

**INTEGRATING GHANAIAN INDIGENOUS PACKAGING  
CONCEPT WITH CONTEMPORARY PACKAGING DESIGN.  
(A CASE OF ICE CREAM PACKAGING DESIGN IN GHANA)**

KNUST  
By

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## DECLARATION

I hereby affirm that this submission is my own work towards an MPHIL degree and that to my best of knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any degree of the university, except where due acknowledgment has been made in the text.

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## ABSTRACT

This thesis investigates into how Ghanaian Indigenous Packaging Concept can be integrated with CPD, using ice cream packaging design in Ghana as a case study. Creating an ice cream package that reflects the Ghanaian culture and current packaging trending elucidate the idea that culture and design balance each other and is one unimaginable without the other, (Moalosi et al 2005). In other words, the interdependence of culture and CPD process is revealed.

In order to integrate Ghanaian Indigenous Packaging Concept with CPD; the Moalosi theoretical framework was adopted to achieve this aim. The researcher employed the qualitative research, which he further the Case study and the Ethnography research designs. The researcher gathered data using interviews and participant observation, from Consumer perceptions on ice cream packaging design in Ghana and packaging concept on Ghanaian edibles from three selected regions, manufacturers of ice cream and indigenous edibles like Ga-kenkey, Fante kenkey, and so on. The researcher identified two categories of Ghanaian indigenous packaging on edibles namely; Dried leaves and Fresh leaves. Also ice cream packages are not designed and produced in Ghana, and the two major ice cream manufacturers in Ghana think integration with Ghanaian indigenous packaging concepts and CPD is possible. After this, current ice cream packaging design in Ghana and dry leaves packaging concept was assessed by testing, using basic current packaging requirements. With this, the researcher was faced with the challenge of integrating dry leaves (corn sheath and plantain leaves) with visual element and product information, to produce an effective ice cream packaging design.

The thesis concluded by recommending further research to provide a theoretical framework that Ghanaian would use to design products that are culture-oriented. And also the researcher admonished Ghanaian designers to integrate culture factors into their design process.

## TABLE OF CONTENT

DECLARATION .....	ii
ACKNOWLEDGEMENTS .....	iii
LIST OF PLATES .....	ix
LIST OF TABLES .....	xii
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
Overview .....	1
1.1 Background to the Study .....	1
1.2 Statement of the Problem .....	4
1.3 Purpose and objectives of the Study .....	5
1.4 Research questions .....	5
1.5 Significance of the study .....	6
1.6 Delimitation .....	7
1.7 Limitations .....	7
1.8 Definition of terms .....	8
1.10 Abbreviations .....	8
<b>CHAPTER TWO .....</b>	<b>9</b>
<b>REVIEW OF RELATED LITERATURE .....</b>	<b>9</b>
Overview .....	9
2.1 Ghanaian Indigenous knowledge .....	9
2.1.1 Indigenous knowledge .....	9
2.2 Ghanaian indigenous packaging and packaging materials .....	12
2.2.1 Corn Sheath .....	14
2.2.2 Plantain leaves .....	15
2.2.3 Gourd .....	15
2.3 Contemporary Package design .....	16
2.4 Functions of packaging .....	17



2.4.1 Containment and convenience to handle .....	18
2.4.2 Protection and preservation.....	19
2.4.3 Communication .....	20
2.5 Constituents of Good Packaging .....	21
2.6 Aesthetic and Visual Aspects of Contemporary Packaging .....	23
2.6.1 Visual Elements .....	25
2.6.1.1 Graphics and Colour .....	25
2.6.1.2 Size and Shape .....	26
2.6.1.3 Pictures and Illustration or Imagery .....	27
2.6.1.4 Product Information (Typography) .....	27
2.7 Labelling .....	28
2.8 Classification of Packaging.....	28
2.9 Packaging Materials .....	29
2.9.1 Paper & Board.....	30
2.9.2 Glass .....	31
2.9.3 Metals .....	32
2.9.4 Plastic .....	33
2.9.5 Laminates and Co-extrusions .....	36
2.12 The concept of integration .....	37
2.11 Food packaging .....	38
2.10 Ice Cream Packaging Design .....	40
2.11 Theoretical Framework of the Study .....	41
<b>Conclusion .....</b>	<b>45</b>
 <b>CHAPTER THREE .....</b>	 <b>48</b>
<b>METHODOLOGY .....</b>	<b>48</b>
Overview .....	48
3.1 Research design .....	48
3.2 Research Methods .....	48
3.2.1.2 Descriptive .....	50

3.2.2 Ethnography .....	51
3.3 Population for the Study .....	51
3.3.1 Sampling Design .....	51
3.4 Data collection methods .....	53
3.5 Data collection instruments.....	54
3.5.1 Interview Guide .....	54
3.5.2 Participating by observation .....	54
3.6 Data Analysis .....	55
3.7 Validity and Reliability .....	55
3.8 Work Procedure .....	56
3.9 Objective One .....	56
3.10 Objective two .....	57
3.10.2 Central region.....	58
3.11.3 Objective three .....	63
3.12 Designing and Production of Ice Cream Package Design .....	63
3.12.1Design Brief .....	63
3.12.2 Product Design Specification .....	64
3.12.2.1 Testing of indigenous packaging materials (Dried corn .....	64
3.12.3 Concept Design .....	68
3.12.4 Prototyping .....	73
3.12.5 Testing.....	76
3.12.6 Refining and Detailing .....	78
<b>CHAPTER FOUR .....</b>	
<b>85 PRESENTATION AND DISCUSSION OF FINDINGS .....</b>	
<b>85</b>	
Overview .....	85
4.1 Categorisation of respondents .....	85
4.2 Discussion of findings from manufacturers of indigenous meals from three .....	85
Table 4.2 Gender range .....	86
4.3.1.1 Importance of indigenous packaging .....	87
4.3.1.2 Name of the packaging style of indigenous meals .....	87
4.3.1.2 Reason for using indigenous packaging material. ....	88

4.3.1.3 How the meal is packaged. ....	88
4.3.1.4 Any other alternative way of packaging the meal .....	107
4.4 Discussion of findings from consