation that age was the sole personal factor variable that influenced various women’s buying behaviour. Study results; therefore indicated that age, coupled with marital status, economic potential, and religion can predict female university students’ clothing choices.

Conclusion and Recommendations:
Respondents of the study were fashion conscious and often purchased trendy and fashionable clothing. The task of choosing clothes can be tough to some but is thought to be a sensible way of changing one’s physical appearance. The study concluded that respondents were moderately satisfied with their body parts, and thus a significant relationship between body cathexis, peer pressure and choice of clothing. Recommendations are that university female students learn and seek other ways of improving self-satisfaction and increasing self-esteem in building personal satisfaction, more on the inner self rather than through pursuit of clothes, and thus not easily influenced by peer pressure. Churches should also provide guidance to young people on clothing choices that encourage decency and morality. Seminars on proper grooming could be conducted as part of school curriculum to empower female students on choosing appropriate clothing for specific activities.

References:
DAY 3 (7 MARCH 2018): VENUE 3

E-TAILING: CONSUMERS’ PERCEIVED RISKS AND COPING STRATEGIES – A STUDY PERFORMED IN POTCHEFSTROOM, NORTH WEST PROVINCE

Miss CC Brits, Mrs N Le Roux – North-West University
Dr H Van Staden – Vaal University of Technology
Mrs H Dreyer – North-West University

Keywords:
Consumer behaviour; coping strategies; e-tailing; perceived risks; South African consumers

Introduction and Problem as well as Objectives of your study:
Globally, increasing numbers of consumers are accessing the internet on a regular basis and consequently e-tailing has become an important part of consumers’ daily lives. E-tailing offers consumers more convenience such as the time saving aspect, comparing merchandise prices, offering consumers a 24/7 merchandise availability, not having to wait in lines, a wide variety of merchandise and saving fuel, but many consumers still resort to brick-a-mortar operations despite these advantages. This behaviour can be a result of consumers’ perceived risks influencing them negatively towards e-tailing. Furthermore, e-tailing is a platform that provides consumers quick electronic access to a wide variety of retail products, but consumers still perceive more risks associated with the e-tailing purchasing process than with brick-a-mortar operations.

Research regarding perceived risks and trust in the e-tailing environment are mostly internationally focused. Limited research has been done on how consumers’ perceived risks can be handled by resorting to coping strategies and how this consequently affects the consumers’ online purchasing decision-making which will as a result affect consumers’ behaviour. Research indicate that a significant amount of consumers engaging in e-tailing, still experience risks that prevent them from making use of e-tailing in the future, unless they can find coping strategies to help them overcome these identified risks. With e-tailing being an emerging and preferred form of purchasing in South Africa, it is essential to explore and describe specifically how South African consumers’ perceive risks, and what are their coping strategies and how it influence consumers’ e-tailing purchasing behaviour. This will give insight into consumers’ decision-making and behaviour in a South African online environment.

The literature-related objective for this study is to conduct a literature review regarding online shopping and more specifically, e-tailing. Thus, this study’s purpose is to explore both international and national research regarding online shopping and consumers’ perceived risks and coping strategies within the online shopping (e-tailing) environment. The following objectives are formulated in order to explore and describe consumers’ experience regarding e-tailing perceived risks when engaging in the e-tailing process; and coping strategies consumers make use of in order to handle perceived risks.
Methodology:
Since consumers’ perceived risks and consequent coping strategies in the e-tailing environment is a fairly under researched area in the South African context, a qualitative descriptive research approach is considered to enable the researcher to explore and describe this phenomenon. This study will be primarily qualitative, but the participants will complete a short quantitative questionnaire to obtain a demographical profile of the participants.

The sampling method chosen for this study is both a purposive and snowball sampling. In qualitative research, two sampling methods can be applied (Merriam & Tisdell, 2016:99). Consequently, this will enable the researcher to identify the most appropriate sample population, for example, the purposive sampling will ensure that the participants meet the inclusion criteria. Thereafter the snowball sampling will ensure that the participants that are directed to the study will all meet the inclusion criteria.

References:

A CONSUMER INFANT VACCINATION DECISION MODEL IN SOUTH AFRICA

Ms E Botha, Prof D Van der Merwe – North-West University
Prof R Burnett - Sefako Makgatho Health Sciences University
Prof P Bester – North-West University

Keywords:
Consumer decisions, health decisions, vaccine, vaccination, vaccine hesitancy, infant health

Introduction and Problem as well as Objectives of your study:
Vaccination is globally perceived as a successful and cost-effective public health strategy (World Health Organization, 2013:6) contributing (together with other health care and development interventions) to a decrease in the annual number of under five year old child deaths by 2 million from 2000 to 2010 (World Health Organization, 2013:15). Consequently infant-vaccinations are mandatory in some countries, although in South Africa they are optional (Burnett et al., 2015:925) but obtainable free of charge through the public health sector, to all children under the age of 6 years (Burnett et al., 2012:C73). Despite the success of vaccines in eliminating or minimising many illnesses previously responsible for high mortality rates (Reich, 2016:103), recent outbreaks of vaccine-preventable diseases (VPDs) due to non-immunisation, raise concern (Reich, 2016:109). Vaccine hesitancy was internationally identified as an important contributing factor to reduced immunisation rates, however the effect of this in South Africa still has to be determined. Despite various international studies regarding vaccination decisions, little is known regarding South African consumers’ vaccination decisions and factors that may influence this decision. When the association of influences on the vaccination decision is determined, a model can be constructed with the aim to explain and predict consumers’ vaccination decisions in South Africa. Erasmus (2013:325-346) pointed out that various models attempting to illustrate the consumer decision-making process have been developed, although various objections against the use of these models without application to a specific context, have been voiced. Most of these models concentrate on consumers’ buying behaviour and do not focus on emotions, situational factors and personal influences under specific circumstances. Therefore research is proposed to gain a better understanding of the consumer decision-making process that is context and product specific (Erasmus, 2001:83-89) such as in the case of vaccination decisions. The Health Belief Model (HBM) is frequently applied as a conceptual framework in health behaviour research, especially in vaccine-related behaviour studies (Guvenc et al., 2016; Skinner et al., 2015). Key constructs of the model are used to predict whether
and why consumers will take action to prevent, detect or control illness conditions (Skinner et al., 2015:76) such as VPDs. Despite the frequent use of the model, little is known about the relationships among the HBM constructs and few researchers have investigated factors that moderate the HBM’s constructs’ effect on behaviour (Skinner et al., 2015:89). In addition, from a consumer behaviour perspective, the HBM does not specifically take account of a number of constructs, namely consumers’ values, consideration of future and immediate consequences, risk perception, knowledge and information acquisition that may possibly affect consumers’ vaccination decisions.

**Aim and objectives:**
The aim is to construct a model of South African consumers’ infant-vaccination decisions. The following objectives are set based on the derivation strategy as described by Walker and Avant (2014) for the purpose of model construction:

1. **Concept derivation** – to investigate and redefine influencing factors on consumers’ infant-vaccination decisions in the field of consumer sciences and other related fields.
2. **Statement derivation** –
   a. to investigate influencing factors on consumers’ infant-vaccination decisions in terms of their:
      o values;
      o consideration of immediate and future consequences;
      o risk perception;
      o knowledge and information acquisition;
      o demographic characteristics; and
   b. to determine the relationship among these influencing factors.
3. **Theory derivation** in order to construct and propose a model to explain and predict consumers’ infant-vaccination decisions.

**Methodology:**
The research design of theory derivation will be executed in three phases in order to construct and propose a model to explain consumers’ infant-vaccination decisions. Phase 1 will entail concept derivation to redefine concepts from the HBM in terms of the field of consumer sciences. Phase 2 of statement derivation to redefine the association between the derived concepts will follow an explanatory sequential mixed-method approach, with the first part a quantitative descriptive survey (N=200-300) and the second part a qualitative content analysis of publicly available social media posts on vaccinations to gain better understanding of the quantitative results. Phase 3 of theory derivation will use the influencing factors of the HBM which were adapted to fit into consumer sciences, to construct a model through structural equation modelling to explain the mediating effect of the influencing factors on consumers’ vaccination decisions in a South African context.

**References:**
IS THE WORD “GM” A HEURISTIC DURING THE DECISION MAKING PROCESS?

Miss S van Niekerk, Mrs L Wyma, Mrs M du Preez - North-West University

Keywords:
Emotional decision making; GM food; GM labelling; Heuristics; Rational decision making

Introduction:
Since the early 90’s, when the first genetically modified (GM) crops were commercialised, approved and introduced in the food market, GM crops became one of the fastest adopted technologies in agriculture (De Steur et al., 2014:116; James, 2015:2). However, the use of GM technology in food products still causes great disputes around the world regarding the risk and benefits of GM technology used in food products. These disputes led to a growing body of research on consumers’ behaviour towards GM foods (De Steur et al., 2014:116).

Research reveals that many South African consumers are ill informed and have a limited awareness and understanding of GM food products (Nggaka, 2009:61; Peter & Karodia, 2014:277). Since the introduction of the South African Consumer Protection Act in 2009, consumers’ awareness and buying behaviour regarding GM food products should have changed due to more informative GM labelling. However, when consumers do not have sufficient knowledge, they tend to use heuristics in their purchase decisions.

Heuristics allow the consumer to make fast decisions with limited cognitive effort with less consideration of the potential consequences (Gigerenzer & Gaismaier, 2011:454; Cohen & Babey, 2012:2; Verbeke, 2005:352) for example relying on physical attributes such as colour, flavour, brand, price or country of origin (Lee & Lou, 2011:21; Schiffman & Wisenblit, 2015:138). For the purpose of this study the researcher will use maize meal products to explore consumers’ evaluation of GM food products.

Problem statement:
In South Africa, GM food is seen as a solution for the current drought crisis. Consumers’ acceptance of GM foods in an emerging economy such as South Africa may be due to the fact that a large percentage of the population is less exposed to consumer socialisation regarding GM food which reduces their ability to make rational decisions regarding GM food products (Alba & Hutchinson, 1987:411). They are therefore more likely to make emotional decisions based on heuristics, for example appreciating the availability of food at a reasonable price. When using heuristics, consumers are less likely to attend to, and critically analyse factual product information that is required to adequately assess the risks and benefits of products (Gigerenzer & Gaismaier, 2011:454; Cohen & Babey, 2012:2). It is said that SA consumers are among the best protected in the world due to the comprehensive Consumer Protection Act (Mugobo & Malunga, 2015:224) and consumers are trusting the government...
and food industry to protect them against any harmful food products. Concerning however, is that although SA implemented mandatory GM labelling regulation since 2009, the enforcement of the regulation is being neglected (Viljoen & Marx, 2013:390). Therefore, it is not clear which product characteristics SA consumers’ pays more attention to when purchasing GM containing food products, whether the provision of GM information on packaging influences consumers’ purchase decisions. This study aims to explore and describe the attention that employed consumers in Gauteng pay to intrinsic and extrinsic product characteristics and in particular GM information on food labels when evaluating GM containing food products.

Methodology:
A quantitative, exploratory, non-experimental, cross-sectional study, which will use an electronic questionnaire to collect quantifiable cross-sectional data, will be used (Delport & Roestenburg, 2011:181; Fouche & De Vos, 2011:96; Fouche et al., 2011:156; Maree & Pietersen, 2007:152). The sample will include South African consumers living in the Gauteng province. Gauteng is an appropriate study location, since it is one of South Africa’s diverse cultural provinces, with low, medium and high income groups, with the largest population compared to other provinces and where most consumers have access to the internet (Statistics South Africa, 2014:16, 17, 52,166). The self-administered electronic questionnaire will be distributed to employees of a chosen corporative retail business. According to the Statistical Consultation Service (SCS) of the North-West University a minimum of 300 questionnaires from the respondents are recommended in order to gain meaningful factor analysis. In order to participate respondents have to be older than 18 years, be a permanent resident in the Gauteng province, and have experience of purchasing maize meal products. Maize meal products will be used as examples of GM food products since maize is one of South Africa’s staple crops that are being GM (Fischer et al., 2015:1).

References:


Introduction and Problem as well as Objectives of your study:

An immense variety of wines from different vintages, origins, brands, cultivars, quality and price, even from year to year in the same wine from the same winemaker available in the market today. Much effort has been made to develop wines with unique sensory attributes (Jennings & Wood, 1994). Add these unique sensory attributes (that can only be discovered once the bottle is opened) (Thomas & Pickering, 2003) to the already long list of variations and one can conclude that wine is a complex product and involve a complex purchase decision (Bruwer, Saliba & Miller, 2011).

Due to the complexity of wine as a commodity that is used under various circumstances, consumer self-confidence (CSC) to select the most suitable wine for a specific occasion is inevitably influenced. CSC encompasses “an individual’s relative stable self-appraisal that is grounded in a persons’ self-concept, proposing that CSC is based on a subjective evaluation of one’s confidence in your own abilities and authority to act in a specific context in the market place” (Adelmann, 1987; Blascovich & Tomaka, 1991; Clark, Goldsmith & Goldsmith, 2008; Erasmus, Donoghue & Fletcher, 2015). A lack of self-confidence when faced with a complex purchase decision can contribute to the stress and discomfort experienced during the selection process (Barber, Almanza & Donovan, 2006). In addition, a wine purchase has certain consequences that inter alia may be personal, social, and financial. The location of purchase and frequency of wine consumption play a significant role in consumers’ wine knowledge and CSC. It is apparently easier for consumers to select a wine at an off-premise location (e.g. retail shop) than at an on-premise location.

South Africa was the 8th largest wine producing country in the world in 2015 and the wine industry was responsible for 1.2 % of SA’s GDP and contributed R36.1 billion to the economy in 2013, whilst also creating close to 300,000 jobs in various sectors (SALBA, 2015). In addition, in 2016, there were 9500 different wines in the 750 ml bottle-variation available in SA (Robinson, 2016). Therefore, the importance of SA’s wine industry cannot be mistaken. An overwhelming variety of wine is available in the marketplace that complicates consumers’ purchase decisions (Barber, Ismail & Taylor, 2007; Lockshin, Jarvis, d’Hauteville & Perrouty, 2006; Mueller, Lockshin, Saltman & Blanford, 2010; Thomas & Pickering, 2003) and to date in SA, empirical evidence of consumers’ wine knowledge and CSC when selecting wine in different sales contexts is lacking. This information is crucial in terms of the kind and level of consumer facilitation that is required in different retail/consumption contexts.

The objectives and the sub-objectives of the study were to investigate and describe wine consumers’ 1) knowledge of wine, i.e. their objective knowledge and subjective knowledge; 2) CSC when selecting wine in different sales contexts, i.e.: off-premise locations and on-premise locations and to distinguish significant differences within gender, age, income and population group categories.

The rational choice theory (RCT) developed to investigate consumer decision-making was used in this study. The RCT was applied to wine consumers’ self-confidence as the theory assumes that humans are rational beings that make rational decisions (Babin & Harris, 2013:250; Solomon, 2007:306). The two components of the theory are i) consumers calmly and meticulously gather and integrate all information including previous knowledge and experiences of a product and the possible outcomes; and ii) evaluating the possible outcomes (Jackson, 2005). A rational individual will choose the possible outcome which will lead to the greatest satisfaction or reward (Scott, 2000:128) and refrain from choosing the outcomes that may lead to social punishments or disapproval (Jackson, 2005). The decisions of wine consumers when faced with the wide variety of wine options available may depend on their level of CSC.
Methodology:
The quantitative approach consisted of an electronic survey distributed by Consulta across all provinces of SA, by means of convenient sampling, including wine consumers from both genders, all education levels, population groups, income groups, and ages (21 years+). The measuring instrument used was the adapted version, “Wine Self-confidence Scale” (WSCS), of the CSC Scale of Bearden, Hardesty and Rose (2001) by Olsen, Thompson and Clarke (2003). The wording, as suggested in Olsen et al. (2003) and McClung, Freeman and Malone (2015), of the WSCS was changed to fit within the wine purchase situation but to retain as much integrity from the original scale. A pilot study with a small group of wine consumers was done initially to ensure that the questions or the questionnaire were easy to understand and that the constructs were correctly formulated. Once the questionnaire was finalised, it was distributed by Consulta to its members fitting the study’s criteria.

References:
**Introduction:**
Changes in the South African clothing and textile industry has led to an increase in informal SMMEs. Although the vast majority of small and micro businesses are survivalist with little possibility of growth and employing other people, they play an important role in terms of poverty alleviation (Phakathi, 2013; SBP Alert, 2009). According to Grant (2013) there is modest evidence that several women participate in less dynamic product markets, such as bead-making and clothing firms, which record not only the slimmest product lines but the lowest profits, which is indicative of survivalist strategies within these industries. Even so, SMMEs such as micro apparel manufacturers give a sense of control, self-worth and motivation to people who would otherwise depend on welfare, and therefore it is considered important that SMME’s in developing countries need to prosper (Campaniaris et al 2011).

SMMEs such as micro apparel manufacturers subsequently need to be competent as well as innovative in order to prosper (SME Reports 2014). The theoretical or practical understanding of a subject, whether it is apparel design or business, along with proficiencies or know how, are learned over a number of years through formal, non-formal and/or informal training (Lauby, 2013). Knowledge of clothing products and processes entails both theoretical and practical aspects (Apunda, 2017) and according to Brown and Rice (2014) a lack of knowledge of physical product attributes automatically limits understanding of clothing product quality, which results in garments of lesser quality. Knowledge of design enables creativity and innovation (Burke, 2011), while successful apparel design comes only with experience and is necessary for creating marketable and saleable apparel products (Hardaker and Fozzard 1997). Due to poverty and as a result a lack of access to training, owners of informal SMMEs may not have the required knowledge, skills or experience to operate a micro apparel business lucratively.

The aim of this paper was to explore the characteristics of the owner/designer of the micro apparel manufacturers in terms of:

- Creative, technical and production knowledge
- Creative, technical and production skills
- Experience

**Methodology:**
A multiple-case study using an interview guide, was used to interview 13 owners of micro apparel manufacturers at a business incubator in Johannesburg. Observations, documents and garment analysis, contributed to the data collection from participating businesses. Transcriptions and field notes were analysed by means of content analysis.
Results:
Although observations demonstrated that participants had the necessary knowledge and skills to construct garments, in terms of wedding dresses participants mentioned that “No I don't know how to make…I want someone to taught me how to make it” and “She doesn’t know how to...she can only do the traditional wear and church…and bags.” Therefore, a reluctance to apply their sewing knowledge and skills to unfamiliar garment styles was found.

Observations and interview data revealed that the participants had limited business skills, which correspond with findings by Welsh et al. (2014) and Huarng et al. (2012) that women entrepreneurs lacked proper managerial training, they needed additional skills in the areas of marketing, financing and purchasing, similar to the participants in this study.

The ‘creative-business tension’ found by Mills (2011) was also found among the participants in this study as this statement indicates “We're just not creative...We just want to get the orders out...It's hectic.” Observations confirmed that the participants experienced the day-to-day running of a business as a burden that took them away from design activities.

Conclusion and Recommendations:
The participants have the ability to sew, but were not confident to apply their skills by attempting to make garments or use fabrics that they have not sewn or worked with before. It points to not taking risks, or an inability to apply knowledge to different materials or circumstances which is an aspect that should be addressed in formal and non-formal training programs.

Participants obtained the less creative skills of being a business owner from the support as members of the business Incubation Hub and therefore joining a business incubator is recommended for micro apparel manufacturers.

The use of limited resources (such as basic technology, limited fabric choice, limited budget of customers) by the participants reveal characteristics of frugal innovation.

References (only references referred to in abstract):
EFFECTS OF HOME ECONOMICS GRADUATES’ ENTREPRENEURSHIP COMPETENCES FOR SUSTAINABLE FAMILY INCOME IN LAGOS STATE

Dr Vi Abusomwan – University of Lagos

Key words; competency, sustainable family income, entrepreneurship, home economics.

Introduction:
This paper sets to investigate the effect of home economics graduates’ entrepreneurship competencies for sustainable family income in Lagos State. Entrepreneurship is the act of starting a business, a company, arranging business deals and taking risk in order to make profit through the skills acquired (Omolayo 2006). Home Economics graduates may end up in two ways; either as salary earner in a paid job or as an entrepreneur in the context of Home Economics enterprise. Entrepreneurial ventures are of tremendous financial benefits to the family as well as the socio-economic wellbeing of society. Sustainable family income is a pattern of economic growth in which the family resources aim to meet the family needs while preserving the environment so that these needs can be meet not only in the present but also for generations to come (Paul, 2005). Competency is the successful performance of a task through the use of knowledge, skills, attitude and judgement (Olaitan, 2008). It is the state of being functionally adequate in the performance of one duty. Four research questions and four hypotheses were posed to guide the study.

Methodology:
Descriptive survey design was adopted for the study. The study was carried out in two tertiary institutions offering Home Economics in Lagos state, Nigeria. They are University of Lagos and Federal College of Education (Technical), Akoka, Lagos. The population comprise of all Home Economics graduates (2012 – 2016) from the two institutions resident in Lagos State. Purposive random sampling techniques was used to select 100 respondents. Structured questionnaire was used as instrument for data collection which was structured along a four point Likert-type scale of ‘strongly agreed’ ‘agreed’, ‘disagreed’, and ‘strongly disagreed’. The instrument was validated by two experts from University of Lagos and one expert from University of Benin. Means and standard deviation were used to analyse the research questions while t-test was used to test the hypotheses at 0.05 level of significance.

Results:
Findings revealed that there was no significant difference between Home Economics graduates with entrepreneurship knowledge and those without entrepreneurship knowledge on sustainable family income. The study also shows that there was a significant difference between Home Economics graduate with entrepreneurship skills and those without entrepreneurship skills on sustainable family income. It was also found out that, there was a significant difference between Home Economics graduates with entrepreneurship attitude and those without entrepreneurship attitude on sustainable family income. The study further revealed that there was a significant difference between Home Economics graduates with entrepreneurship competencies and those without entrepreneurship competence on sustainable family income.

Conclusion and Recommendations:
Focus of education has been on professional skills and a little attention has been paid on entrepreneurship competences. Entrepreneurship is central to the creative process in the economy especially at the household level. Improved and sustainable family income depend on a strong entrepreneurship competency. Based on the findings, recommendations were made among others that Home Economics teaching should be facilitated to maximize the potential of individual students and to

1 Recommended changes not included
encourage a sense of curiosity and motivation in them. It was also recommended that the competences identified by this study be utilised to educate and included in the existing higher institution Home Economics curriculum programme in Nigeria.

Reference:
### Thematic Session 4: Education technologies: Help or hindrance

**Purpose of the Session:** The purpose of this symposium is to delve into the potential and possibilities offered to educators by educational technologies. Presenters will share interesting statistics and applications of educational technologies to support education in higher and tertiary education. Both the positive and negative potential of this valuable resource will be discussed and related to the South African context.

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<tr>
<th>Time</th>
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<td>07:30 – 8:00</td>
<td>Registration: Veranda Dorian</td>
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<td>08:00 – 08:15</td>
<td>Opening and Welcome: Prof E Kempen, SAAFECS President</td>
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<td>Session Chair: Ms Adri Du Toit, North West University</td>
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<td>08:15 – 10:15</td>
<td>Educational technologies: helping learners, students, teachers and lecturers</td>
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**Prof L Goosen** was appointed as full professor in the Department of Science and Technology Education in the School of Teacher Education, College for Education, at the University of South Africa (UNISA) from December 2015. She was a grant holder under the Women in Research Support Programme (WIR-SP) of UNISA, as the leader of a project entitled e-Schools’ Community Engagement. Her research interests have included cooperative work in Information Technology (IT) and effective teaching and meaningful learning of programming. Before coming to UNISA, she was a Deputy Director at the South African (SA) National Department of Basic Education. In this capacity, she was required to develop ICT in Education strategies for implementation, and guidelines for the coordination and support to implement ICT in Education in SA provinces. She also promoted, coordinated, managed, monitored and evaluated ICT in Education policies and strategies, and drove the research agenda of ICT in Education. Earlier, she had been a lecturer of IT and Mathematics in the Department for Science, Mathematics and Technology Education, the School for Teacher Training in the Faculty of Education at the University of Pretoria. She had also been a teacher of IT, Mathematics and Physical Science for 10 years, in schools in both Gauteng and the Western Cape. She was awarded a PhD by North West University, entitled *Criteria and Guidelines for the Selection and Implementation of a First Programming Language* (2004).

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<th>Time</th>
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<td>Fit for purpose: Rethinking pedagogy for the 21st century</td>
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**Dr Jessica Pool** is a lecturer in the Faculty of Education Sciences and is currently fulfilling the position of Researcher: Teaching and Learning in Higher Education at the North-West University, including Scholarship of Teaching and Learning. Main responsibilities include the coordinating and management of research projects to improve teaching and learning in Higher Education, especially projects that are focused on the integration of technology in teaching. Furthermore she is involved in the design, development and teaching of various workshops and learning interventions as pathway for professional development of lecturers as university teachers. Topics include: student learning in the 21st century, developing blended learning environments, flipped classroom approaches, integration of technology in teaching, self-directed learning, establishing and maintaining communities of inquiry in blended learning. She completed her PhD in curriculum development, innovation and communication, and her research interests include the development, implementation and evaluation of blended learning in a self-directed learning environments. Since then she has published widely, nationally as well as internationally, on aspects of blended learning and self-directed learning, the design and development of e-guides for blended learning, students’, expectations for blended learning, re-design of blended learning courses, guidelines for supporting academics with the establishment and sustainment of communities of inquiry in blended learning environments and ethics and SoTL.
Optimizing Blended Learning Environments fostering Self-directed Learning: Designing pedagogically rich learning environments.

Prof C Van Der Westhuizen is currently Assistant Professor in Geography & Environmental Education in the School of Natural Sciences and Technology for Education at the Faculty of Education Sciences of the Potchefstroom Campus of the North-West University. He is an Editorial Board member of the *Journal of Geography in Higher Education (JGHE)*. His research focus is the effective integration of ICT’s (including ICT’s Geo-spatial technologies) in Geography Education in Blended and Digital Learning environments to foster Self-directed learning. Current research projects and publications include: (1) The application of Video Annotation (VideoANT) and Efundi (LMS) for effective assessment and reflection in micro-teaching and practical teaching for Geography teacher students in the BEd-degree and PGCE; (2) Problem-based learning in online and blended learning environments. (3) Fostering Aspects of Self-Directed Learning through Personalised and Adaptive Instruction Design in Online Learning Environments (SDL-PAID) (4) Benchmarking of low-cost eye and face tracking devices in online personalized and adaptive learning contexts (LoCoTrack) (5) The integration of i-Pads and e-Tablets into the teaching and learning of Grade 6 in schools of the Royal Bafokeng Nation; and (6) The use of e-Tablets for effective reflection and feedback for Practical Teaching (WIL) and critique lessons.

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<th>Time</th>
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<tr>
<td>10:15 - 10:45</td>
<td>Refreshments and Poster Presentations (Education/Teaching and Learning)</td>
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<td>10:45 – 12:00</td>
<td>Thematic Session 4: PANEL DISCUSSION</td>
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<td>12:00 - 13:00</td>
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| 13:00 - 13:30 | Knowledge of clothing quality: are curriculums for traditional apprenticeships meeting needs of traditional tailoring industry in the informal sector?  
*Dr EA Apunda, Prof HM DeKlerk, Dr TA Ogina – University of Pretoria* |                                                                                                                         | Venue: Dorian 1                  |
|              | Fashion design in action: looking at the practices of professional fashion designers in Johannesburg through the lens of activity theory  
*Mrs TL Potgieter – Vega School, Mrs CA Lavelle – University of Johannesburg* |                                                                                                                         | Venue: Dorian 2                  |
|              | Consumers' voluntary simplistic clothing consumption practices in South Africa: a proposed conceptual framework  
*Miss H Taljaard, Dr NC Sonnenberg – University of Pretoria* |                                                                                                                         | Venue: Dorian 3                  |
|              | Effects of the realms of experience and pleasurable pop-up retail experiences on patronage intention  
*Mrs BM Jacobs, Mrs E Cassel – University of Pretoria* |                                                                                                                         | Venue: Dorian 4                  |
| 13:30 - 14:00 | Entrepreneurship as part of Southern African Consumer Studies curricula: room for improvement  
*Ms A Du Toit – North-West University* |                                                                                                                         |                                |
|              | Inclusive and desirable garment designs for people with physical disabilities  
*Dr BM Mantyi-Ncube, Mrs G Zulu – Solusi University* |                                                                                                                         |                                |
| 14:00 - 14:30 | Incorporation of Universal Design for Learning in Family and Consumer Sciences (FCS) Tertiary Education’s Curriculum in Botswana  
*Dr S Trivedi, Mrs FM Mthombeni – University of Botswana* | Is There a Future in Fashion Design? Challenges Facing Local Swazi Fashion Designers and the Way Forward  
*Ms S Moyo, Dr M Mpofu, Mr L Lukhele – University of Swaziland* |                                |
|              | The influence of perceived behavioural control in determining consumers’ pro-environmental intent and disposal of active wear  
*Mr GD Muller, Dr NC Sonnenberg, Mrs BM Jacobs – University of Pretoria* |                                                                                                                         |                                |
| 14:30 - 15:00 | The significance of Home economics and Consumer Studies Education for high school learners in Lesotho, Swaziland and South Africa  
*Ms A du Toit – North West University, Mrs MAM Manonyane – Ministry of Education and Training, Mrs BM Pheto-Moeti – Lesotho College of Education* | Total quality management practices in Nigerian textile industry  
*Dr IJ Diyaolu, Dr I A Irefin, Prof JB Akarakiri – Obafemi Awolowo University, Ile-Ife* |                                |
| 15:00 - 15:30 | Indigenous knowledge in Consumer Studies: contributing to Africanising the curriculum  
*Ms A du Toit – North-West University Dr PJ Musi - University of Swaziland* |                                                                                                                         |                                |
| 16:30         | Cocktail function                                                        |                                                                                                                         |                                |
DAY 4 (8 MARCH 2018): VENUE 1

**KNOWLEDGE OF CLOTHING QUALITY: ARE CURRICULUMS FOR TRADITIONAL APPRENTICESHIPS MEETING NEEDS OF TRADITIONAL TAILORING INDUSTRY IN THE INFORMAL SECTOR?**

*Dr EA Apunda, Prof HM DeKlerk, Dr TA Ogina – University of Pretoria*

**Keywords:**
Knowledge of clothing quality; traditional apprenticeships; traditional tailoring; Kenya;

**Introduction:**
Globalization is rapidly impacting on clothing product quality knowledge requirements of clothing manufacturing professionals. Graduates of traditional apprenticeships (TAs) who are seeking employment in traditional tailoring industries within informal sector in Africa and in Kenya specifically are no exception in regard to this. Traditional tailoring in the informal sector lacks specialization; therefore highly technically skilled tailors are required to design and produce whole garments single handed (McCormick et al 1997). Custom-tailoring as a core aspect of traditional tailoring, is particularly demanding in terms of knowledge needed to design and produce quality clothing products. Garment types, designs/styles, materials/fabrics, construction, finishing, customers’ body shapes and sizes, and clothing needs relating to aesthetic and functional performance including fit preferences often vary with each order (Tate 2004; Koskennurmi-Sivonen and Pietarila 2009; Brown and Rice 2014). In addition, clothing consumers are constantly searching for manufacturers who are able to meet their unique quality needs and expectations (Kadolph 2010). Therefore tailors who have adequate knowledge of clothing quality may be better placed to design and develop clothing products with the potential to compete favourably with products from varied sources (locally and globally) in terms of quality. Understanding the aspects of knowledge of clothing product quality that TAs develop is therefore vital. We explored the aspects of knowledge of clothing product quality to inform about relevant interventions, to help improve apprentices’ knowledge and meet knowledge needs of traditional tailoring industry.

**Methodology:**
We used a qualitative approach and an instrumental case study research design to explore (Yin 2003) the aspects of knowledge of clothing product quality that current custom-tailoring apprentices in Kenya develop, to understand any inherent deficits and suggest ways to improve the curriculum to meet traditional tailoring industries’ needs. We specifically explored knowledge of physical (design, fabrics, construction and finishing) and performance (aesthetic and functional) dimensions of clothing product quality (Brown and Rice 2014). Four custom-tailoring enterprises comprising four master-tailors and 27 apprentices distributed across the enterprises were purposively selected using some inclusion criteria for enhanced learning (Merriam 2009). The study occurred within three city council markets (Kenyatta, Uhuru and Kariobangi) in Nairobi. Data were captured through participant observation and semi-structured interviews. An observation guide was used to record observation data across the cases (Merriam 1998) while two separate sets of interview guides helped to direct the interview process (Merriam 2009). A total of 14 interviews (four master tailors and 10 apprentices) were conducted in the participants’ preferred languages (Luo, Kiswahili and English). Interviews were audio taped, transcribed verbatim and translated in English without losing their contextual meaning.

**Results:**
Thematic analysis of qualitative data (Nieuwenhuis 2012) revealed that curriculums for TAs in tailoring lack adequate structure in terms of content and mode of training delivery. This essentially subjects apprentices to acquire limited and concrete aspects of knowledge of clothing quality (mainly knowledge relating to construction and finishing). However, apprentices do not acquire knowledge of clothing product quality that relates to conceptual aspects (such as design, fabrics, aesthetic and
functional attributes). Indeed, these aspects of knowledge not only form vital components of physical and performance dimensions of clothing product quality (Brown and Rice 2014), but are also responsible for development of creative, innovative and problem solving capabilities (Asplund 2010; Burke 2011). Deficits in these core aspects of knowledge of clothing quality are therefore likely to impact on apprentices' productivity and in turn threaten sustainability of enterprises and the economic sub-sector in general.

Conclusion and Recommendations:
We conclude that curriculums for TAs in custom-tailoring are deficient. Evidence from the study further suggests a need for a complementary curriculum and training, with a focus on the aspects of knowledge of clothing quality that TAs in custom-tailoring do not provide. This is essential for development of adequate knowledge of clothing quality, improvement of productivity and sales. Support from formal apparel manufacturing professionals/industries and higher institutions of learning may be helpful in provision of formal or non-formal training and foster development of the desired set of knowledge of clothing quality. Sustainable complementary training among completers of TAs in tailoring may be attained through financial support by government. However, before this can occur, a review of policy is needed to recognise and acknowledge the importance of TAs in tailoring to skills training for informal employment and sustainability of livelihoods in the economic sub-sector.

References:
Keywords:
Consumer Studies education, curriculum analysis, entrepreneurship education,

Introduction:
One of the goals of the African Union for education on this continent is “To ensure that education systems in Member States are better able to provide the young generation with quality education that imparts key generic competencies, skills and attitudes that lead to a culture of lifelong learning and entrepreneurship in order to fit them into an ever-changing world of work” (African Union, 2006:10). Attainment of this goal should help address the high levels of unemployment that is pandemic in many countries on the African continent. South Africa, Lesotho and Swaziland are all Member States of the African Union, and therefore also subscribe to these educational goals.

Consumer Studies is a South African high school subject that has great potential to develop learners’ entrepreneurship education (Du Toit, 2016:11; Koekemoer & Booyse, 2013:544; Umalusi, 2014:16), and could therefore complement this goal of the African Union. Substantial emphasis is placed on the topic ‘Entrepreneurship’ in the Consumer Studies curriculum, and entrepreneurship is interwoven with the content and skills of all other topics in the Consumer Studies curriculum, as well as with the practical production option linked to the subject (Du Toit, 2016:13; Umalusi, 2014:16).

As part of a larger curriculum analysis and benchmarking study, the curricula of subjects in Lesotho and Swaziland, which are comparable to Consumer Studies in South Africa, were investigated for its inclusion of entrepreneurship or references thereto. The investigation was underpinned by the goal of the African Union to develop and promote entrepreneurship education to learners in its member states. Strengths and areas for improvement regarding entrepreneurship were identified in each curriculum. These were benchmarked with the entrepreneurship in the South African Consumer Studies curriculum, with the purpose of formulating recommendations for the enhancement of the entrepreneurship education in each of the curricula that were investigated.

Methodology:
A collaborative, structured and systematic curriculum analysis approach was used to identify incidences of or references to entrepreneurship and closely linked terms such as ‘enterprise’. The number of inclusions, as well as the positioning thereof, were noted. The current official curriculum/syllabus documents for Consumer Studies in the Further Education and Training Phase (South Africa); Fashion and Textiles, and Food and Nutrition in the General Certificate of Secondary Education (Lesotho); as well as Fashion and Fabrics, and Food and Nutrition in the General Certificate of Secondary Education (Swaziland) were analysed. Sets of experts from each country, who have worked in the field for numerous years, collaborated to successively and methodically analyse their own country’s curriculum, and that of the other countries in the study. The researchers were in regular contact with each other (within countries and across borders), which contribute to the reliability of the results.

Findings:
The inclusion and distribution of entrepreneurship varies between the curricula of the three countries, with the South African curriculum containing a much larger scope of entrepreneurship than Lesotho and Swaziland. Entrepreneurship is stated as a specific aim in the South African Consumer Studies curriculum, is one of the seven main content topics, and is explicitly linked to the practical option offered as part of the subject. The Lesotho Fashion and Textiles curriculum includes the development of
entrepreneurship skills as a sub-topic, whereas the Food and Nutrition curriculum for the same country refers to an ‘understanding of’ and creating of ‘a profitable enterprise’ as part of its aims and content. In the Swaziland Fashion and Fabrics curriculum, development of entrepreneurial skills is included in the introduction, aims, assessment objectives, and as teaching content, but not at all in the Food and Nutrition curriculum for that country.

**Conclusion and Recommendations:**
Although entrepreneurship appears sporadically in the curricula of Lesotho and Swaziland, there is room for improvement. Entrepreneurship should be included explicitly in each of the investigated subject curricula for Lesotho and Swaziland, to contribute to the alleviation of youth unemployment in those African Union Member States. It is recommended that entrepreneurship be included not just as content, but also as an aim of each subject, to emphasise the importance thereof. In addition, it is recommended that the theory of entrepreneurship be linked to the practical production in each subject curriculum, to further enhance the importance of the production section to foster skills development and entrepreneurship potential.

**References:**

**INCORPORATION OF UNIVERSAL DESIGN FOR LEARNING IN FAMILY AND CONSUMER SCIENCES (FCS) TERTIARY EDUCATION’S CURRICULUM IN BOTSWANA**

**Keywords:**
Inclusive Education, Universal Design for Learning, Special Need, Curriculum

**Introduction:**
Universal design for Learning (UDL) is a theoretical paradigm that advocates educational success for maximum best possible proportion of students. Many countries have embraced this philosophy of Universal Design for Learning (UDL) as a way of providing environment that address learner’s diverse needs. Historically learners with certain special needs have been denied to full participation in regular school’s daily activities due to infrastructure barriers and community attitudes. They have been denied access to education, participation in community’s cultural events, recreation and transportation due to challenges they possess. Although it is rather difficult to get accurate global statistics of people with special needs but based on 2010 global population estimates over one billion of the world population (15%) live with some form of disabilities (WHO, 2011). The philosophy of Universal Design for Learning (UDL) is to provide a friendly environment to learners with diverse needs. In Botswana it is estimated that 2.92% of the population has some kind of disabilities (Botswana Report, 2011) and need to be accommodated in the system which is also being emphasized in sustainable Millennium Development Goal and Botswana’s latest policy document on Botswana’s Vision 2036. Both are advocating education for all with the emphasis in skills development, which is the main thrust of Family and Consumer Sciences. The challenge comes when such students are enrolled in a practical oriented subject such as Family and Consumer Sciences and organization is not yet fully ready to accommodate the needs of all. Family and Consumer Science (FCS) also known as Home Economics is one of the subjects with diverse areas (Food and Nutrition, Textiles and Clothing, Interior Design and Housing and Human Development.
Consumer Education and Family Studies) that are relevant to real life situations, and a lot of scholars are advocating that it should be compulsory in schools from primary level. It is worth noting that the concept of universal design has infiltrated in the education within the past two decades mainly in the western countries (Davidson, 2010) but for African countries it may or may be not an applicable modality due to sociopolitical circumstances. The objectives of the paper are to:

a) highlight the importance of the UDL in the teaching of Family and Consumer Sciences in institutions of higher learning.

b) explore the possible factors that influence implementation of UDL in the teaching of FCS in institutions of higher learning in Botswana.

Methodology:
This conceptual paper has used literature review and statistics to insight the importance of Universal Design by discussing the factors to be considered in the successful implementation of UDL in the teaching of FCS in tertiary institutions in Botswana.

Conclusion and Recommendations:
In conclusion this review has highlighted the importance of UDL in teaching FCS. Further, it has recognized that implementing UDL principles in teaching FCS is beneficial to all students including those with diverse needs. Hence, in order to successfully implement this principle, policy makers are required to make universal design for learning a national priority.

References:

THE SIGNIFICANCE OF HOME ECONOMICS AND CONSUMER STUDIES EDUCATION FOR HIGH SCHOOL LEARNERS IN LESOTHO, SWAZILAND AND SOUTH AFRICA

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Keywords:
Consumer Studies education, Home Economics education, high school learners; curriculum analysis

Background:
There is increasing international consensus that basic education, which includes life skills for individuals, is an essential tool to enhance participation in the fight against poverty. Such learning must be strengthened, since it provides pertinent education that improves the lives of people (Setoi 2012:3). Two closely related subjects are taught in high schools in Lesotho and Swaziland (Home Economics) and in South Africa (Consumer Studies). Home Economics and Consumer Studies provide learners with knowledge and skills to improve quality of life (Food and Nutrition: ECs. 2013:4; NCDC & ECoL. 2016:6). These subjects also offer an introduction to various occupations and prepares learners for the world of work, as well as the increasing complexities of daily life (Gamawa, 2015:329; Smith & De Zwart 2010:17; Zainab, 2014:7).
Home Economics education prepares learners for further studies, and contributes to their resourcefulness, theoretical and practical intelligence, strategic consumerism, and sustainable entrepreneurial skills (Smith & de Zwart 2010:21). Consumer Studies teaches learners about responsible and informed consumer behaviour in respect of food, clothing, housing, furnishings and household equipment. It supports the development of informed decision-making, learning to optimally use resources to improve human well-being, as well as small-scale product development for profit (DBE, 2011:8). Both subjects are aimed at preparing learners for ever-changing and thought-provoking consumer-oriented societies (Etuk, 2011:1, 4; Setoi, 2012:3). Significant life-relevant experiences and opportunities are included in these subjects, which contribute to capabilities for personal fulfilment, empowerment, advocacy, creativity, sensory and practical skills (DG&DQSE 2012:9). However, a number of studies indicate that the popularity and learner numbers in these subjects are declining, or that there are negative misconceptions regarding the subjects (Akpan, Unung & Usoroh, 2014:38; Anerua & Obiazi, 2011:2; Bamalli, 2014:53; Ejinkeonye & Chukwuone, 2014:55; Ewubare, 2010:138). These subjects offer significant positive contributions to the learning needed by learners to perform optimally in the world. Such significance need to be spotlighted to inform learners and role players in education about the importance of these subjects.

**Purpose of the study:**
This paper aims to highlight the significance of Home Economics and Consumer Studies education at senior secondary level in three countries in Southern Africa. A secondary aim is to identify best practices that can assist these countries to learn from each other in an effort to strengthen and improve the senior secondary Home Economics and Consumer Studies curricula, in order to emphasise the subjects’ significance in meeting the educational needs of learners.

**Methodology:**
This paper reports on part of a larger, collaborative study of Lesotho and Swaziland Home Economics, benchmarked against the South African Consumer Studies curriculum at senior secondary level. Teams of subject experts from these countries collaboratively analysed the curricula documents from 2016-2017; using a curriculum document analysis instrument developed by Umalusi (Umalusi, 2014) and modified by Kruger (2017). The specific elements in the data analysis instrument being reported on in this paper are: (1) the importance and contribution of the subject to learners; (2) the extent of the curricula’s relevance to learners’ local context, (3) its contribution to the knowledge economy and (4) learners’ preparation for the world of work.

**Findings:**
The Home Economics and Consumer Studies curricula all teach theoretical and practical aspects of food and nutrition, clothing and textiles, entrepreneurship, consumerism, design, and sustainable development at slightly different levels of breadth and depth, contributing significantly to the knowledge economy of the countries investigated. These subjects are empowering tools for learners, providing knowledge and skills for them to become nutritionally healthy, financially conscientious, responsible and informed consumers, or creative entrepreneurs (amongst other options). Home Economics and Consumer Studies include some relevance to local contexts, but curricula need to employ strategies to include more indigenous knowledge and stay current and relevant when changes transpire. Home Economics provide clear pathways to further education and training, whereas Consumer Studies does not, indicating a gap in the South African curriculum that needs to be addressed.

**Conclusion and Recommendations:**
Home Economics and Consumer Studies curricula contribute significantly to a wide range of knowledge and skills which play a role in preparing learners for a range of careers, as well as for a decent quality life. Several recommendations were framed to improve the curricula of Home Economics and Consumer Studies in a manner that will highlight the significance of these subjects for learners and others interested in education.
INDIGENOUS KNOWLEDGE IN CONSUMER STUDIES: CONTRIBUTING TO AFRICANISING THE CURRICULUM

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Dr PJ Musi - University of Swaziland

Keywords:
Consumer Studies education; curriculum; Home Economics; indigenous knowledge; curriculum analysis

Introduction:
One of the goals of the African Union’s Plan of Action for African Education, is to develop “relevant, responsive and culturally sensitive curricula” (African Union [AU], 2006:11). Target 4.7 of the Sustainable Development Goals (SDGs) also refers to the contribution of culture and cultural diversity to sustainable development as a pathway to quality education (UNESCO, 2016). Culture and indigenous knowledge is closely related, implying that the inclusion of indigenous knowledge in curricula will contribute to this goal of the AU and SDGs. Including indigenous knowledge as part of the school curriculum will add to its perceived value, as well as connect learning to the everyday lives of learners (Odora Hoppers, 2004). Research suggests that local indigenous knowledge has largely been marginalised in school curricula, creating a disconnect between heritage practices and modern knowledge (O’Donoghue et al., 2013; Shava & O’Donoghue, 2014).
Consumer Studies, a South African high school subject, includes a variety of topics in which indigenous knowledge could manifest or be incorporated in (Kota, 2006:18). This is also true for Consumer Studies’ ‘sister subject’ Home Economics (Ogwu, 2013:38) and similar subjects in Member States of the AU. A review of the extent of coverage of indigenous knowledge in the curriculum is a necessary starting point in the quest for promoting the value and contribution thereof. Research regarding the latest curricula in use for these subjects is scarce. As part of an international curriculum benchmarking study for Consumer Studies and related subjects in Lesotho and Swaziland, one of the research aims was to investigate how indigenous knowledge is included in these curricula. The investigation indicated how indigenous knowledge in these curricula contribute to the AU’s goal of developing relevant, responsive and culturally sensitive curricula, and how content could be linked to the everyday lives and cultures of a wider scope of learners. The border-crossing theoretical framework proposed by Aikenhead (1996), together with Ankiewicz’s (2015) ‘two sides of the same coin’ framework were used to frame the study. The research was approached from the viewpoint that indigenous knowledge is equally important (not more or less) as Western knowledge and that both sets of knowledge will contribute to meaningful, life-relevant learning in Consumer Studies subjects.

Methodology:
A collaborative, structured curriculum analysis approach was used to identify incidences of or references to indigenous knowledge in similar subjects in the final three years of formal schooling in three countries. The current official curriculum/syllabus documents for Consumer Studies in the Further Education and Training Phase (South Africa); Fashion and Textiles, and Food and Nutrition in the General Certificate of Secondary Education (Lesotho); as well as Fashion and Fabrics, and Food and Nutrition in the General Certificate of Secondary Education (Swaziland) were analysed. Sets of experts from each country, who have worked in the field for numerous years, collaborated to successively and methodically analyse their own country’s curriculum / syllabus, followed by that of each of the other countries in the study. A validated instrument developed for and used previously in several curriculum analysis and benchmarking studies (Umalusi, 2014) was used to structure and guide the analysis. The researchers were in regular contact with each other (within countries and across borders), which contribute to the reliability of the results.

Findings:
The study revealed how indigenous knowledge has been incorporated into the Consumer Studies curriculum of each country, for instance as part of the aims, content or assessment in the subject, as well as connections between these incidences. A number of strengths were identified in each curriculum and these were used to make recommendations for the improvement of the inclusion of indigenous knowledge in the curricula of similar subjects in the other countries. Topics with significant potential to contribute to indigenous knowledge in the subject, and which have not yet been addressed in these curricula, were identified and described, such as including indigenous fermented milk products or indigenous food products in different curricula. Country-specific challenges and implications of the inclusion of these topics were identified and discussed for each of the curricula.

Conclusion and Recommendations:
Each curriculum includes some indigenous knowledge, but the structuring thereof can be improved and several opportunities exist for the expansion of such content. The findings and conclusions of the research were used to frame recommendations to each country’s Department of Education for cultivating the inclusion of indigenous knowledge as part of future curriculum reforms.

References:
FASHION DESIGN IN ACTION: LOOKING AT THE PRACTICES OF PROFESSIONAL FASHION DESIGNERS IN JOHANNESBURG THROUGH THE LENS OF ACTIVITY THEORY

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Mrs CA Lavelle – University of Johannesburg

Keywords:
Fashion design, design, activity theory

Introduction:
The vast body of existing literature approaches the study of fashion from a variety of disciplinary persuasions. This has resulted in the emergence of the area of Fashion Studies that recognises the interdisciplinary nature of fashion using various theoretical and methodological approaches from multidisciplinary fields (McNeil 2010:105; Granata 2012:75-78). Riello and McNeil (2010:7) emphasise the importance of including the practical activities of fashion design and highlight the importance of including the development of history, theory and the practical hands-on activities of designers to the development of fashion studies. Fashion design, however, as a creative and commercial practice has been neglected (Breward 2003:11: Loschek 2009:1-2).

Lawson and Dorst (2009:18) state that a better understanding of what designers do can be gained through observing and describing the practices of experienced designers. Dorst (2008:5) highlights that there is a need to develop a framework to describe a “complex creative human endeavour like design”. In response to Dorst’s observation, Kuutti (2011:5) identifies activity theory as being one of a few theories that provides a theoretical framework to study the complex practice of design. Activity theory provides a productive means to study human practices as a means to gain a better understanding of multiple aspects of human activity (Anthony 2012:337; Nardi 1997:7; Zurita & Nussbaum 2007:214).

Activity theory identifies all components that are central to human activity within any given context. Within the context of studying designers practice, the activity theory model considers the role of the designer; design methods; the design problem; community; rules; and design teams. Based on Terese Potgieter’s Masters study, this paper reviews the findings of what fashion designers in Johannesburg do through the lens of the activity theory framework. The findings of this paper will contribute to the academic discourse of fashion studies, inform curriculum development and help prepare professional fashion designers to meet the design challenges within today’s complex world.
Methodology:
This paper adopts a qualitative case study to research the practices of fashion designers in Johannesburg through the lens of activity theory. Current fashion designers, who are based in Johannesburg defines the case. Professional fashion designers were selected based on a purposive sample with defined criteria. Designers’ activities were observed using multiple sources of data such as field notes and video recordings as well as interviews. The data from each respondent was analysed and coded into clusters, using a framework outlining the various components relating to designers’ activity. An overview of each designer’s practice was analysed in order to identify emerging patterns. Ethical considerations included were signed consent forms concerning voluntary participation to interviews and observations, the identity of the researcher as well as the nature and purpose of the study was disclosed to participants. Lastly, interviews were transcribed verbatim to ensure that the data is accurate.

Results:
Research results reflect three main themes. Firstly, that the practices’ of fashion designers consist of multiple and varied activities required to run a business and maintain a brand. These activities reflect the typical supply chain of fashion. Secondly, fashion designers deal with open-complex problems throughout the design process whereby each attempt to solve a problem changes the understanding of what the problem may actually be. This process is not linear but rather organic, spontaneous and messy. Thirdly, professional fashion designers are highly user-centred and go to great effort to understand their users’ needs. This often requires a co-design and collaborative approach.

Conclusion and Recommendations:
Looking at the practices of professional fashion designers in Johannesburg through the lens of an activity theory framework provides a structure to develop a comprehensive understanding of fashion design activity by considering all of the facets of design and their relationship with each other. Although there are many similarities in the process of design practices, it is important to note that different dimensions of design problems vary within different contexts. This means that with every new design project, different design problems emerge that need to be solved in new and creative ways. Recommendations for further research into fashion design practice include: business, zero waste, co-design, user-centred design strategies as well as fashion design education curriculum.

References:
Riello and McNeill (2010:7) highlight the importance of including the development of history, theory and the practical hands-on activities of designers to the development of fashion studies.
INCLUSIVE AND DESIRABLE GARMENT DESIGNS FOR PEOPLE WITH PHYSICAL DISABILITIES

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Keywords:
physical disabilities, inclusive garment designs; ready-to-wear; alterations

Introduction:
Around the world, people with disabilities face physical, social, economic and attitudinal barriers that exclude them from participating fully and effectively as equal members of the society. They are disproportionately represented amongst the world’s poorest persons who are most unlikely to provide a significant demand for clothing (Curteza, Cretu, Macovei, & Poboroniuc, 2014). People with physical challenges (PWPC) are found in various categories, socially; these include adults and children, males and females (Chang, Hodges, & Yurchisin, 2013); persons with visual and hearing impairments, physical and mental disabilities, among others. People with physical disabilities have their own social needs, and interests in fashion attire just like non-disabled people, but fail to participate in fashion shows, due to limitations of garment designs. PWPC should be able to choose among ready-to-wear, customer-designed or modified garments, to cater for their different clothing needs. However, the physically challenged people are forced to buy clothes among those of able-bodied and then modify them (Gupta, 2011). The disabled do not only use clothes for functional purposes but also have to cover, conceal and minimise disproportionate body shapes that may attract unnecessary public eye. Well-designed garments camouflage the disability and enable the person to function properly (Curteza et al., 2014). Investigations on apparel needs of PWPC have been carried on relationships between fashion and health in China (LaBat & Kim, 2014); design and clothing structure for people with limb disability in USA (Chang et al., 2013). However, limited literature exists within the African and Zimbabwean context. This study therefore, focuses on inclusive and desirable garment designs, for persons with physical challenges in Harare.

Methodology:
The study investigated the current state of inclusive garment designs for PWPC in garment fitting, and sought to provide insight into the development of garment designs that are functional, useful, durable and comfortable, which can camouflage the disabilities. Descriptive research design method was used with a population of 452 from three centres of PWPC, in Harare. The quantitative and qualitative approach was used to exploit the merits of both methods. Stratified random sampling method was used and a sample of 108 participants obtained from the three institutions, Jairos Jiri Children’s Centre, Danhiko Vocational College and Cheshire Home. A structured questionnaire was used for data collection. Section (A) required demographic responses, while Section (B) had a matrix chart showing inclusive and desirable garment designs for PWPC. St Giles Centre was used for pilot-study and Cronbach’s Alpha of 0.56 obtained, and factor analysis of above 0.68 determined instrument’s reliability. Data for the study were collected from three institutions. Collected, data were coded and analysed using descriptive statistics.

Results:
The study revealed an exclusion of PWPC across the board in inclusive and desirable garment designs; thus indicating there was limited sources of suitable garments for such people in Zimbabwe. This could be attributed to the fact that the population for the disabled is less than that of the non-disabled people; hence, there are few retail outlets for disabled people’s clothing. Results showed that (95%) manufacturing industries never considered incorporating garment designs for PWPC, 94% of respondents indicated there were limited shops with garments for PWPC, 62% respondents indicated they did not have garments for any occasion, and 65% had challenges when buying clothes.
Conclusion and Recommendations:
The highlighted limited availability of ready-to-wear garments for PWPC in the market-place necessitates need for alterations of ready-to-wear garments. Appropriate clothing for PWPC should be attractive, functional, and useful; conceal disabilities and permit free movement (Gupta, 2011) but this study results indicated there were limited garment designs, and clothes made specifically for PWPC’s conditions; a few respondents had personal tailors. Although adjustments made improve viability and usability of the clothes, they do not really meet their preferences; and it is inevitable that the disabled need to alter any garment they acquire, mostly because of the variety and diversity of their disabilities. Study results indicated that the general market does not really have fittings preferable to the PWPC; hence, retail and manufacturing sectors should be made aware of the need to exploit potential markets for garment designs for PWPC.

References:

IS THERE A FUTURE IN FASHION DESIGN? CHALLENGES FACING LOCAL SWAZI FASHION DESIGNERS AND THE WAY FORWARD
Ms S Moyo, Dr M Mpofu, Mr L Lukhele – University of Swaziland

Keywords:
fashion design, fashion designers, entrepreneurship, challenges, fashion entrepreneurship

Introduction:
The African fashion industry is growing at a fast pace and is receiving world attention. Many young people are now opting to take up fashion design as a career and not as a hobby. These groups of fashion designers make up the industry’s emerging entrepreneurial designers. Swaziland like many African countries is awash with young talented emerging fashion designers as well as a few seasoned designers. This study sought to answer the following research questions:
1. What are the challenges faced by Swazi fashion design entrepreneurs?
2. What skills do they possess on fashion designing?
3. What possible strategies can be implemented to overcome the challenges?

Methodology:
This research employed a qualitative descriptive approach. The population consisted of over 100 local fashion design entrepreneurs. Snowball sampling was used to come up with the required sample size which consisted of 25 fashion design entrepreneurs. Snowball sampling was used because of the difficulty encountered in trying to identify the designers throughout the country. The initial identified participant was able to refer the Researcher to other designers where relevant and factual information was collected. Data were collected from the selected 25 fashion design entrepreneurs using face to face interviews which comprised structured questions. The collected data were coded and analysed through thematic analysis.

Results:
The collected data revealed that the designers had inadequate technical and business management skills. The results of the study revealed that Swaziland has unique and talented fashion designers with great ideas; however, they are faced with challenges that hinder their success in the fashion industry in Swaziland. The majority of the designers echoed the lack of financial support from the government and other financial institutions as the major barrier to the success of their businesses regardless of the countless people with incredible ideas. Among other challenges identified are marketing and distribution problems, inadequate production facilities as well as lack of raw materials, with emphasis on limited local fabric manufacturers which the designers felt has led to different designers being forced to use the same fabrics in their collections. Results from the study show that almost all the designers interviewed were having a problem with registering their brands as trademarks, as most of them indicated that they did not know where to register their brands as trademarks, coupled with fear that the process may demand a lot of money from their businesses. Most of the entrepreneurs interviewed stated that they were starting their businesses in an overcrowded market and it is increasingly difficult to differentiate one’s product or service in the market hence they are struggling to create sustainable businesses. This is particularly prevalent when the levels of business skills are low.

Conclusion and Recommendations:
It can be concluded that given funding the entrepreneurs can do very well and create jobs that can absorb a substantive number of unemployed people in Swaziland. The results show that the fashion designers are flooding the market with similar products hence increasing competition. The study recommends that the fashion design entrepreneurs be more creative and identify a unique product or service that will give them a competitive advantage.

As a way to overcome marketing challenges the government should come up with policies that support emerging entrepreneurs such as establishing a Swazi fashion week which the designers can use to showcase and market their work to both the local and international markets and establishing collaborations amongst themselves where they bring together their limited resources thereby cushioning their companies from some of the challenges that are hindering the progress of their businesses.

In order to cater for deficiency in business skills there is need for enterprise development support systems and in particular, business incubation wherein entrepreneurs are mentored and guided as they navigate their way through concepts that are unfamiliar to them but are critical to business success (Radebe, 2014)

References:
EVALUATING GARMENT SIZING AND FIT FOR PETITE WOMEN USING 3D BODY SCANNED ANTHROPOMETRIC DATA

Miss MM Phasha, Ms R Pandarum, Prof S Harlock – University of South Africa

Keywords:
Petite women, pear body shape, garment sizing and fit, size charts, shirt garments, trouser garments, fit test trial evaluations, South Africa

Introduction:
Currently, very little is known about the body shapes of South African petite women and their anthropometric measurements (Bailey, 2010:1) for manufacturing ready-to-wear garments. Petite women’s garments are manufactured principally with an emphasis on the body height measurements, which ranges from 5’1” (156 cm) to 5’ 4” (163 cm) (Winks, 1990:74-76; Defty, 1988:16-18; Yoo et al., 1999:220; Barona-McRoberts, 2005:10; Bailey, 2010:1). However, there is no single clear definition of a petite woman (Crenna, 1990; Boston, 1992; Bello, 1994; Alterations Needed, 2010). Nonetheless, Kim’s (1993) study suggests that petite woman require their own sizing categories for ready-to-wear garments, as petite women are differently proportioned in comparison to the average woman.

The aforementioned lack of relevant information for petite women’s body size and the confusion that currently exists in the apparel industry as to the definition of what constitutes a petite woman prompted the study.

The aim of the study was to investigate the shape and sizes of a sample of petite South African women by developing upper and lower body size charts for them using data obtained from 3D scanned images of their body shapes and to evaluate the accuracy of the charts by assessing the fit of garments manufactured using the size charts data.

Methodology:
A mixed-method; purposive, non-probability sampling method (Maree, 2007:76) was used to achieve the objectives of the study. A TC² NX16 full 3D body scanner and an Adam’s® medical scale was used to collect the body measurement data of 200 petite South African women aged between 20-54 years with an average height range of 157cm, residing in Pretoria and Johannesburg.

The data collection instruments included a demographic questionnaire form to gather the petite subjects’ perceptions and preferences on currently available ready-to-wear shirt and trouser garments. The collected data was analysed and interpreted in Microsoft Excel and the IBM SPSS Statistics 24, (2016) Software package using Principal Component Analysis to produce experimental size charts for the upper and lower body dimensions necessary for creating shirt and trouser garments. Regression analysis was used to establish primary and secondary body dimensions for the size charts and distributing the subjects within the size ranges. The experimental size charts were developed for sizes ranging from size 6/30 to size 26/50. Subsequently the accuracy of the size charts was evaluated by analysing the fit of the shirt and trouser garments manufactured using the charts data for a subset of the sample of women conforming to size 10/34 in the charts and the measurements from a 3D body scanned size 10/34 petite mannequin currently commercially available for use in the production of garments for petite women in South Africa.

Results:
Of the 200 subjects, the most prominent body shape profile was the pear body shape which was evident in 180 of the subjects. The experimental size charts were developed for the pear shaped subjects. The quality of fit of the shirt and trouser garments which was assessed by a panel of two assessors for 9 subjects was overall, better for the garments created from the size 10/34 size chart measurements than the garments made to fit the current, commercially available size 10/34 mannequin. The findings from the demographic questionnaire showed that 16% (n=29) of the 180 pear shaped subjects stated that they were satisfied with their current ready-to-
wear garment sizes; 84% (n=151) of the subjects specified that they were not satisfied. South African petite women also found that the fit of their shirt and trouser garment lengths were mostly too long, which shows that improvements must be made on garment sizing for South African petite women.

**Conclusions and recommendations:**
The majority of the subjects in the study found that trouser garment sizes that would fit their waist resulted in a tight fit on their hips; as a result, they purchase bigger sizes to accommodate their hip measurements and having to alter the waist to obtain a better fit. It is therefore, recommended that the waist-hip ratios be taken into consideration when manufacturing trouser garments.

On the evidence of this study, it is recommended that the South African garment manufacturing industry needs to revise the current sizing system for petite women to accommodate the body proportions and shape variations that currently prevail amongst consumers.

**References:**


TOTAL QUALITY MANAGEMENT PRACTICES IN NIGERIAN TEXTILE INDUSTRY

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Keywords:
Total Quality Management, Textile firms, Leadership, Vision statement, production staff

Introduction:
Management is very important in any establishment, especially manufacturing firms. Total Quality Management (TQM) is a veritable tool in enhancing quality product through involvement of staff within the industry. Total Quality Management comprises the management of staff, machines and practices which influence the attitudes and commitment of everyone in achieving industry-wide goal. Poor management practices affects quality which eventually will reflect in the performance. The study examined TQM practices in Nigerian textile industry. This is owing to the current low utilization capacity, production rate and employment generation in the firms.

Methodology:
Three states, Lagos, Kano and Kaduna, where resilient textile firms exist, were purposively selected. Eighteen (18) production managers and 227 production staff were randomly selected for the study. Structured questionnaire and interview schedule were used for data collection. Percentages mean and analysis of variance were used for the analysis.

Results:
The result shows that most, (55.6%) of the General Managers were between ages 51-60 years while half (50.0%) of the Production managers were between ages 41-50 years. A high percentage of the production staff (37.44%) also falls within this age category. Higher percentage (77.8%) of the General Managers, Production Managers (94.4%) and Production Staff (84.6%) was males. All the General Managers and Production managers were married. Among the production staff, about 69.6% were married while 29.5% were single. The result further shows that 44.4% of the General Managers possess HND, 44.4% of the Production Managers had MSc, while 22.9% Production Staff had HND. Half (50%) of the General Managers, 44% of the Production Managers and 49.8% of the Production Staff had their background in clothing and textile. Other production managers specialized in Engineering Technology (27.8%), Management Science (11.1%), Natural Science (11.1%) and Social Science (5.6%). None of them specialize in Humanities as textile production is science based. The staff had high perception for employee participation \( (x=3.28) \) and product design \( (x=3.24) \), while recognition and reward \( (x=2.74) \) and education and training \( (x=2.83) \) had low perception. The implementation of leadership \( (F = 3.423, p < 0.05) \), supplier quality management \( (F = 4.381, p < 0.05) \) and quality system improvement \( (F = 8.525, p < 0.05) \) varied significantly by the location of the firms. Also, the implementation of leadership \( (F = 3.764, p < 0.05) \), evaluation \( (F = 3.305, p < 0.05) \) product design \( (F = 5.177, p < 0.05) \), quality system improvement \( (F = 3.764, p < 0.05) \), employee participation \( (F = 3.387, p < 0.05) \) as well as recognition and reward \( (F = 5.541, p < 0.05) \) varied significantly by the ages of the firms.

Conclusion and Recommendations:
Employees in Nigerian textile firms would be more encouraged with reward in salary and better promotion plan as this will boost their commitment to the work. Employees would also want resources to be made available for training on how to use quality administration tools. The study recommends implementation of reward and recognition as well as training for staff so as to resuscitate the ailing industry.
GLOBAL BIOLICAL DIVERSITY AND THE ROLE OF VOLUNTARY SIMPLICITY IN SUSTAINABLE CLOTHING CONSUMPTION PRACTICES

Introduction and Problem:
Globally, biodiversity has declined by 58% between 1970 and 2012 and if this trend continues to 2020, all vertebrate populations could decline by a further 67% (World Wild Fund, 2016). Many of today’s environmental problems can be traced back to people’s everyday behaviour (Steg, Bolderdijk, Keizer & Perlaviciute, 2014). Several environmentalists and researchers have attempted to find ways of creating awareness and endorsing more sustainable, voluntary simplistic behaviours (Deci & Ryan, 2002:207). The clothing sector, in particular, have been criticised with appeals for more stringent effort to promote sustainable clothing consumption practices that minimise the impact on the environment and the larger community (Wahnbaeck & Roloff, 2017). Reduced consumption and opting for local, ethical and sustainable alternatives all relate to a lifestyle of voluntary simplicity. Elgin and Mitchell (1977), who produced seminal work on this topic, explain that voluntary simplicity involves a personal choice to become inwardly rich by living a simple life based on underlying views that such a way of life creates stronger communities and reduces ecological harm. Essentially, individuals may adopt voluntary simplistic lifestyles to counteract environmental and social problems, such as those caused by the clothing industry. Various dimensions fall under the voluntary simplicity concept including material simplicity (i.e. consuming less), self-determination (i.e. desire to control one’s destiny and striving toward self-sufficiency), ecological awareness (i.e. concern for environmental issues) and human scale (i.e. supporting community and small scale/ local institutions) (Elgin & Mitchell, 1978; Leonard-Barton, 1981). In adopting a voluntary simplistic lifestyle, these dimensions should manifest in consumers’ voluntary simplistic clothing consumption practices. Based on the scope of their behaviour and practices, consumers can be classified as either full, partial or non-voluntary simplifiers (Etzioni, 1998; McDonald, Oates, Young & Hwang, 2006).

Based on the underlying assumptions of Deci and Ryan’s (1985) theory of intrinsic motivation and self-determination (more commonly known as the Self Determination Theory (SDT)), the concept of “eudaimonia” i.e. living well and/or actualising the human potential, might be key in realising the aforementioned goals. Outcomes resulting from living well include vitality, health as well as a sense of meaning and community (Deci & Ryan, 1985; Ryan, Huta & Deci, 2008). Behaviour is often guided by the desire to consume; however an increasing amount of consumers are now distancing themselves from the lifestyle of overconsumption and voluntarily moving towards more simplistic, non-materialistic lifestyles (Boujbel & d’Astous, 2012).

According to the assumptions of the SDT, adopting simplistic, non-materialistic lifestyles and practices would require self-determined motivation. This motivation is supported by three psychological needs including competence (i.e. allowing consumers’ to have a sense of control and proficiency), autonomy (i.e. the ability to act independently) and relatedness (i.e. a sense of belonging to a social group) (Darner, 2009; Deci & Ryan, 2002:221). Knowledge (whether it be objective, subjective or experience related) of environmental and social issues may also fulfil a vital role in adopting pro-environmental and voluntary simplistic consumer behaviour (Barber, Taylor & Strick, 2009). Furthermore, information exposure via social media platforms have increased exponentially over the past few years (Kietzmann, Hermkens, McCarthy & Silvestre, 2011), including efforts to educate and increase consumers’ knowledge about sustainable and voluntary simplistic clothing consumption. To date, this form of media exposure has not been extensively studied in the local context and thus the question remains as to whether it can be utilised to increase knowledge and ultimately effect behavioural change in the apparel sector.
Based on the aforementioned arguments, this theoretical review proposes a unique conceptual framework that includes the influence of motivations, knowledge and information exposure on female consumers' voluntary simplistic clothing consumption practices (VSCCP) in the South African emerging market context.

References:

DEVELOPING A SCALE TO MEASURE CONSUMERS' ENGAGEMENT IN VOLUNTARY SIMPLISTIC CLOTHING CONSUMPTION BEHAVIOUR IN THE SOUTH AFRICAN EMERGING MARKET CONTEXT

Mrs TL Reis, Dr NC Sonnenberg, Miss H Taljaard – University of Pretoria

Keywords:
Voluntary simplicity, self-determination, ecological awareness, human scale, sustainability

Introduction:
Population figures have increased drastically, from a mere estimated 600 million in the 1700's to an astonishing 7.3 billion people today (Sverdrup & Ragnarsdottir, 2011; Cohen, 2003). It is further estimated that by 2050 there will be 2.47 billion people residing on the African continent alone (African Ecological Footprint Report, 2012). Population growth places severe strain on natural reserves including air, water, minerals, soil, animals and plants. These natural resources should essentially be self-sustainable but due to humanity’s exceeding environmental demands, the planet’s ability to replenish such resources has been irrevocably impaired with imminent catastrophic consequences related to climate change and natural disasters (WWF Living Planet Report Summary, 2016). Yet, in the world we live in today consumerism and overconsumption, fueled by desires that exceed basic necessity, has led to mass-production with a predominant focus on economic growth (Ruppert-Stroescu, LeHew, Connell & Armstrong, 2015) and limited regard for the ecological implications.

Problem:
With populations increasing at a rapid rate and natural resources that are depleted faster than the earth can sustain, it is imperative to reduce unnecessary production, consumption and disposal of clothing and textiles in order to sustain our environment (Ruppert-Stroescu et al., 2015). The vast multi-million clothing and textile industry contributes significantly to resource depletion in producing fashionable, cheap, low quality and easily replaceable items that encourage consumers to indulge in overconsumption. Most consumers will unfortunately not repair, recycle or reuse these items but instead discard to landfills where it ends up as clothing and textile waste (Kozlowski, Bardecki, & Searcy, 2012). Alternative lifestyle choices that promote voluntary simplistic clothing consumption practices (with an underlying focus on material simplicity, self-determination, ecological awareness and human scale) could encourage and promote the pursuit of sustainable development among South African consumer populations. Yet, at this stage little is known regarding local consumers’ engagement in voluntary simplistic practices, particularly with regard to clothing and apparel consumption, which then warrants further empirical research. Based on the conceptual foundation of voluntary simplicity (VS) and its dimensions, the first overarching aim of this study is to develop a valid and reliable scale to measure voluntary simplistic clothing consumption practices. In addition to the conceptual foundation of VS, another important aspect to highlight for the purposes of this research is the potential gender differences that may exist in consumers’ engagement of various voluntary simplistic practices. Apart from men and women’s physiological differences, their masculinity and femininity is said to be comprised of social and cultural differences thus causing behavioural differences from one society to a next (Casimir & Dutilh, 2003). It is further reported that men have more environmental knowledge/ awareness, but women tend to be more emotionally in tune and will show a deeper concern and willingness to change (Kollmuss & Agyeman, 2002). This gave way to the underlying theoretical framework for this study, namely the social cognitive theory of gender development and differentiation.

Methodology:
An existing data set (compiled in 2016 by the University of Pretoria’s Consumer Science Clothing Retail Management students and lecturers) will be used to generate results for this study. The research conducted in 2016 was exploratory in nature, which inspired a quantitative approach and a cross-sectional study in the form of a survey to gain insight into phenomena that have not yet been extensively studied to date (Salkind, 2012:213; De Vos, Strydom, Fouché & Delport, 2011:95). For the purposes of this study, the data set (N = 1025) will be randomly split into two, equal data sets to initially perform scale purification on one set of data and to then perform scale validation on the other set of data. Thereafter the complete data set (N = 1025) will be used to explore and describe the gender differences in the engagement of voluntary simplistic clothing consumption practices.

References:
THE INFLUENCE OF PERCEIVED BEHAVIOURAL CONTROL IN DETERMINING CONSUMERS’ PRO-ENVIRONMENTAL INTENT AND DISPOSAL OF ACTIVE WEAR

Mr GD Muller, Dr NC Sonnenberg, Mrs BM Jacobs – University of Pretoria

Keywords:
Pro-environmental intent, pro-environmental behaviour, perceived behavioural control, self-efficacy, controllability

Introduction:
The textile industry is widely considered as one of the largest and most polluting industries in the world (Choudhary & Islam, 2017). Thus textile and apparel manufacturers from the active wear sector have in recent years increased efforts to address environmental issues. Various initiatives demonstrate that eco-friendly disposal methods such as recycling and re-using textile products are possible, but it requires a fundamental shift in consumers’ pro-environmental intent and behaviour to abstain from simply discarding unwanted apparel to landfill. Rather than discarding to landfill, pro-environmental intent and eco-friendly disposal could also be exemplified in consumers’ reselling and/or donation of used apparel products, to extend the lifespan of the product and thus reducing its environmental impact (Laitala, 2014).

Various studies that have focused on pro-environmental intent and behaviour have used Ajzen’s Theory of Planned Behaviour (TPB) as an underlying theoretical framework (Ling, Tong & Ahmed, 2013). This theory is an extension of the initial Theory of Reasoned Action (TRA), which is based on the assumption that most human behaviour is under voluntary control and can thus be predicted from intent (Ling et al., 2013). TPB (as a further development of TRA) relies on three factors to determine behavioural intention namely: attitudes, subjective norms and perceived behavioural control (PBC). The third determinant, PBC, was added to the initial TRA and refers to a person’s belief as to how easy or difficult it would be to perform the behaviour. PBC thus allows prediction of behaviours that are not under complete voluntary control and provides information about consumers’ perceptions of potential constraints that may surround the behaviour in question (De Groot & Steg, 2007). Such constraints may be particularly relevant in consumers’ willingness or intent to engage in the eco-friendly disposal (Park & Ha, 2014), specifically of apparel. Ajzen (2002) further explains that these constraints can be sub-divided into two dimensions namely, self-efficacy and controllability. Self-efficacy refers to believing in one’s own capabilities to perform a specific task such as disposing of active wear in an eco-friendly manner, whereas controllability refers to how much external control one has over the actual execution of the behaviour (Ajzen, 2002). Although TPB has been extensively applied to explain consumers’ motivation to perform various types of pro-environmental behaviour, its application to date in terms of the eco-friendly disposal of apparel (and more specifically active wear) remains limited. This study was therefore focused on exploring the influence of PBC (in terms of self-efficacy and controllability) in determining consumers’ pro environmental intent and disposal of their active wear apparel. In addition, it will also establish whether there are significant differences in male and female consumers’ preferred methods of active wear disposal. Gender-based investigations remain inconclusive regarding the differences in pro-environmental concerns among men and women (Getzner & Grabner-Kräuter, 2004), and therefore much debate surrounds their willingness to engage in pro-environmental behaviour such as the recycling, reselling and/or donation of apparel.

Methodology:
A structured questionnaire was developed for this project that consisted of various sections including self-developed and existing scales that were adapted for the purposes of this study. A non-probability, purposive sampling method was used to recruit consumers who follow an active lifestyle to address the objectives of this study. The precondition for participation in this study involved participation in physical activities such as lifestyle sports, being a member of a gym or other athletic club. Following such an approach is not definite to represent the larger population, but does guarantee that the respondent should be able to provide a knowledgeable viewpoint on the problem at hand (Kothari, 2004). Participants were recruited via the Consulta Research online community member base that reside throughout South
Africa. Male and female respondents aged between 18 and 65 years, including various income, education and population groups, were recruited to allow for a broader scope of participants. A large research sample (N = 712) was recruited, which according to Creswell (2013), allows for meaningful statistical tests. Exploratory factor analysis (EFA) or alternatively principal component analysis (PCA) will be done on the items that measure self-efficacy, controllability and situational factors surrounding the disposal methods as well as respondents’ pro-environmental intent/ willingness and their active wear disposal methods. These initial exploratory techniques will be further extended into confirmatory factor analysis (CFA). The final objective of this study will include a specific focus on gender differences involving Analysis of Variance (ANOVA) to establish gender differences pertaining to preferred methods of active wear disposal.

References:

DAY 3 (8 MARCH 2018): VENUE 4

EFFECTS OF THE REALMS OF EXPERIENCE AND PLEASURABLE POP-UP RETAIL EXPERIENCES ON PATRONAGE INTENTION

Mrs BM Jacobs, Mrs E Cassel – University of Pretoria

Keywords:
pop-up retail; education, entertainment, esthetics; escapist; pleasurable experiences; patronage intention

Introduction:
Retailers are embracing pop-up retail, a form of experiential marketing, as a tool to provide the experiential environment desired by consumers (Niehm et al., 2007). Pop-up retail has expanded as a marketing tool in developed countries and is starting to evolve in emerging economies such as South Africa. Pleasurable experiences, experiences which induce a state of pleasure and enjoyment, are believed to create memorable shopping experiences and result in patronage behaviour (Dubé & Le Bel, 2003). The four realms of experience, as outlined by Pine and Gilmore (1999), were employed as a suitable theoretical framework to investigate consumers’ pleasurable experience of pop-up retail. Pop-up retail as an experiential marketing form is an important component to study within the South African consumer market as it is relatively new, is not yet being used often enough and can be used to generate brand loyalty and patronage within the current economic climate. The purpose of this study was to investigate the effects of the four realms of experience (i.e. entertainment, education, esthetic and escapist) and pleasurable pop-up retail experiences (sensory, social, emotional, and intellectual) on patronage intention.
Methodology:
A survey research design was followed. Reliable scales from Kim et al. (2010), Jeong et al. (2009), and Niehm et al. (2007) were adapted. Data were collected through a pre-tested self-administered questionnaire, completed by a convenience sample via an online survey instrument. A total of 257 usable questionnaires were completed by a convenience sample in and around Johannesburg and Pretoria, South Africa. The sample was predominantly female (71.5%), and ages ranged from 20 to 39 years. The data set were subjected to an unrestricted exploratory factor analysis (EFA) using Varimax rotation as the extraction method. Following the removal of items with cross loading and/or factor loading below 0.5, six factors were retained, labelled edutainment, esthetic, escapist, emotional pleasure, intellectual pleasure and patronage intention. Multiple regression analysis was employed to test and quantify the relative contribution of the multiple independent variables for predicting patronage intention within a pop-up retail store.

Results:
The results from multiple regression analysis supported some of the hypotheses. The positive effects of esthetic (H1b: $\beta = 0.323; t = 3.893, p < 0.0001$), escapist (H1c: $\beta = 0.245; t = 4.151, p < 0.0001$) and intellectual pleasure (H2a: $\beta = 0.306; t = 4.135, p < 0.0001$) on consumers’ patronage intention were supported and were statistically significant in predicting consumers’ patronage intention. However, edutainment (H1a: $\beta = 0.034; t = 0.434, p = 0.665$), and emotional pleasure (H2b: $\beta = 0.025; t = 0.595, p = 0.552$) were not significant in predicting consumers’ patronage intention of the brand. The results indicated that the factors that are most predictive of patronage intention are the esthetic realm, the escapist realm and intellectual pleasure.

Conclusion and Recommendations:
This study confirms the positive impact of experience dimensions in a pop-up retail setting on consumers’ intention to patronage the brand. Esthetic, escapism and intellectual pleasure affected patronage intention, while edutainment and emotional pleasure were not influential. Incorporating esthetic elements, especially sensory appealing elements can immerse and engage consumers in the pop-up environment. A unique/ unusual pop-up environment has the power to incite pleasurable experiences and ultimately sway consumer to patronize the brand. The escapist realm addressed hedonic, mood altering and distraction of everyday elements within the pop-up retail environment. Pleasurable experiences and ultimately patronage intention are triggered by inducing an emotional reaction, social community or fantasy outlet for consumers. If consumers can actively participate and can be immersed in their own experiences, they will find the experience more enjoyable. To compel consumer patronage, intellectual pleasurable experiences should be added such as stimulating brand information, expertise in the form of knowledgeable brand representatives and interactive opportunities. Based on the results, the esthetic realm (e.g. visually appealing, interesting interior, memorable decoration), escapist realm (e.g. break from reality, socializing and sharing with friends, lift mood) and intellectual pleasure (e.g. expertise, stimulating your thoughts, challenges my opinion, direct my decisions) were essential elements to incorporate to direct consumers’ intent to patronise the brand. Therefore, marketers need to create stimulating environments where consumers can break from reality, experiment with an innovative space, interact with the product, knowledgeable brand representatives and socialize with friends.

References:
Determinants of Low Enrolments in Home Economics Pre-Vocational Education in Swaziland

Dr M Mpofu – University of Swaziland
Mrs R Manana – Examinations Council of Swaziland
Ms S Moyo – University of Swaziland

Keywords:
determinants, enrolment, high school, Home Economics, pre-vocational education,

Introduction:
The purpose of this study was to ascertain the factors associated with low enrolments in Pre-Vocational Education in Home Economics (PVE HE) in Swaziland high schools. In 1995 the Swazi government founded the National Education Review Commission (NERCOM) which established that the Swaziland education system placed more emphasis on producing graduates for employment purposes (Mndzebele & Lukhele 1996). Hence, NERCOM recommended the introduction of the PVE programme in the curriculum. The impetus for vocationalisation of the secondary and postsecondary curricula in Swaziland emerged as a socio-economic response to lack of linkages between education and occupations in the workplace (Mndzebele & Lukhele 1996). The PVE programmes in Swaziland include Home Economics, Agriculture, Business Studies, Entrepreneurship, Information Technology and Technical Drawing. PVE HE comprises Fashion Arts and Food and Nutrition. PVE HE was meant to equip students with entrepreneurial skills in garment construction and food preparation and serving among other skills. However, PVE HE has not been able to attract a good number of students (National Curriculum Centre 2011) as shown in ECOS examinations enrolment records from 2012 to 2016 with HE having the lowest enrolments among other PVE programmes. At inception in 2002, there were 16 schools selected to pilot test the programme with the intention of extending the programme to other schools, however records from ECOS indicate that there are currently 12 schools offering PVE HE in Swaziland, a reflection that four schools have dropped the programme on the way (ECOS 2016). In view of the above, this study sought to address the following questions:

1. What are the factors that contribute to the low enrolments in PVE HE?
2. How many centres are offering PVE HE in their curriculum?
3. Are there adequate material and human resources and infrastructure for the programme?

Methodology:
The researchers employed the mixed methods research using quantitative and qualitative approaches. Face to face interviews, focus group discussions and document analysis were used to collect qualitative data while questionnaires were used for quantitative data. The documents analysed were the ECOS examinations enrolment records and summary of results (2012-2016). The population and sample comprised 16 school heads, 12 teachers, 85 students and 24 parents from the 12 schools currently offering PVE HE. The population of the study was used as the sample due to the small size of the population. Quantitative data were analysed using the IBM Statistical Package for Social Sciences (SPSS) version 23.0. The data were presented in the form of frequency tables using frequencies and percentages to summarise the findings. Qualitative data were analysed using thematic approach where data were grouped according to common themes and patterns.
Results:
The factors that were implicated in the low enrolments include low pass rates in external examinations, hence some parents did not want their children associated with a failing programme. The ECOS summary of results records from 2012 to 2016, indicate low pass rates of 41.66%, 51.9%, 39.24%, 43.33 and 42.68% respectively. Students indicated that the programme was expensive and time consuming. Lack of facilities, incompetent teachers and lack of knowledge of career opportunities in PVE HE were some of the factors indentified.

Results indicate that the number of schools offering HE PVE has not been consistent as shown by a decline from 16 schools in 2002 to 12 schools in 2017, however, some centres have not actually phased out the programme but that there would be no students registered for the programme on that particular year. The summaries of results from ECOS indicate that about eight schools have continuously not had any students for the past seven years.

All centres (100%) were using equipment they received at the start of the programme with some no longer functional. The government is currently unable to support the programme due to financial constraints. Results show that 80% of the teachers were not trained for teaching PVE while the other 20% were trained at inception of the programme. However, some have since left the schools for various reasons that include promotion and transfers to other schools.

Conclusion and Recommendations:
The study concludes that low enrolments in PVE HE programme in Swaziland are influenced by low pass rates, inadequate resources, lack of government support and stigma attached to the programme as it regarded as for the low academically inclined while some students lack access to the programme since some schools do not offer the PVE HE programme.

The study recommends that: Government and NGOs provide facilities and funds to train teachers for the programme in order to promote effective teaching and learning. The Ministry of Education should conscientise the public on the importance of the PVE HE Programme in national development and entrepreneurship opportunities available in the programme.

References:
ECOS Examination Enrolment records (2012-2016).
Swaziland National Curriculum Centre (2011).
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<tr>
<th>Time</th>
<th>Session Titles</th>
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<tr>
<td>07:30</td>
<td>Registration: Veranda Dorian, Venue: Dorian 1</td>
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<td>08:00</td>
<td>Opening and Welcome: Prof E Kempen, SAAFECS President, Venue: Dorian 1</td>
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<td>08:00</td>
<td><strong>Venue: Dorian 1</strong>&lt;br&gt;<strong>Theme: Education/Teaching &amp; Learning</strong>&lt;br&gt;<strong>Session Chair: Ms A Du Toit</strong>&lt;br&gt;<strong>Venue: Dorian 2</strong>&lt;br&gt;<strong>Theme: Consumer Behaviour &amp; Decision Making</strong>&lt;br&gt;<strong>Session Chair: Mrs N Le Roux</strong>&lt;br&gt;<strong>Venue: Dorian 3</strong>&lt;br&gt;<strong>Student Session: Theme Consumer Behaviour &amp; Decision-Making</strong>&lt;br&gt;<strong>Session Chair: Mrs L Wyma</strong></td>
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<td><strong>8:15 – 8:45</strong>&lt;br&gt;Teachers’ perceptions on violent conflicts among high school pupils in the Manzini Region of Swaziland&lt;br&gt;<em>Dr BP Makhanya, Ms NP Siboza – University of Swaziland</em>&lt;br&gt;<strong>8:45 – 9:15</strong>&lt;br&gt;A framework to enhance consumer science graduates’ employability skills&lt;br&gt;<em>Mrs M Du Preez – North-West University, Dr LJ Van der Merwe, Dr SB Swart – University of the Free State</em>&lt;br&gt;<strong>9:15 – 9:45</strong>&lt;br&gt;Benchmarking the South African Consumer Studies curriculum with the curricula of similar subjects in Lesotho and Swaziland: room for improvement&lt;br&gt;<em>Ms A Du Toit – North-West University, Mrs MAM Mafaesa – Ministry of Education and Training, Mrs BM Photo-Moeti – Lesotho College of Education</em>&lt;br&gt;<strong>9:45 – 10:15</strong>&lt;br&gt;Improving teaching and learning at a Clothing class of a university of technology&lt;br&gt;<em>Miss SG Sizakele – Mangosuthu University of Technology</em>&lt;br&gt;<strong>10:15 – 10:45</strong>&lt;br&gt;Refreshments</td>
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TEACHERS’ PERCEPTIONS ON VIOLENT CONFLICTS AMONG HIGH SCHOOL PUPILS IN THE MANZINI REGION OF SWAZILAND

Dr BP Makhanya, Ms NP Siboza – University of Swaziland

Keywords:
Perceptions, violent, conflicts, school, pupils, Manzini, Swaziland

Introduction:
A conflict is a situation when the interests, needs, goals or values of involved parties interfere with one another. Conflict between students is a common problem in schools (Shanmommadi, 2014). Students’ conflicts can escalate into aggression, these happenings can cause emotional trauma to other students and the teachers who witness the violent conflicts. This study sought to investigate factors associated with the increase in violent conflicts, ascertain the demographic characteristics of pupils that engage in violent conflicts and to identify strategies used by teachers in managing the violent conflicts among pupils in high school in the Manzini region of Swaziland.

Methodology:
This is a descriptive quantitative and qualitative type of research. Twenty schools, that is 10% of all high schools in the Manzini region were randomly sampled, from which 5 teachers per school were selected using the purposive convenient sampling technique totalling to a sample of 100 teachers. These teachers were members of disciplinary committees in the schools. A questionnaire was used for data collection, frequencies, percentages, mean and standard deviation were used to analyse the data.

Results:
The findings indicate that there are more males (81%) than females (19%) engage in violent conflicts; (47%), a majority of which are from schools in semi-urban areas. There was a high prevalence (51%) of violent conflicts among Form 2 pupils. The findings also indicate that pupils from low socio-economic class (63%) and extended families (42%) were the most involved in violent conflicts. The findings revealed that conflict erupts in schools due student’s possession and use of harmful objects, domestic violence among family members, stealing one another’s properties, lack of parental guidance and/or ineffective parenting styles, rejection by parent(s), psychological problems resulting from parent being an alcoholic were perceived contributing factor to the pupils’ aggressive behaviour. The study also reveals that active listening by the teachers can help calm the pupils before the situation escalates to violence. The most identified strategies included: introducing counselling programs to students, transparency of teachers in handling pupil’s grievances, finding fair solutions to conflicts, teaching students who are on the wrong to apologise. Teachers can also help in generating options for problem solving besides violence.

Conclusion and Recommendations:
It can be concluded that low socio-economic status, family structure, violent behaviour observed from family members, and ill treatment pupils suffer from family members contribute towards violent conflicts among pupils in the schools. Pupils should exercise tolerance towards each other, practise self-control and to learn conflict resolution skills to minimise violent conflicts in schools. Teachers need to use and improve on identified conflict management strategies to completely eradicate conflict violence in schools. It is recommended that schools install censors at the entrances so that pupils are prevented from bringing dangerous objects into the school premises. Pupils should be equipped with life skills like to manage conflicts emanating from minor misunderstandings to curb violent conflicts in schools. The Ministry of
Education and Training should further equip teachers with effective strategies to manage violent conflicts among pupils. Further research could be undertaken the effects of violent conflict on the school environment.

References:

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**A FRAMEWORK TO ENHANCE CONSUMER SCIENCE GRADUATES’ EMPLOYABILITY SKILLS**

*Mrs M Du Preez – North-West University*

*Dr LJ Van der Merwe, Dr SB Swart – University of the Free State*

**Keywords:**
Consumer sciences, employability, employability skills, graduate attributes, teaching strategies

**Introduction:**
With the high graduate unemployment rate in South Africa, universities are realising the importance of delivering students with employability skills to attain employment and succeed in the work environment. Literature regarding employability skills is widely available (Ghannadian 2013:40; Pool & Sewell 2007:277) and indicates that current graduates may not have these skills (Symanowitz 2013:online). However, research regarding employability skills that employers require from South African consumer science graduates, as well as whether or not consumer science students are in possession of these skills when they graduate, could not be found. Since South Africa does not have a national board for consumer sciences prescribing specific outcomes; it is important to determine what employers expect from consumer science graduates to ensure it is embedded into the curriculum. Literature on the teaching of these skills are also lacking (Binkley et al. 2012:33). Hence, this study constructed a framework regarding the employability skills South African employers’ value in consumer science graduates, including the teaching and learning strategies and assessment methods which can be used in under-graduate courses to ensure that graduates have mastered the needed skills.

**Methodology:**
A mixed methods sequential explanatory approach was followed. For the quantitative phase of the study, a questionnaire survey was completed by consumer science lecturers and students from two universities, as well as consumer science graduates and employers, to determine which skills consumer science graduates need when entering the workplace, as well as students competency in these skills. During the qualitative phase, focus group discussions with consumer science lecturers added in depth information regarding the teaching and learning strategies that should be used to enhance the identified employability skills, as well as the assessment methods which should be used to ensure students have obtained the required skills. Statistical analysis of the quantitative data were done. Qualitative data were analysed using descriptive words and themes were created.

**Results:**
Eleven essential employability skills, which consumer science graduates should attain before entering the workplace, were identified. These include communication skills, English language proficiency, information, communication and technology (ICT) skills, interpersonal skills, teamwork skills, leadership skills, problem solving skills, adaptability skills, risk taking skills, creativity skills and lastly personal organisation and time management skills. The importance of cultural awareness in the workplace was also highlighted. A framework was constructed, explaining how to teach and assess these skills to ensure that students acquire these skills during their studies. The
role of the lecturer to build students’ confidence, provide guidance and motivation, lead by example as well as set ground rules is included in this framework, as well as the student’s role to develop their own skills, gather evidence of these skills attained and reflect on their experiences. Furthermore, it explains the importance of educational experiences including curriculum planning, teaching strategies, learning activities and assessment methods, as well as extra-curricular experiences including personal and work experience and student life.

**Conclusion and Recommendations:**

This study found that the enhancement of employability skills is not only the responsibility of the lecturer, but students play a vital role in enhancing their own skills. Results indicated that a variety of methods is needed to enhance employability skills including in class teaching methods as well as extra-curricular activities outside the classroom. This framework can be implemented by consumer science lecturers aiming to enhance the employability skills of consumer science graduates. This outcome can be beneficial for the university delivering more employable graduates as well as the industry who will receive more skilled employees.

**References:**


**BENCHMARKING THE SOUTH AFRICAN CONSUMER STUDIES CURRICULUM WITH THE CURRICULA OF SIMILAR SUBJECTS IN LESOTHO AND SWAZILAND: ROOM FOR IMPROVEMENT**

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*Mrs MAM Mafaesa* – Ministry of Education and Training

*Mrs BM Pheto-Moeti* – Lesotho College of Education

**Keywords:**

benchmarking; Consumer Studies education; curriculum; Home Economics education; curriculum analysis

**Introduction:**

Consumer Studies is a fairly new high school subject that replaced Home Economics as part of the ‘CAPS’ curriculum reform in South Africa. Benchmarking allows the comparison of units [such as curricula] within or across organisations [such as Education Departments] to identify gaps and to develop suggestions for possible improvement (Kaschig et al., 2012:185). De Viron and Davies (2015:50) state that benchmarking is often used to help organisations develop and design a ‘roadmap for the most desirable future’. A previous benchmarking study was conducted to compare South African Consumer Studies with other similar subjects in British Columbia, Kenya and Singapore (Umalusi, 2014:116). A web-based study was similarly conducted to produce an overview of Consumer Studies in South Africa in relation to that of several international countries, including Australia, Scotland, Malta, Botswana and Namibia (Umalusi, 2014:199). The question arose how subjects comparable to Consumer Studies measure up closer to home, i.e. in countries that share borders with South Africa, such as Lesotho and Swaziland. This is of particular importance, since these belong to the African Union, and share its views on education.
The purpose of this study was to conduct an in-depth analysis and benchmarking of the curricula for the General Certificate of Secondary Education for Fashion and Textiles/Fabrics, as well as Food and Nutrition, in Lesotho and Swaziland with the Consumer Studies curriculum in South Africa, in order to:

a) Identify strengths and areas for improvement within the curricula for these subjects in the three countries; and

b) Generate knowledge which could be utilized to formulate recommendations to the Education Departments of each country, which can be used in subsequent curriculum reforms to support the enhancement of existing curricula.

According to Booyse and Du Plessis (2014:4), a subject’s curriculum should include the aims and objectives, selection of content to be taught, pedagogy and assessment. This is true for the intended curriculum (the ‘paper document’), as well as for the implemented curriculum (how the intended curriculum is implemented in practice). This study only focussed on the intended curriculum. A social constructivist worldview informed our understanding of the importance of others in the co-construction of knowledge and understanding, as described by Schrader (2015:32).

Methodology:
A collaborative, structured curriculum analysis and benchmarking approach was used. Teams of subject experts collaborated to analyse the curricula of South Africa, Lesotho and Swaziland, after which it was benchmarked with the South African Consumer Studies curriculum. A validated curriculum analysis instrument, developed by Umalusi (Umalusi, 2014) and refined by Kruger (2017), was used to conduct this curriculum analysis and benchmarking. The instrument supports both qualitative and quantitative analysis of curricula and consists of two parts: a document structured around four curriculum dimensions, aligned with Booyse and Du Plessis’ (2014:4) description of curriculum. These four curriculum dimensions included the (1) aims and objectives of each curriculum, (2) the relative depth, breadth and organisation of the content covered in the respective intended curricula, (3) the guidance provided regarding subject pedagogy and (4) guidance regarding assessment of the subjects. The second part of the instrument is an excel document, pre-populated with formulae, that was used to analyse and benchmark the curricula regarding the inclusion, weighting and breadth of content topics in different curricula.

Findings:
The findings indicate that the aims and objectives of the three country’s curricula show some overlaps, but are varied. The analysis indicate that most of the curricula are content-heavy, to the point of content overload. Guidelines for subject-specific pedagogy is not explicitly stated, but implied in all the curricula. All the curricula investigated contain guidelines for formal assessment, but more detail for informal assessment could be included.

Conclusion and Recommendations:
Although each curriculum has some strengths, there is room for improvement. The benchmarking of the Consumer Studies curriculum with that of similar subjects in Lesotho and Swaziland resulted in several recommendations being made for the strengthening of these curricula, including reducing repeated content to reduce the content overload in the curricula, as well as explicitly including pedagogical guidance to support teachers in the implementation of the intended curriculum.

References:
Improving Teaching and Learning at a Clothing Class of a University of Technology

Miss SG Sizakele – Mangosuthu University of Technology

Keywords:
bricolage; autoethnography; self-study, living theory, themes, passion, motivation

Introduction:
Reflecting on my everyday teaching helped me to address the concerns that I have about my practice. The study originally took the form of a quest to understand work practices and educational value. It drew on my teaching and learning of the Clothing Basic Skills course offered under the Department of Community Extension. The course was offered at a university of technology from January to October 2016. It explored the potential to improve teaching and learning using values. My concern was born out of whether teaching and learning activities are aligned to the course outcome. The course empowers students with skills which falls under psychomotor domain recommended for students specializing in agriculture and home economics.

Methodology:
I used bricolage research methodology by combining autoethnography, living theory and self-study research methodologies. Bricolage is described by Samaras et al. (2016) as a method combining different approaches to achieve the required goal. Thirty students were interviewed and the narrative was written. Living theory enabled me to clarify whether I was living my values in my practice. Reflections were written by both myself and students artefacts in the form of photographs were used.

Results:
Reflecting on my everyday activities helped me to improve my practice in relation to interacting with students. The results draw attention to the view that the course is presented over a period of two semesters and this prevents students from developing the necessary sewing expertise. Students felt that the two semester course does not allow adequate time to achieve the necessary competence in sewing. Themes emerge which are care, passion, creativity, patience and motivation.

Conclusion:
Conducting the study helped me to improve teaching and learning using the values that I bring in my practice. It also helped to accommodate students who are not interested in the course. I learned to observe themes which are care, passion, patience and creativity that emerge in my practice.

References:
Keywords: personal values, consumer complaint behaviour, demographics, major household appliances, market segmentation

Introduction:
Since 1994 socio-political and socioeconomic transformation have resulted in the enhancement of the living conditions of a number of previously disadvantaged citizens in South Africa (Erasmus, Makgopa & Kachale, 2005; Kempen, Bosman, Bouwer, Klein & Van der Merwe, 2011), allowing them to enter consumer markets as emerging consumers. Within a relatively short period of time, millions of previously disadvantaged households belonging to lower-income groups migrated to middle- and high-income groups (Erasmus, 2010). For many previously disadvantaged consumers, home ownership and the ability to afford expensive durables and services such as electricity, became a reality for the first time (Gothan & Erasmus, 2008). The expenditure on products and services among these consumers has increased as a means to exhibit newly obtained wealth and increased self-worth (Donoghue & De Klerk, 2009) as well as to erase the asset deficit that most black people still experience owing to the history of South Africa (Nieftagodien & Van der Berg, 2007; PricewaterhouseCoopers (PwC) & Economist Intelligence Unit, 2012).

The South African household appliance market had a compound annual growth rate of 2.6% between 2010 and 2014, while a growth rate of 5.7% is predicted for the period between 2014 and 2019 (Market Research.com, 2015). However, as the demand for major household appliances increases, the possibility to experience product problems also increases (Nieftagodien & Van der Berg, 2007; Donoghue & De Klerk, 2013) as reflected in the numerous letters of complaint in the consumer columns of major South African newspapers and online letters to consumer complaint web sites, and the Consumer Goods and Services Ombudsman (CGSO) Annual Report 2015/2016 of formal complaints.

Due to the constant cultural integration of South Africa’s multicultural society and the increasingly rapid and radical changes in South Africa’s consumer environment, cultural synergy based on shared values, may be taking place (Rousseau, 2003:411) leading to changes in consumers’ values, lifestyles and consumer (complaint) behaviour (Donoghue, Strydom, Andrews, Pentecost & De Klerk, 2016). For example, urban black consumers are moving away from a traditional and conservative outlook on life and are becoming more ambitious and self-motivated with a desire for self-improvement and education, reflected in their acquisition of consumer products. It is therefore essential that marketers and researchers monitor these changes to understand the factors underlying consumers’ behaviour. Hence the purpose of the research was to investigate the differences in complainers’ personal values based on their demographic characteristics.

Methodology:
A survey was administered to consumers who were dissatisfied with the performance of a major household appliance within a four-year memory recall period. Data was collected via a self-administered questionnaire measuring personal values with Kahle’s (1983) List of Values (LOV) and complaint behaviour with Day and Landon’s (1977) taxonomy of consumer complaint behaviour. Convenience sampling and snowball sampling were employed in Tshwane, a major metropolitan area of South Africa, which generated 361 usable questionnaires.
Results:
Exploratory factor analysis revealed three value dimensions, namely (1) Harmony and Respect, (2) Hedonism and (3) Achievement. ANOVA revealed relationships between the specific personal value dimensions and demographic characteristics: females valued Harmony and Respect more than males, respondents older than 50 years valued Hedonism less than consumers younger than 50 years, and black respondents considered Harmony and Respect slightly more important than white respondents. The chi-square significance test showed no significant relationships between the demographic variables and the types of complaint behaviour.

Conclusion and Recommendations:
Marketers, appliance retailers and consumer protection organisations should be aware of the gender, age and population difference in complainants’ personal values to effectively handle consumer complaints and to develop applicable marketing strategies.

References
URBAN CONSUMERS’ DECISION-MAKING STYLES DURING THE SELECTION OF HOUSEHOLD EQUIPMENT
Mrs N Le Roux, Prof D Van der Merwe – North-West University

Keywords:
Consumer behaviour; Decision-making styles; Household equipment; Urban consumers

Introduction:
Consumers’ decision-making have become increasingly complex (Sinkovics et al., 2010:1021; Le Roux et al., 2017:12) owing to globalisation, pressure to conform, gain acceptance and approval from others (Modi & Jhulka, 2012:528). However, all consumers do not make decisions for the same reasons and the consumer style index of Sproles and Kendall (1986) has proven to be a useful decision-making style classification instrument worldwide in various studies among different sample groups (Anic et al., 2012; Potgieter et al., 2013). However, our study took the model to a new frontier by applying the instrument to the product category of household equipment within the South African urban environment. Household equipment is an indicator of social status for many consumers, especially those residing in urban environments being confronted with new product development and marketing efforts on a regular basis (Sonnenberg et al., 2011). Household equipment is a high involvement product category, requiring high cognitive involvement as well as risks and future consequences such as debt, product failure and social disapproval (Donoghue et al., 2008; Sonnenberg et al., 2011). Therefore, the present study aimed to determine urban consumers’ decision-making styles of household equipment.

Methodology:
This study employed a cross-sectional survey, to explore and describe the decision-making styles of permanent employees at one of three head offices of an organisation situated in different major urban settings in South Africa. Voluntary respondents were recruited through convenience sampling to complete an online questionnaire. The applicable sections included basic demographics and the 40-item consumer style index (CSI) model of Sproles and Kendall (1986), as adapted by Potgieter et al. (2013) for a South African context.

Results:
The majority of respondents had medium to higher income levels (LSM 7 to 10) (SAARF, 2016). This confirmed that respondents were financially able to purchase higher involvement products such as household equipment and had the financial means to evaluate and decide between various options before making decisions. Exploratory factor analysis allowed the extraction of seven factors from the CSI scale which differ from the eight factors of Sproles and Kendall (1986) and the ten factors of Potgieter et al. (2013). The differences in the factor structure between our study and the two previous studies may be due to the difference in product category. However, a strong association between our model and the original Sproles and Kendall model was noted, which leaned itself towards further classification of emotional or performance driven decision-making styles.

Conclusion and Recommendations:
Our model showed a good fit in the household equipment product category and results may serve valuable to the high-involvement product category sector of urban consumers in South Africa. In comparison to the original model, six decision-making styles were similar to those of Sproles and Kendall of which ‘value for money’, ‘perfectionistic and high quality products’, ‘recreational and novelty’ as well as ‘habitual’ emerged as prominent decision-making styles for this product category. This study add to limited current literature and highlight important decision-making styles and orientations that can be applied to the field of product development and marketing by addressing specialised target marketing. However, these findings can also be used to inform and educate consumers towards informed decision-making.
NATURE AND NATURAL TEXTUAL CLAIMS ARE CUES USED TO MISLEAD CONSUMERS: A COMPARATIVE CONTENT ANALYSIS OF GREEN ADVERTISEMENTS

Mr OA Ojo – Central University of Technology
Prof RW De Lange – Tshwane University of Technology

Keywords:
Green advertisements, misleading, textual claims, greenwashing

Introduction:
Green advertising is a process which advertisers use to communicate environmental friendliness to the consumer by using text, graphics as well as diverse imagery. Advertisers are expected to conform to the Advertising Code as stipulated in the Advertising Standards Authority of South Africa (ASASA) Code, and comply with regulations about the labelling and advertising of food, as proposed in the Foodstuffs, Cosmetics and Disinfectants Act, 1972. The ASASAs Advertising Code; which deals with environmental claims and the regulation controlling the labelling of food, provides specific and detailed green advertising criteria that advertisers can use to align their creative communication material.

Methodology:
The researcher used a comparative content analysis approach and examined four green advertisements that recently appeared in five different South African food-related magazines. The investigator used the ASASAs advertising code on environmental statements and legislative regulations that apply to green advertising and environmental claims to determine their explicit and implied green advertising postulation. The analysis of these four advertisements is part of an ongoing study about the greenwashing of food products in South Africa. However; the research is not representative of the catalogue of all the green advertisements of food products in South Africa. The research team purposively selected these samples to highlight the explicit and implied text, graphics and imagery that appear to violate the ASASA Code and that may not comply with decree. The advertisements were analysed by using a persuasive advertising design framework (ethos, pathos and logos). This paper specifically looks at how advertisers use ‘nature’ and ‘natural’ textual assertions; how these ideas are used to complement visuals; and if the text provides accurate and
meaningful information to consumers. Furthermore, this research paper examines green-oriented graphic elements and how the advertisers use them to convey and reinforce ecological friendliness.

Results:
The green messages used in the shampoo and bottled water advertisements were similar despite the functional performance of these two products being entirely different. The researchers’ analysis has highlighted the use of appeal to emotion (pathos), and that this persuasive design technique is prevalent in all the advertisements. The visuals in the advertisements demonstrate designers’ graphical acumen and exhibits high-quality craftsmanship of how design can be used to potential mislead consumers. For example, the shampoo advertisements used visuals as well as textual claims such as ‘nature’ and ‘organic’ while the bottled waters’ used ‘powered by nature’ and ‘inspired by nature’ green claims to sell positive emotional benefits from nature to the consumers. The relationship between these green claims; the copy and how these products are visually represented, are arguably misleading. One could, from a marketing perspective, counter-argue that these products and their advertising material are legitimate forms of green advertising and that they do not explicitly lie to a consumer. These advertisers may not adhere to the regulations of the ASASAs Advertising Code about environmental advertising and the prescribed instructions as directed by legislations. Specifically, legislation that direct marketing practices about foodstuffs speak to the accuracy of information when using textual and illustrative representations in advertisements. The study further suggests that in one of the bottled water advertisements, the representation of green vegetation is more of puffery than an overt process to mislead. The reason being that, vegetation is ambiguously used in the advertisement; therefore, possibly misleading consumers. Whilst it is easy to assess textual claims such as nature, organic and natural, the hidden persuasion power of the colour green and the use of imagery of actual vegetation are extreme to measure.

Conclusion and Recommendations:
All the green claims in the advertisements are predominantly used to promote an individual product as either a ‘natural’ or ‘organic’ product. However, the ASASA regulations stipulate that only products that are made with 100% active ingredients from nature can be represented textually and visually as ‘natural’ or ‘organic’. As a shampoo product is not likely to be made from a single ingredient, claims such as ‘organics’, ‘nature’ and ‘natural’ could potentially be misleading to the consumer. Consequently, it is assumed that this milieu of misleading practice could have a probable impact on the consumer’s positive purchasing behaviour towards the advertised products. These findings should be considered during the development of green advertisements and the subsequent adjudication of deceitful and misleading environmental allegations in advertisements from a design perspective.
SUBJECTIVE AND OBJECTIVE CONSUMER KNOWLEDGE OF GM FOOD IN SOUTH AFRICA
Miss I Marx, Mrs L Wyma, Mrs E Botha, Prof CD Viljoen – North-West University

Keywords:
Consumer, Genetically modified (GM) food, Objective knowledge, Subjective knowledge, South Africa

Introduction:
Genetically modified (GM) crops were developed as part of the solution to ensure sustainable food production for an ever increasing world population in especially developing countries (Mondello, 2013:4589; STATSSA, 2014). Therefore products such as genetically modified (GM) food are part of South African consumers’ daily lives. GM maize and GM soy are two of the most common food crops in South Africa (Viljoen & Marx, 2012:389). Maize is a staple food in South Africa since it is affordable, readily available, and easy to prepare. Soy is an important source of protein in South Africa (NAMC 2011). As a result, it is inevitable that GM food will be consumed by South African consumers without them necessarily knowing it.

The Consumer Protection Act (2008) requires mandatory labelling of GM containing food products in South Africa. However, a limited number of studies have demonstrated that the awareness of GM crops among South Africans is relatively low and raises the question of whether they have sufficient knowledge to make informed food purchasing decisions with regard to GM containing food products. Furthermore, it is unknown whether mandatory GM labelling has contributed toward South African consumer’s awareness of GM containing foods. Consumers may have subjective knowledge of GM containing foods, although it might not be objective. It is important to consider that regulatory food labelling requirements are ineffective if they do not empower consumers to make informed purchasing decisions.

Problem:
It is unknown whether: 1. Consumers are aware of the presence of GM containing foods in South Africa; 2. Mandatory GM labelling has contributed towards consumers knowledge of GM containing foods and whether they are able to interpret GM labelling information and; 3. Mandatory GM labelling has empowered consumers to make informed decisions regarding GM containing foods (Gibson & Hull, 2013:4). Therefore, the purpose of this study was to investigate consumer’s objective and subjective knowledge of GM food and GM food labelling in South Africa, taking their demographic information into account.

Objectives:
• To explore and discuss consumers subjective knowledge of GM food.
• To explore and discuss consumers objective knowledge of GM food.
• To explore and describe the association between consumers demographic information and their knowledge of GM food.

Methodology:
A quantitative, cross-sectional, exploratory survey was used to obtain information from South African consumers 18 years and older including their demographic characteristics. A non-probability, voluntary sampling method was used and willing respondents completed an online questionnaire that was emailed to them by the consumer consultancy agency, AskAfrika. Respondents who met the inclusion criteria completed and submitted the questionnaire and it was stored on a database. Data is being analysed by means of descriptive statistics, ANOVA, the t-test, effect sizes and cross tabulations.
A QUANTITATIVE STUDY ON THE COOKING COMPETENCE OF YOUNG ADULT COUPLES, RESIDING IN TSHWANE, SOUTH AFRICA

Miss L Ryan, Dr GE du Rand, Dr AT Viljoen – University of Pretoria

Keywords:
Cooking Competence; Cooking Skills; Cooking Knowledge

Introduction and Problem:
The decline of cooking competence has become a global concern (Hartmann, Dohle & Siegrist, 2013; Ball & Brown, 2012; Thomas & Irwin, 2011). Young people in particular do not seem to cook and their food intake is generally considered to be unhealthy (Ball & Brown, 2012; Larson, Perry, Story & Neumark-Sztainer, 2006). This can be attributed to lifestyle-related factors such as the rise in consumption of convenience and fast foods; financial and time constraints; sedentary lifestyles; and the lack of knowledge and skills regarding cooking and healthy eating (Vidgen & Gallegos, 2014; Hartmann et al., 2013).

Unhealthy eating contributes to overweight and obesity (MacKay, 2011) and is linked to the increase in diet-related noncommunicable diseases (NCDs) and a decrease in health (Vidgen & Gallegos, 2014). Since 1980, the obesity statistics have almost doubled worldwide and by 2008 over half a billion people globally suffered from obesity (World Health Organization, 2012). Overweight and obesity is also a considerable health problem in South Africa. Recent figures indicate that 74.7% of white men and 69.4% of white women in South Africa have a Body Mass Index (BMI) of over 25 (NDoH, Stats SA, SAMRC & ICF, 2017:45). An unhealthy lifestyle that results in weight gain is also associated with the decline in cooking competence (Hartmann et al., 2013; Van der Horst, Brunner & Siegrist, 2010).

Current research substantiates the importance and need to pay attention to people’s cooking skills (McDowell, McMahon-Beattie & Burns, 2015; ICN2, 2014) as part of the solution to curb the rise in NCD’s. There is also substantial research that focussed on the importance of cooking confidence, food neophobia and cooking interventions. Published literature focused more on pre-adolescents, adolescents, university or college student and the elderly (Garcia, Vargas, Lam, Smith & Parrett, 2013; Wagner, Kennel, Rose, Pennywitt, Miller, Holloman, Battista-Hesse, Murray & Gunther, 2013). Very little research is available pertaining to cooking competence of young adult couples.
The lack of research on cooking competence also applies to South Africa. Although there is much debate regarding the definition of cooking competence and the related concepts. For the purpose of this study, it is defined as “The ability or skill required to master the basic academic, perceptual, mechanical, conceptual and planning dimensions of food preparation” (Wagner et al., 2011; Short, 2003). The theoretical basis, concepts and framework concerning cooking competence has been compiled from the five dimensions of cooking competence by Short (2003); the seven factors of cooking competence by Wagner (2011); the seven components of food literacy by Vidgen and Gallegos (2014) and the personal dimensions of food literacy by Desjardins and Kawartha (2013). These dimensions were compiled (see Table 1) and cooking competence was conceptualised as cooking knowledge and cooking skills. Cooking knowledge relates to the perceptual and academic dimensions and cooking skills relates to the mechanical, conceptual and planning dimensions.

This, however, has not yet been determined in South Africa. Therefore, it is not clear what is in actual fact happening in the South African setting. As a result, it is not known if the food practices of young adult couples are related to their cooking competence.

Objectives:
The main objective of the study is to explore and describe the current cooking competence of white young couples living in Tshwane, South Africa. There are two sub-objectives. The first is to explore and describe the current cooking knowledge of these young couples according to the cooking competence dimensions of perceptual and academic skills. The second will be to explore and describe their current cooking skills according to the cooking competence dimensions of mechanical skills, conceptual skills and planning skills. Exploring the cooking competence of the study group, is assumed to provide insight and understanding into their food practices.

Methodology:
A theoretical framework (Table 1) was compiled from which a conceptual framework (Figure 1) was developed as a visual representation of the research process. Qualitative data was collected through observation, semi-structured interviews and visual ethnography by means of private documents (food diaries), stimulus techniques and audio-visual materials (photographs) (Creswell, 2014:191).

The conceptual framework guided the study into exploring and describing the current cooking knowledge and cooking skills of these couples, according to their cooking competence dimensions. This was done by means of the qualitative computer data analysis program Atlas.ti that assisted in sorting and analysing the data according to the cooking competence dimensions, which formed the themes of the research findings. Some of the preliminary findings will be presented.
<table>
<thead>
<tr>
<th>COOKING COMPETENCE</th>
<th>DIMENSIONS</th>
<th>DESCRIPTION:</th>
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<tbody>
<tr>
<td>Cooking knowledge</td>
<td>Perceptual</td>
<td>- Ability to:</td>
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<tr>
<td></td>
<td></td>
<td>▪ Understand recipe instructions.</td>
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<td></td>
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<td>▪ Work with ingredients.</td>
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<td></td>
<td>▪ Judge and group ingredients according to:</td>
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<td></td>
<td>○ Appearance.</td>
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<td></td>
<td></td>
<td>○ Taste.</td>
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<td></td>
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<td>○ Colour.</td>
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<td></td>
<td></td>
<td>○ Textures.</td>
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<td></td>
<td></td>
<td>▪ Select food with limited resources.</td>
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<td></td>
<td></td>
<td>▪ Accessibility to food with limited resources.</td>
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<tr>
<td></td>
<td>Academic</td>
<td>- Knowledge about:</td>
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<td></td>
<td>▪ Food:</td>
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<td></td>
<td>○ Nutrition.</td>
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<td>○ Health requirements.</td>
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<td>○ Safety.</td>
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<td>○ Characteristics.</td>
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<td>○ Origins.</td>
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<td></td>
<td></td>
<td>○ Where to find information (incl. Food labelling).</td>
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<td></td>
<td></td>
<td>○ Understanding the impact of cooking processes.</td>
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<td>○ Understanding the impact that cooking techniques will have on food.</td>
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<td></td>
<td></td>
<td>▪ Reason for basic cooking processes.</td>
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<td></td>
<td></td>
<td>▪ Insight into the temporal or timing of cooking tasks.</td>
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<td></td>
<td></td>
<td>▪ Menu-planning.</td>
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<td></td>
<td></td>
<td>▪ Awareness of food trends and fashion.</td>
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<tr>
<td></td>
<td>Mechanical</td>
<td>- Actual food preparation techniques:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Cutting (active activities).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>○ Grating (active activities).</td>
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<tr>
<td></td>
<td></td>
<td>○ Steaming (passive activities).</td>
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<tr>
<td></td>
<td></td>
<td>- Knowledge of basic food produce and cooking with it.</td>
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<tr>
<td></td>
<td></td>
<td>- Ability to make use of kitchen equipment and appliances.</td>
</tr>
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<td>- Appropriateness in selecting utensils and appliances according to food preparation activity.</td>
</tr>
</tbody>
</table>
| Conceptual | Ability to:  
| o Visualise the end product.  
| o Improvise or creative by adapting and substituting recipe ingredients.  
| o To reproduce recipes without following instructions.  
| o Selecting food item according to food preparation skill. |
| Planning | Be able to visualise an appealing meal to put together.  
| Organizational skills and experience:  
| o Budgeting,  
| o Buying and  
| o Storing ingredients  
| Available time for food preparation.  
| Multi-tasking:  
| o Time management while cooking.  
| o Performing multiple meal preparation activities simultaneously.  
| o Ability to schedule activities prior to, and during meal preparation. |
FIGURE 1: THE COOKING COMPETENCE FRAMEWORK OF THE YOUNG ADULT COUPLE RESIDING IN TSHWANE, SOUTH AFRICA

**References:**


DIFFERENT SHADES OF GREEN CONSUMERS: CULTIVATING THE GREEN CONSUMER BY EMBRACING DIVERSITY INTO A COMPREHENSIVE SEGMENTATION MODEL FOR SOUTH AFRICA

MS H Dreyer – North-West University

Keywords:
Consumer behaviour, consumer psycho-social well-being, decision-making styles, green consumer segments, green consumers, consumer personalities, green branding

Introduction:
Green consumer behaviour is an increasingly growing and important market segment for sustainability as well as economic growth, acknowledged in the Green Economy (GE) and inclusive green growth (IGG) approach (United Nations 2015). Concerns regarding green issues have an impact on the purchasing decisions of many consumers (Euromonitor International, 2016). However when the largest percentage of the population does not act on their concern for green issues by engaging in green purchase decisions it might be detrimental for a GE.

Many consumers proclaim to be green consumers with sustainable lifestyles but do not live up to these statements or only apply sustainable efforts to certain aspects of their lives (Young et al., 2010). This is referred to the intention-behaviour gap (i.e. consumers indicate that they want to buy environmentally friendly products but do not act on their intention since the environmentally friendly product is more expensive or not readily available). Hence, it seems that green consumers will buy green products only if it provides added benefits, such as saving money, better health or seen as trendy (Cotton Incorporated, 2013). The literature on green consumer segmentation indicates that consumers are often segmented into different shades of green based on several (some overlapping, some very divergent and inconsistently categorised) influencing factors. These influencing factors are derived from an array of study fields and lack correct positioning in a consumer science perspective where consumer behaviour theory is used as initiating point for these frameworks as well as establishing the foundation for interaction and inter-correlation between these factors. Such a framework and segmentation strategy might explain the intention-behaviour gap phenomenon better in a South African context.
Problem:
In order to categorise South African consumers, a standard framework and defined segments of green consumers (green consumer segmentation strategy) must exist. South African consumers have their own unique qualities and diverse obstacles that influence their decision-making on a daily basis especially pertaining to green products. South African consumers need to actively voice their priorities to engage in environmental responsibilities. Awareness and understanding can increase participation in green initiatives which might lead to better products choices, consumer well-being and saving scarce resources which can ultimately lead to saving the earth one consumer at a time. Various segmentation studies provide profiles for the different segmentation frameworks which include a variety of characteristics. However South Africa need a more complex and refined segmentation for green consumers in order to critically analyse the diverse green consumer, understand their different needs and provide the right products and consumer education to cultivate an inclusive green consumer culture which might benefit a GE.

Methodology:
In order to address this research problem a multiple phase and multiple method design are going to be applied.

Phase 1: (Literature review)
- Influencing factors and models – creating a new model applicable to the South African consumer market
- Creating a new segmentation framework based on the new model of influencing factors of green consumer behaviour with specified parameters

Phase 2 (Quantitative questionnaire followed by Multi-criteria mapping)
- A quantitative questionnaire will be used to identify different consumers that falls into the different green consumer segments. The questionnaire will include questions to analyse respondents’ consumer personality, consumer decision-making styles and perceived psycho-social well-being to find correlations between these important aspects and respondents’ green behaviour status.
- Following the questionnaire, respondents from each green segment will be recruited and interviewed using the Multi-criteria mapping (MCM) technique.

References:

MCM is usually based on a long interview (2-3 hours) with each individual participant. The interviewer works interactively with the participant, using specially developed computer software to explore the performance of options against criteria, under different assumptions. The interview progresses through a number of stages. This technique enable the researchers to gain an in-depth understanding of:

a. **what** consumers consider as important in different situations and **why**,  
b. consumers **scoring** each aspect to indicate the likelihood of that aspect **influencing their choice** in different situations and  
c. assigning a **weight** to each aspect indicating its **importance**.

The MCM inputs are stored on a computer file and the interview is also recorded on audiotape for later transcription and analysis. It is also possible to use an adapted MCM procedure in small groups. (Deliberative mapping, 2004).
<table>
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<tr>
<th>Time</th>
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| 10:45 – 11:15 | Social influences of raising children in crowded neighbourhoods in urban areas. A Conceptual paper | Venue: Dorian 1  Theme: Child & Family Programme and Hospitality Management  Session Chair: Mrs TP Mbombo-Dweba | Nutritional enhancement of a starch based food to meet consumers’ need for convenience foods  
*Dr H De Beer – North-West University* | Implications of Climate-Change on the Practical Consciousness of Rural Malawian Households on Fuelwood Acquisition and Consumption  
*Mrs MG Mchakulu, Prof AC Erasmus, Dr NC Sonnenberg – University of Pretoria* |
| 11:15 – 11:45 | School food gardens in Johannesburg: are they viable?  
*Dr H Kesa – University of Johannesburg* | | Factors that determine the quality of honey  
*Miss T de Beer, Prof HC Schönfeldt, Mrs B Pretorius – University of Pretoria* | Relationship between food insecure households and prevalence of malnutrition of children residing in urban informal settlement at Gompo Village, South Africa  
*Miss T Mafu – Walter Sisulu University* |
| 11:45 – 12:15 | Influence of training on job performance amongst staff of hospitality industry in Ilorin South local government area Kwara State  
*Dr CT Gbadebo, Mrs OT Adeniji, Miss TF Afolayan – University of Ilorin* | | Using the Delphi Technique to formulate a South African food literacy definition  
*Mr HJ Fisher, Prof AC Erasmus, Dr A Vijloen – University of Pretoria* | Trans fatty acid content in used vegetable cooking oil and food safety hygiene practices of informal food vendors in Warwick Triangle (WAT), Durban  
*Mr M Rubushe – Durban University of Technology* |
| 12:15 – 12:45 | An appraisal of TVET college graduates: A case of hospitality sector in Pretoria, South Africa  
*Mrs M Olowoyo, Mr S Malle, Dr ON Mafa-Theledi – Tswane University of Technology* | | Sensory Characteristics and Consumer Acceptance of Sorghum Pumpkin Bread Prepared According to the Culinary Practices of Basotho  
*Dr P Nkhabutlane – National University of Lesotho* | Nutritional composition and cooking properties of instant maize porridge enriched with moringa leaves and edible termites’ powders  
*Miss KR Netshiheni, Mr ME Mashau – University of Venda  
Dr D Beswa – University of South Africa, Prof AIO Jideani – University of Venda* |
| 12:45 – 13:15 | Assessing hygiene practices and food handling practices among ethic market vendors: implications for food safety  
*Mrs TP Mbombo-Dweba, Dr JW Oguttu, Prof CA Mbasirago, Dr AO Agyepong – University of South Africa* | | Sensory flavour profiles for three paprika powder samples  
*Dr SM van Heerden, Miss L De Lange – ARC-Animal Product Institute* | |
| 13:15 – 13:45 | Closing and Prize giving | | | |
SOCIAL INFLUENCES OF RAISING CHILDREN IN CROWDED NEIGHBOURHOODS IN URBAN AREAS. A CONCEPTUAL PAPER

Dr K Kgosi, Dr S Trivedi – University of Botswana

Keywords:
Neighbourhood crowding, child development

Introduction:
The development of children is influenced and impacted by many various factors. Increasingly, there have been extensive social and economic changes in developing countries over the past years which have significantly altered the conditions under which families are raising young children and in which the children themselves are growing up. The impact of these social climate changes is widespread, affecting communities, families, children and services. While many of these changes have been beneficial, others have not been and children and families are increasingly found to be vulnerable. Consequently, there is a flourishing body of literature that demonstrates a correlation between the characteristics of neighbourhood and child development (Beauvais & Jenson, 2003).

The United Nations (2003) indicated that most urban areas in developing countries are characterized by neighbourhoods which are characterised by overcrowded ramshackle buildings erected by the poor people. Living conditions are frequently unhealthy and households compete and struggle for work, meagre income, basic food and access to shelter and inadequate urban services. Criminal activities and violence are frequent scenarios in these overcrowded areas. Research by other scholars have reported vulnerability to illness and inferior health status of occupants of slum housing than on people living in other types of housing. Despite all of these, there are many households and families who are raising their children in the said sub-standard and crowded housing environments. Moreover, these environments are usually characterized by unsatisfactory conditions including noise, smell, dust, dirt, smoke and inadequate space, including play space for children. The environment on which the child is raised play a major and important role in the child’s total development and therefore children’s exposure to all these negative environmental and social problems may impact negatively on their development and into their adulthood (Signh & Ghandour, 2012).

Methodology:
A substantial part of this conceptual paper is collected through secondary data derived from the literature review. The paper seeks to investigate the influence that crowded neighbourhood have on child development focusing on current social changes in parenting, safety and security and current lifestyle. The paper will look into what is known and further consider where further research is needed.

Results:
Studies reviewed indicate that neighbourhoods are considered underlying determinants which may influence behavioural problems directly by creating conditions that lead to problems of behaviours. They are also hypothesized to affect behavioural problems indirectly through their effects on intervening psychosocial and behavioural factors such as familial stress, social interaction and behavioural risk factors.

Conclusion and Recommendations:
Improvements in neighbourhoods’ environments hold the potential to positively impact a wide range of childhood development issues including those in behaviour.
SCHOOL FOOD GARDENS IN JOHANNESBURG: ARE THEY VIABLE?

Dr H Kesa – University of Johannesburg

Keywords:
School nutrition, food gardens, sustainability

Introduction:
The School Food Gardens Programme is an important pillar of the National School Nutrition Programme (NSNP) in South Africa. Its purpose is to develop skills in production of own food. It also serves as a resource for teaching and learning. Schools participating in NSNP are required to implement food production initiatives given available resources. A variety of vegetables were planted making available essential nutrients in school meals (Department of Basic Education, 2011). The role of the gardens were to promote healthy eating, to increase the awareness of food related environmental issues and sustainable production of food amongst school children (DBE 2013). Hunger and malnutrition in developing countries continue to impair health, quality of life and survival among children. School feeding programmes allows for better micronutrient intake as well as reducing short-term hunger (Gelli, 2010: 8). Consequences of undernourishment in children include low school performance; low attendance and an increased risk of exiting school early (Bennett, 2003). The purpose of the study was to determine if the school gardens in Johannesburg are viable and also to determine if the fruits and vegetables grown in the gardens are used in the preparation of healthy meals for the learners.

Methodology:
Government schools (n=24), between the grades 1-7 in Johannesburg were visited and interviewed. The participants included principals, head of departments, teachers and food handlers. These were the representatives that were in charge of the feeding programmes at the relative schools. Random and convenience sampling methods were used. A database was provided by the Department of Basic Education (DBE) and the schools were selected accordingly.

Results:
The Principals, Deputy Principals and some of the educators in the schools were in charge of the feeding programmes. All the feeding programmes consisted of a breakfast and lunch meal. Majority of the schools in Johannesburg feed between 100-150 learners per day. The reasons for an onsite garden was to augment the school feeding programme in preparing fresh and nutritious food daily and incorporating the fresh fruits and vegetables into daily meals and the other reason was to support the local community. The Volunteer Food handlers (VFHs) were parents of learners appointed for preparation and serving of meals for learners and to assist with the school gardens. Formal appointment of VFHs is done by schools in consultation with the School of Governing Body (SGB). The (VFHs) were only trained on basic hygiene and safety and not in gardening, food preparation and basic nutrition skills. The schools experienced the following challenges with the food gardens: shortage in supply of water for food preparation and the home gardens, inadequate access to gardening activities, limited support from school bodies and from the surrounding
community. All these factors have often limited the effectiveness of school gardening projects and because of the challenges, the fruits and vegetables were not always used in the preparation of the meals.

**Conclusion and Recommendations:**
Viability of the school gardens in Johannesburg still needs to be explored further as some schools made use of the produce, gave away or sold the produce to community members. There was a lack of capacity to sustain the school gardens and lack of training of the VFH and teachers. It can be suggested the VFHs need further training, and capacity building can be further investigated.

**References:**

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**INFLUENCE OF TRAINING ON JOB PERFORMANCE AMONGST STAFF OF HOSPITALITY INDUSTRY IN ILORIN SOUTH LOCAL GOVERNMENT AREA KWARA STATE**

*Dr CT Gbadebo, Mrs OT Adeniji, Miss TF Afolayan – University of Ilorin*

**Keywords:**
Hospitality Industry, Staff, Training, Employee, Job performance

**Introduction:**
The cardinal purpose of staff training in the hospitality industry is to improve employees’ qualities to ensure optimal professional client service delivery. However, employees do not consider self-development as an important reason for trainings, therefore, they should be led to the right direction, which is to improve themselves and customer service but not for competition or promotion and other reasons.

**Methodology:**
This study examines the influence of training on job performance among staff of hospitality Industry in Ilorin South, Kwara state. Five research questions were raised and three hypotheses formulated and tested at 0.05 level of significance. Survey research design was adopted for the study. The population of the study comprised both junior and senior staff of the Hospitality Industry in Ilorin South Local Government area of Kwara State numbering one hundred and eighty three (183). A total number of a (120) employee constituted the study sample. The instrument used to generate the needed data was questionnaire tagged Performance Rate of Individual Staff Questionnaire (PRISQ). The instrument has reliability index of 0.72. Data collected were analyzed with descriptive statistic, percentages, frequencies, mean and standard deviation. The null hypothesis involved in the study was analyzed using t-test and Analyses of Variance (ANOVA).

**Results:**
The findings revealed that staff training in Hospitality industry is frequent and consistent. The results further revealed that staff training significantly influenced job performance of hospitality staff positively in hospitality Industry in Ilorin South Local Government Areas of Kwara State. The result revealed no significant difference between male and female on influence of training on job performance among hospitality staff.
Conclusion and Recommendations:
The findings concludes that training positively influenced job performance of staff in hospitality Industry as their level of job performance is relatively high as staff cope with everyday requirement of their job. Base on the findings, it is therefore recommended amongst others that employees should be made aware of the significance of Staff Training and communication should be improved and open between the management and employee to enable them improve their staff strengths, inadequacies and areas for improvement and the required training.

AN APPRAISAL OF TVET COLLEGE GRADUATES: A CASE OF HOSPITALITY SECTOR IN PRETORIA, SOUTH AFRICA
Mrs M Olowoyo, Mr S Maile, Dr ON Mafa-Theledi – Tswane University of Technology

Key Words: 
vocational education, hospitality

Abstract:
The hospitality industry is one of the fastest growing sectors in South Africa. However, the sector faces real challenges in matching its skills requirements to the changing labour market. In order to reduce and alleviate the problem of skill shortages, the technical and vocational education and skills development centres were established with the aim of reducing the problem associated with skill shortages in the country. The present study investigated the employment rate and the managers’ perception of TVET college students from selected hospitality industries in Pretoria, South Africa. Questionnaires were administered to hotel managers and workers from some selected restaurants and hotels in Pretoria. The questionnaire was designed to evaluate the rate at which TVET college students were employed, retained and sought for within the hospitality industry. The findings from the study revealed that hospitality graduates do not stay for more than 5 -6 years on the average within the hospitality sector. The major issues around retention and acceptability of hospitality graduates within the sector as reported to the managers by the TVET graduates were lack of job satisfaction, low salary packages and benefits, low self-esteem and long working hours. The managers however, reiterated that most TVET graduates needed further training and this had negative influence on consumer satisfaction. Most of those working with the hospitality industry where the study was conducted did not receive any formal education at any TVET college. The managers agreed that payments offered to this group of unskilled workers are usually affordable and reasonable. The managers interviewed also agreed that it may be necessary to increase the numbers of hours used for internship during training as this will increase training and exposed TVET college graduates to realities expected. The managers further mentioned among others that employees’ attitudes, performance and behaviours are key determinant of service quality within the hospitality industry. The study concluded that TVET graduates are not currently retained within the hospitality industry and this is not in line with the motives and reasons for the establishment of TVET colleges.
Ethnic food markets are the only source of ethnic foods for immigrants living in South Africa (Njomo, 2013; Mbombo-Dweba et al. 2017). Available literature indicates that food safety is a growing concern within the ethnic food industry (Roberts et al., 2011; Stenger et al., 2014). In United Stated and Europe alone food borne illnesses outbreaks related to ethnic food safety increased from 3% to 11% between 1990 to 2000 (Quinlan, 2013). This is attributed to poor hygiene practices (Ruder 2006; Roberts et al., 2011; Grace et al., 2015; Harris et al., 2015) and poor quality of food (Rudder, 2006; Njomo, 2012, 2013). Food safety is an important component of food security, human nutrition and sustainable development as it contributes to less illnesses, increased productivity, exports and income (WHO, 2013). Though a number of studies have been conducted on identification of microbial hazards of cooked food in the informal sector, none has been conducted on ethnic foods industry in South Africa. Considering the increasing number of immigrants in South Africa (South African Press Association, 2014) with majority of them relying on the ethnic food markets as their sources of ethnic foods. Hence, it is important that relevant food safety and quality assurance measures are put in place to prevent the incidence of foodborne illnesses. The aim of the study was to investigate food hygiene practices among ethnic food handlers in Gauteng, South Africa. The objective of this paper was to describe demographic profile, assess food handling and personal hygiene practices among food handlers.

Methodology:
A cross-sectional study was conducted from a convenient sample of 40 food handlers to collect quantitative data. Observation using a checklist was used to obtain data on food handling practices and personal hygiene. Data was analysed using SPSS version 23 and was summarised using descriptive statistics.

Results:
Majority of the food handlers (70%) were West Africans, 42.5% had tertiary education and (85%) did not have training in food hygiene and handling practices. All the ethnic restaurants (100%) were independently owned and majority (67.5%) had been in business for less than 6 years. Food handling practices such as disinfecting surfaces between using (85%), washing hands between handling raw and ready to eat (RTE) foods (100%), using different containers for raw and RTE foods (95%) and disinfecting knives between using were fairly observed by food handlers. However, there was low adherence to washing of hands between handling money and serving customers. Most food handlers did not wear protective clothing such as gloves (100%), aprons (62.5%) and caps (60%). Up to 75% had long nails, and 77.5% food handlers’ s nails were dirty with visible grime. About half of them (50%) wore jewellery such as rings, watches and bangles while preparing food. While most of food handlers (55%) kept RTE food at <65˚ C and therefore did not need to reheat before serving customers, 35% of the those that were reheating food before serving did not follow correct reheating process. In addition, majority of the food handlers did not cover raw food (65%) and food for the day (breakfast, lunch and supper) was prepared at one go (85%).
Conclusion and Recommendations:
Food handlers had poor handling practices which could result in microbial food safety hazards. These could be attributed to poor resources, lack of training and poor monitoring. Training in food handling and hygiene practices is essential in cultivating critical food handling practices. Monitoring by the authorities is also recommended to improve compliance.

References:

DAY 5 (9 MARCH 2018): VENUE 2 (Session 2)

NUTRITIONAL ENHANCEMENT OF A STARCH BASED FOOD TO MEET CONSUMERS’ NEED FOR CONVENIENCE FOODS
Dr H De Beer – North-West University

Keywords:
Consumer acceptance; Extrusion cooking; High protein; Legumes; New food product development

Introduction:
Poverty and under-nutrition is evident in South Africa. Numerous low to middle income households lack access to enough nutritional food to sustain their individual well-being. Several external and internal factors such as unemployment and insufficient food knowledge contribute to inadequate nutritional food consumption that compromise well-being and proliferate lifestyle diseases such as diabetes and obesity with associated complications (Hardcastle & Blake, 2016). Access and availability of processed foods are often the most affordable food option. During the past two decades convenience and processed food has emerged into a market where consumers are exposed to a gargantuan variety of products. Time restrictions and busy lifestyles promote ready-to-eat instant foods and while they are often high in...
carbohydrates, fat, salt and sugar healthier formulations may support consumer trends towards healthier starch based foods (Hardcastle & Blake, 2016). Food products supplemented with pulses to enhance the protein content could thus be an excellent vehicle to promote more balanced macro nutrient intake, especially for undernourished consumers (Plahar et al., 2003). Ample convenience food products utilising different pulses and extrusion cooking is recorded in literature, however mainly soya containing products are readily available on retail shelves. The advantages of extrusion have established it as a recognized method with broad applications in the food industry as cost effective processing method that produce convenience extended shelf life foods (Smith & Hardacre, 2011). It was the focus of this project to enhance the nutritional value of a starch based convenient food that may potentially become a higher protein staple food.

**Methodology:**
Basic principles of new food product development were followed to manufacture higher protein content prototype products to partially meet consumer needs for healthier convenient foods. Presumptive consumer acceptance was conducted. A feasibility study was completed and different legume containing formulations were evaluated for sustainable production and nutritional value specifically focused on protein quality.

**Results:**
Previous local studies that explored food consumption patterns of income-earning households revealed that a large group of lower- to middle-end consumers mainly rely on maize meal and bread as daily staple, dietary diversity lacked and plant protein sources were underutilised (de Beer et al., 2016). Cereals are known for inadequate essential amino acids. Current available high protein maize formulations are mainly breakfast cereals largely targeted at middle- to higher-end consumers. In this study fortification of wheat flour with peanut flour introduced new products with higher protein values than commercial equivalent products. However, during the feasibility study it was revealed that the amino acid profiles of these products did not met the minimum standards to be labelled as high protein foods (SA, 2014). Thus three alternative legume containing formulations were developed and evaluated. It was evident that the balance between a formula’s processability, meeting minimum amino acid standards, cost effectiveness and consumer acceptance was challenging. The two most accepted prototypes with a high purchase intent, especially among a group of lower-end consumers and a vegetarian were the most expensive formulas. This is a problem in terms of potential product success as these potential consumers also indicated price as one of the most important buying considerations.

**Conclusion and Recommendations:**
New products’ entering the market success rate is low. It is thus important that consumers’ needs and demands are met. It is important to understand that consumers will only purchase acceptable food products that they can afford. Legumes can successfully be introduced to wheat or maize to manufacture several acceptable higher protein convenience food products with extrusion technology. However, sourcing of high quality best price ingredients to ensure economical sustainable food supply especially aiming at lower-end consumers is challenging but essential before these potential prototypes can be commercially manufactured.

**References:**
FACTORS THAT DETERMINE THE QUALITY OF HONEY

Miss T de Beer, Prof HC Schönfeldt, Mrs B Pretorius – University of Pretoria

Keywords:
honey, physico-chemical parameters, product of origin, quality

Introduction:
Honey’s uniqueness is attributed to the fact that it is nature’s only natural sweetener and an indigenous product that is differentiated by its natural fingerprint and nutritional profile due to i.e., environmental and geographical conditions (Shobham et al., 2017). Honey is classified as a natural product with no foreign substances added, made of the nectar of flowers consisting mostly out of fructose, glucose, maltose and sucrose, water, trace elements, vitamins, proteins and organic acids that contributes to its nutritional quality (Codex Stan 12, 2001). Honey is also well known sweet taste that is attributed to the predominance of fructose (Primorac et al., 2011). South Africa can only meet 50% of its market demands for honey consequently this limited availability of honey makes it an easy target to be counterfeited. To compensate for this deficit South Africa became a net importer of honey from various countries but mostly from China. Contrary to this South African honey is exported mostly to African countries, such as mainly Namibia (41%), Botswana (26%), Lesotho (10%) and Zimbabwe (9%), (Rural Apiculture development for Limpopo consolidated final report January 2016; Tradeprobe, Issue 64/ July 2016, NAMC report). Adulteration of honey with different sugars is one of the main practices to produce fake honey (Kružik et al., 2017).

Consumers are entitled to have access to good quality, nutritious and safe food products. According to Paiva, 2013 quality is mostly defined as “suitable for consumer usage” that “includes two important aspects, characteristics that lead to satisfaction and the absence of failures”. Quality wise fraudulent honey’s complies as it is fit for consumption, but by definition of pure honey it fails. Hence its pivotal role as a functional food in combating malnutrition and improving human health the quality status of honey is essential (Dezmirean et al., 2011).

To support this necessity proper qualitative and quantitative tools are necessary in the global and national market for an effective food control system and need to be revised regularly. These tools consists out of international (Codex Alimentarius and International Honey Commission) and national standards prescribed by legislation e.g. as a case study the Agricultural Products Standards Act (119/1999) in South Africa (APS Act (119/1990). The combination of analytical techniques, standards and legislation determines the efficiency and effectiveness of law enforcement to ensure the quality of different products.

The quality of honey is determined by its chemical composition. Thus, compilation of specific standards is therefore pivotal for the characterization of this physico-chemical composition (Codex Stan 12, 2001). The physico-chemical composition is determined but not limited to the following parameters, sugars pH, total acidity, moisture, ash, specific rotation, Lund–test and Hydroxyl-Methyl-Furfural (Codex Stan 12, 2001, Bogdanov et al., 1999, APS Act 119/1990, 2000).

This study aims to evaluate the quality of honey produced locally and imported into the South African market.
Methodology:
Samples were nationally collected for auditing purposes and sent for analyses at National Analytical Services as part of The Department of Agriculture, Forestry and Fisheries' monitoring system to ensure compliance to the legislation. The physico-chemical parameters that were evaluated are sugars (fructose, glucose, sucrose and maltose), reducing sugars, pH, total acidity (free acid and lactone), moisture, ash (mineral content), specific rotation, Lund-test (protein) and Hydroxy-Methyl-Furfural.

Results:
Data of different types of honey (n=20), regions (n=7 including imported), will be presented and discussed. The quality of honey from 4 different forage types were compared.
Correlation between the analyzed parameters is statistically significant (p< 0.05). A p-value 0.001 indicates a significantly difference between the specific honey type and the overall mean of a specific physico-chemical parameter.

Conclusion and Recommendations:
Though the product’s quality comply with the set standards of high quality value, it did not necessary mean that it is pure or authentic namely a product of origin from a particular country. Thus falsified products are marketed in competition with good quality and natural products. As part of sustainable conservation of biodiversity, cultivation of organic honey need to be promoted and accompanying regulations need to be adjusted to enable proper identification of organic honeys.

References:
Keywords:
Food Literacy, Food Knowledge, Food Skills, Nutritional literacy, Food choice behaviour, Delphi Methodology

Introduction and problem statement:
Food literacy constitutes a crucial dimension of health and nutrition well-being; it is believed that food literate consumers will make more informed and healthier food choices and live healthier lives. Recent scientific papers suggest that informed food choices are vital to curb the effects of under- and over-nutrition and to promote the nutritional well-being of modern consumers. The nutrition transition in sub-Saharan Africa and its association with the overweight and obesity pandemic, together with rising death statistics due to non-communicable diseases, are grave reasons for concern.

Declining food knowledge and food preparation skills of modern, time-constrained consumers are to a certain extent linked to the global health crisis. Simply possessing knowledge is, however, not enough. Food literacy is defined as more than knowledge, and includes the motivation to apply the information of food and nutrition to food choices. Alternative definitions for food literacy also exist, such as Habermas’ tripartite epistemology and Freire’s educational politics reframed food literacy as the ability to “read the world” in terms of food, to recreate it and remake ourselves. It involves a full-cycle understanding of food – where it is grown, how it is produced, who benefits and who loses when it is purchased, who can and cannot access it, and where it goes when we are finished with it. It includes an appreciation of the cultural significance of food, the capacity to prepare healthy meals and to make healthy decisions and the recognition of the environmental, social, economic, cultural and political implications of these decisions.

For the current study, food literacy is understood to be a complex set of related skills, knowledge and behaviours that should be applied every day to meet nutritional requirements. Food literacy accordingly integrates three main components, namely conceptual or declarative knowledge, procedural knowledge (or skills) and thirdly, the ability, opportunity and motivation to apply or use this knowledge (or behaviour). As our interaction with food is socially and culturally bound, this new field of research should be contextualised and applied to our broader South African society and should therefore reflect our eating habits and traditions. While there is no consensus about one definition, the various existing definitions are also not necessarily suitable for the South African context.

Aim and objective:
This research aimed to develop a food literacy definition that is relevant in a South African context. The objective were to extract, consolidate and confirm a comprehensive definition for food literacy, i.e. to operationalise food literacy constructs and related dimensions commencing with existing literature and integrating contributions of experts in food-related fields in terms of a battery of indicators that were refined to serve as a concise definition that is supported locally.

Methodology:
The Delphi technique was used as the first step to establish a definition for food literacy in the South African context. This was preceded by a comprehensive literature review to appropriately articulate the definition and food literacy domains. Some definitional constructs were operationalised and used to triangulate the results obtained from food experts. An iterative Delphi process was used to clarify those constructs that South African food experts believed should form part of a food literacy definition, as well as inter-relationships between constructs. A final, composite definition was presented to South African food experts for review and comments.
Results and implications:
An initial list of 272 experts from various parts of the South African food sector – including the hospitality, food and beverage, food manufacturing and service industries, nutrition and health professionals, government agencies, private and government tertiary training institutions, and others - and their e-mail addresses were compiled.

In the first iteration, a total of 75 responses were secured. Qualitative coding as well as statistical summarizing into medians and standard deviations were employed to provide insight and to develop the second iteration that meant to review and confirm the first draft of the definition. The formulated definition for food literacy was used in a second iteration where the same participants were asked to judge the overall definition as well as individual domains. A total of 71 replies were received with evidence of strong concurrence with the definition overall and its dimensions (M = 8.43; M_{Max} = 10; SD = 1.54). Therefore, no further iterations were required and the researcher could commence with scale development.

SENSORY CHARACTERISTICS AND CONSUMER ACCEPTANCE OF SORGHUM PUMPKIN BREAD PREPARED ACCORDING TO THE CULINARY PRACTICES OF BASOTHO

Dr P Nkhabutlane – National University of Lesotho

Keywords:
Sorgum; bread; acceptability; mixed methodology

Introduction:
Bread forms an important part of Basotho diet. In Lesotho bread refers to a general term that covers different types of cereal dish prepared from cereal flour, warm water, salt and a raising agent. Lesotho like all other developing countries is experiencing a change towards a modern industrial society occurring steadily because the urban environment exposes people to different lifestyles in terms of economic activities, marketing and reference groups which have an effect on preparation methods and food consumption. The Literature on the characteristics of improved bread using sorghum composited with pumpkin and modern preparation techniques is very limited. The study was conducted to composite sorghum flour with pumpkin in order to prepare Basotho bread and to evaluate the characteristics of sorghum bread improved with pumpkin and to document the perceptions of Basotho about sorghum and sorghum bread.

Methodology:
A mixed methodology with both qualitative and quantitative techniques was used. A recipe for standardizing modified sorghum pumpkin bread was developed from the basic steps of recipe verification, product evaluation and quantity adjustments. The bread samples were then presented to two focus group sessions each consisting of ten housewives one in the rural area and the other in the urban area. A total of 253 women respondents from the five districts completed a face to face questionnaire about knowledge, preparation and consumption of traditional Basotho bread. The questionnaire was designed based on a comprehensive literature and information obtained during the preliminary study. The focus group entailed discussions and demonstrations, videotaping, observation and photographing. Focus group discussions were led by the researcher. The assistant moderator and the audio visual assistant helped with recording. Descriptive statistics was used to illustrate and describe the quantitative data. An inductive grounded theory approach was used for qualitative data analysis. Qualitative data from each focus group was recorded by writing notes and videotaping was transcribed by the research moderator. The transcripts were read and re-read several times and then subjected to manual analysis that involved systematic steps of ‘breaking up’ the data into codes.
Results:
Focus group results indicated that Basotho perceived sorghum as the most important crop for preparing bread with high density energy that could keep them full for longer periods to carry out daily heavy duties. However, 65% of results revealed that sorghum in Lesotho for bread making is perceived as a crop used by people in the rural areas, and also as a crop for poor people. The following characteristics of sorghum pumpkin bread were evaluated: colour, volume and texture of the breads. The type of sorghum and milling properties of the flour used has major effects on the physical and sensory properties of the bread. While, the traditional sorghum bread are characterised by low volume, denser crumb, heavy, chewy, dry, fibrous texture and sour flavours and aroma. The improved sorghum pumpkin breads are characterised by high volume, well distributed air cells in the bread crumb, heavy, chewy, yellowish colour as an effect of pumpkin colour and a little fibrous with improved texture. The questionnaire results revealed that 99% of consumers liked the improved sorghum bread.

Conclusion and Recommendations:
The knowledge on the standardization procedures, sensory characteristics and perceptions of Basotho towards sorghum bread from this study could be used for further research. The improved characteristics such as a high volume, soft texture and fine crumb of sorghum pumpkin bread together with a high percentage of consumers who like the bread, suggest that this type of bread could be prepared in Basotho households and therefore make use of sorghum which is currently underutilized in the country. In addition the addition of pumpkin in sorghum bread adds towards promoting health, nutritional activities and sustainable food security in Lesotho. The information from this study suggests that research geared to the improvement of the quality characteristics of sorghum breads, should be given the highest priority in order to encourage the use of local ingredients. This could serve as a basis for Basotho traditional food knowledge in which healthy, nutritious foods could be prepared.

The nutritional status and socio-demographic profile of children attending Early Child Development Centres in Botha’s Hill, Durban

SENSORY FLAVOUR PROFILES FOR THREE PAPRIKA POWDER SAMPLES
Dr SM van Heerden, Miss L De Lange – ARC-Animal Product Institute

Keywords:
Sensory evaluation, paprika profiling

Introduction:
Sodium is a well-known and used as a flavour enhancer in the food industry. However, globally and in South Africa there’s been new regulations to encourage the food industry to reduce the sodium levels of food products. Research and development departments are challenged to achieve this by using salt replacements as alternative to flavour enhancers. This is not a straightforward process. It could change the product’s taste and mouthfeel. Therefore, it is important to maintain the product’s sensory characteristics such as taste and mouthfeel throughout the process. If not, there is a change that consumers will stop buying the low salt product and switch to other products that offer greater flavour.

Methodology:
A formal trained sensory panel (ten members) participated in the evaluation of three paprika samples. Samples were evaluated under controlled conditions and by applying descriptive analysis test. During the training sessions, panellists were exposed to samples, which need to be evaluated in order to develop relevant terminology.
of attributes that differed the most between the pure paprika and paprika blend samples. The panel members tasted the samples one at a time in three consecutive sessions, 20 minutes apart. Water was served as palate cleansers. The 2% paprika and 104g Smash (instant mash potato – original flavour) was mixed and prepared according to the instructions on the smash package. Smash was used as an uniform carrier for the paprika. The significance of all the sensory attributes measured for each product sample was tested by means of t-test for two independent samples.

Results:
The three paprika products had a typical dusty, cayenne pepper, soup powder, dry green leafy, cooked vegetable and burned vegetable profile. However, the intensity differed significantly between the pure paprika and the paprika blend samples. Pure paprika had the most intense cayenne pepper aroma but could be characterise as the paprika with the least dusty, soup powder and dry leave aroma, the least intense bitter, sour, dusty cayenne pepper and burned taste and aftertaste. The 60 ASTA was the paprika blend sample with the most intense profile followed by 120 ASTA paprika blend sample.

Conclusion and Recommendations:
It could be concluded that there is a significant difference between pure paprika and the paprika blend samples. Although not a pure product, the paprika blends had a more intense flavour profile, due to a higher sodium content or unknown flavour enhancers that might have been used in the blend products. It is recommended that the paprika blend samples are chemically analyses to confirm a lower sodium content.

DAY 5 (9 MARCH 2018): VENUE 3 (Session 3)

IMPLICATIONS OF CLIMATE-CHANGE ON THE PRACTICAL CONSCIOUSNESS OF RURAL MALAWIAN HOUSEHOLDS ON FUELWOOD ACQUISITION AND CONSUMPTION

Mrs G Mchakulu, Prof AC Erasmus, Dr NC Sonnenberg – University of Pretoria

Purpose of the Study:
The findings presented in this paper are drawn from a larger study on the acquisition and consumption of fuelwood in two climate-change threatened districts (Balaka and Phalombe) in southern Malawi. The Government of Malawi identified the two districts as climate-change threatened due to deforestation, and the resulting soil erosion. Further, the two districts have recorded diminishing rainfall over the past two decades. The increasing human population in the two districts is putting pressure on the available fuel-wood sources.

Objective: The aim of this paper is to explore households’ practical consciousness about climate-change in terms of its manifestations in the choices of energy consumed for everyday. More specifically, the paper will discuss households’ choices of different energy sources, and evidence of conservation practices in the communities.

Theoretical Framework:
The study uses Anthony Giddens’ Structuration Theory (1984). This theory is relevant for this study because two of its components, practical consciousness and discursive consciousness, have been used in family and consumer sciences because of their effect on decision-making processes and the consequences of those decisions. In terms of structures, this paper examines what the villages through environmental conservation efforts are doing to conserve forests for fuelwood. With
regard to structures, the paper examines what the Government of Malawi, through its extension services, has put in place to support the villages in their efforts to make sure that there is fuelwood supply for the present and the future. The paper also identifies the households as agents since they perform actions through embedded memory.

Methodology:
The study adopted a mixed-methods approach in which a close-ended questionnaire was administered to 231 households at Khamula Village in Kasongo Extension Planning Area in Phalombe and at Manjanja Village in Rivi-Rivi Extension Planning Area in Balaka district. Further, two focus group discussions were held in each of the two villages to further explore the acquisition and usage of fuel-wood. In additional, six in-depth interviews with several key stakeholders in the two districts were held. These included forestry and agriculture extension workers, village headmen and officials from non-governmental organizations involved in reforestation and climate-change resilience programmes.

Findings:
As a function of practical consciousness, the study found that fuelwood obtained from local forests remains the main choice for households. However, village conservation practices are increasingly making it difficult to access fuelwood from communal forests. This means that villagers are walking longer distances to obtain wood for fire used for cooking and heating water. The practice of conserving communal forests has given rise to consciousness of the importance such forests in the rain cycle even though it also means that people will have to walk longer distances for fire wood. Further, the conservation of forests has also given rise to a class of village citizens who give time in managing the forest, and teaching and mobilizing other villagers for conservation efforts. A further function of practical consciousness at household in these findings has been the planting exotic trees around homesteads to ensure a supply of firewood both for the present and the future. Further, households have taken to reducing cooking time in order to conserve available firewood. Other increasingly important methods include the use of crop residues such as maize, sunflower and pigeon peas stalks to supplement wood. These were previously not considered as sources of energy; however, as forests dwindle and protection of forests increases, households are turning more and more to these in order to supplement fuelwood. Whereas previously wood was also used for lighting inside the house at night, households are now turning to more modern lighting sources including torches and batteries.

References:
Keywords:
Food security, Malnutrition, Food availability, Food accessibility

Introduction:
“Food security is the basic human right”(Food and Agriculture Organisation 2014) However, according to the 2016 Global Hunger Index, the number of people in the world today who do not have enough food to eat is extremely high. It is estimated that about 795 million people in the world do not have sufficient food to eat to promote health and growth while one in every four children are below height for age and 8% of the children are below weight for height (International Food Policy Research Institute (IFPRI) 2016).

Statement of the problem and justification:
According to the United Nation Department of Economic and Social Affairs (2016), there is a huge increase of people living in the cities, with most being located in developing countries, leading to high levels of food insecurity and poor nutrition, especially in children. Although studies have been conducted on food insecurity, however, few studies have been conducted in urban informal settlements. It is for this reason that this study sought to investigate the relationship between food insecurity households and the prevalence of malnutrition of children residing in low income households in urban areas, in South Africa (United Nation Department of Economic and Social Affairs 2016).

Research objectives:
The main objectives of the study is to assess moderate acute malnutrition status of children aged 2-5 years old using an anthropometric measure at Gompo A, B and C primary health clinics and health centres during immunisation and health checks visits. To assess food security of Gombo households, Radimer-Cornell Household Food Security access Scale (HFI) modified to assess food security in households will be used. Furthermore develop an initiative to introduce vegetable gardens hence increase food security and nutritional status of children in Gompo village, East London.

Conceptual and theoretical framework:
The study used the theoretical framework of the factors that contributes to household food security and nutritional status of children. The conceptual framework was adapted from UNICEF’s undernutrition conceptual framework (UNICEF 2013). The framework indicates four elements of food security, namely food availability, access, utilisation and availability. The conceptual framework shows the immediate, underlying and basic causes of undernutrition especially in children at the immediate level (individual), underlying level (household/community) and at the basic level (society) level. (See Figure1 below)
Immediate, underlying and basic causes of food security (UNICEF 2013)

Methodology
A randomised community-based cross-sectional household survey will be undertaken for six months in Gompo Village in East London. An anthropometric indicator mainly stunting (height-for-age) will be measured among children aged 2-5 years old. Anthropometry indices will be calculated using standard measuring procedures of
World Health Organisation (WHO 2009). The study population will include mothers or caregivers of children aged 2–5 years, residing in Gompo village in East London, Eastern Cape. To assess food security, a Radimer/Cornell Household Food Security access Scale (HFIS) modified to assess food security in households will be used.

References:

**TRANS FATTY ACID CONTENT IN USED VEGETABLE COOKING OIL AND FOOD SAFETY HYGIENE PRACTICES OF INFORMAL FOOD VENDORS IN WARWICK TRIANGLE (WAT), DURBAN**

*Mr M Rubushe – Durban University of Technology*

**Keywords:**
Trans fatty acid, food safety, hygiene practices, informal food vendors, Gas Chromatography

**Introduction and Problem as well as Objectives of your study:**
There are many dangers associated with reusing vegetable cooking oil coupled with precarious food handling practices among informal food vendors. The research aim is to determine the food safety and hygiene practices and the trans fatty acid content of vegetable cooking oil used by the informal food vendors in Warwick Triangle (WAT), Durban. In addition, this study aims to determine if the vendors in WAT have sufficient knowledge and apply food safety and hygiene practices whilst preparing food. This study is in progress.

**Methodology:**
Design and methods
This study is of descriptive nature with an analytical component. The data collection is of a quantitative nature with questionnaires and an observation sheet to assess general hygiene and cleanliness. The analytical component includes an instant testing measure and lab analysis of cooking oil. All data will be collected by a trained Consumer Science Food and Nutrition third year or B-Tech student.

Measuring Instruments and data analysis
- Food handler’s questionnaire determining food safety knowledge and hygiene practices and will be completed and captured on a Microsoft Excel® spread sheet and analysed on the SPSS software version 23.
• Observation sheets to observe food handlers during food preparation on respect of hygiene will be completed by the researcher/fieldworker and captured on a Microsoft Excel® spread sheet and analysed on the SPSS software version 23.

• A valid and reliable Demographic questionnaire for the profile of the informal food vendor will be completed and captured on a Microsoft Excel® spread sheet and analysed on the SPSS software version 23.

• Recording the quality of the vegetable oil used to prepare food items, using 3M™ oil quality test strips and capture the results on a Microsoft Excel® spread sheet and analyse on the SPSS software version 23.

• Edible vegetable oil of 100 mg will be added into a mixture (2 mL) of petroleum ether and methylbenzene (v/v 1:1) and shaken until the oil is completely dissolved (~10 minutes). Then 2 mL Potassium hydroxide (KOH) (0.5M in methanol) will be added and shaken for another 5 minutes to simultaneously saponify and methyl esterify the oil. After that, the solution will be incubated with 2 mL Hydrogen chloride (HCl) (2 M) for 3 minutes to neutralize the excessive potassium hydroxide. The final organic solution on the top will be filtered using a 0.45μm filter for GC analysis. Saturated, polyunsaturated and Monounsaturated fats will be analyzed.

After each day of data collection all questionnaires will be checked for completeness. A statistician will be consulted to assist in the interpretation of the data.

The data is currently being analysed and oils are being tested in the lab, awaiting for results.

References:
DEVELOPMENT OF FOOD BASED DIETARY GUIDELINES FOR THE ELDERLY IN SOUTH AFRICA

Prof CE Napier - Durban University of Technology
Prof WH Oldewage-Theron – TTU
Dr HH Grobbelaar – Durban University of Technology

Introduction:
The elderly population is increasing globally and it is projected that the global older population will nearly double by 2050. South Africa (SA) is also experiencing a rapid increase in the elderly population and it is projected that the number of older people in SA will increase to 7 million by 2030, indicating an increase of almost 71% between 2011 and 2030. Older people are a vulnerable group due to the prevalence of age-related lifestyle diseases that are associated with poor quality diets. It is well known that appropriate food choices and adequate nutritional intake is essential for maintaining health and increased longevity in the elderly.

Methodology:
The purpose of this presentation is to describe the process of the development and testing of the Elderly Food Based Dietary Guidelines (EFBDGs) for South Africa. Following a literature review, stakeholder discussions and revision, preliminary English EFBDGs were proposed and circulated to an expert panel for input. The developed EFBDGs are based on the existing FBDGs which were revised in 2012 and adapted for older people following the FAO/WHO guidelines. Minor corrections were received and incorporated, after which the guidelines were tested for comprehension, appropriateness and applicability in consumer groups.

Ethics approval was obtained from the Durban University of Technology Research Ethics Committee to conduct the testing in the elderly. Each participant signed an informed consent form as confirmation of interest and agreement to the recording of the proceedings. The methodology included quantitative data collection on socio-demographic indicators and a qualitative design was followed with focus group discussions.

The focus group topic guide developed by Love for the testing of the 2003 FBDGs was adapted and used as a basis for the focus group discussions in this study and included some socio-demographic questions, including questions on age, gender, ethnic group, education level, employment status, income, cooking fuel and water source. The focus group topic guide questions were structured to ask for each guideline: ‘Have you heard or read this message before?, What does this message say to you?’ Specific words from each guideline were highlighted to determine understanding of each, for example: ‘What does the word “plenty” mean to you?’, ‘What does the word “different” mean to you?’ and ‘What does the word “coloured” mean to you?’

Firstly, the English EFBDGs were tested with IsiZulu, Afrikaans, IsiXhosa, English and Sesotho speaking elderly aged 60 years and older in KwaZulu Natal, Gauteng, Eastern Cape and Free State provinces respectively in small focus groups of between eight to ten people. Thereafter they were adapted and translated into IsiZulu, Afrikaans, IsiXhosa and Sesotho. Secondly, the adapted and translated EFBDGs were tested in the mentioned ethnic groups.

Results:
In general, as expected, the results of the tests showed that the English speaking elderly responded better to the English guidelines than the other ethnic groups. The feedback in respect of the tested translated guidelines was more positive indicating a better understanding of the EFBDGs by the various ethnic groups. This is because not only were the English guidelines translated but they were also adapted and words were contextualised according to the day-to-day language use of the groups.
Conclusion and Recommendations:
It was recommended that the guidelines be incorporated into the Integrated Nutrition Programme for the purpose of nutrition education as well as a guide for food service institutions serving the elderly. Also, it was recommended that the development of support material for health professionals and the wider community be undertaken and the material translated into all the official languages. Future strategies should include the implementation, evaluation and impact of the EFBDGs.

References:
Baiphethi MN, Jacobs PT. The contribution of subsistence farming to food security in South Africa. Agrekon; 2009;48(4):459-482.
Love, PV. Developing and assessing the appropriateness of the preliminary food-based dietary guidelines for South Africans. PhD. University of Natal; 2002.

NUTRITIONAL COMPOSITION AND COOKING PROPERTIES OF INSTANT MAIZE PORRIDGE ENRICHED WITH MORINGA LEAVES AND EDIBLE TERMITES’ POWDERS
Miss KR Netshiheni,
Mr ME Mashau – University of Venda
Dr D Beswa – University of South Africa
Prof AIO Jideani – University of Venda

Keywords:
Maize porridge, moringa, edible termite, mineral, proximate composition, viscosity

Introduction:
Porridge is the most dominant maize-based staple food consumed across age groups in sub-Saharan Africa and other developing countries. However, maize-based porridge is characterised by bulkiness, inadequate nutrient density and high viscosity, low energy density per unit volume of the food (Nabubuya et al., 2017; Elemo et al., 2011; Faber and Wenhold, 2007). As a result, there is a prevalence of health conditions, which are related to hidden hunger in most lower socioeconomic-positioned communities living in less urbanized areas (Zamora and De-Regil, 2014). Therefore, the aim of this study was to enrich the instant maize meal (IMM) porridge with moringa leaf powder (MLP) and edible termites’ powder (ETP) while lowering its viscosity due to dilution of maize starch.

Methodology:
Instant maize meal was partially substituted with moringa leaves and termite powders (w/w basis) as follows: 80% MM, 5% MLP and 15% ETP, respectively. Treatment of moringa leaves varied from uncooked, cooked, and blanched, respectively, and the following porridge samples were prepared: control (100% IMM, 0% MLP, 0% ETP), IMMcMLP (80% IMM, 5% cooked MLP, 15% ETP), IMMbMLP (80% IMM, 5% blanched MLP, 15% ETP) and MMrMLP (80% IMM, 5% raw MLP, 15% ETP). Enriched porridge and control samples were evaluated for cooking properties (gelatinisation temperature, viscosity and firmness), colour, proximate composition and the content of selected minerals (Ca, Fe, Mg and Zn). Data were analysed using statistical software SPSS version 23.
Results:
Addition of *moringa* leaves (raw, blanched and cooked) and termite powders resulted in a significant increase in gelatinisation temperatures of porridges. The porridge with raw *moringa* leaves powder exhibited the highest gelatinisation temperature (98.19°C) compared to control (89.30°C) and other porridges (97.10-97.18°C). A substantial decrease in viscosity of the porridges with addition of *moringa* and termite powders was observed. Viscosity of enriched porridge samples was almost two-folds lower (210.33 – 223.00 cP) than that of a control porridge (443.33 cP). As the starch and protein in maize meal were diluted by *moringa* and termite powders, the enriched porridges became softer (24.70 – 30.17 N) than the control porridge (37.67 N). Enriched porridge became greenish in colour as shown by the reduction in L-values while a* and b*-values increased. Proximate composition of enriched porridges increased significantly except for total carbohydrates which exhibited an opposite response to the addition of *moringa* and termites powders. Addition of *moringa* and termites powders resulted in marked increase in content Ca, Fe, Mg and Zn.

Conclusion and Recommendations:
Results of this study suggest that *moringa* leaves powder and termite powders could significantly improve the nutritional composition and viscosity of maize porridge. There is a need to optimise the concentration of *moringa* leaves and termite powders without compromising consumer appeal of the porridge. Studying the bioavailability of the porridge is recommended.

References: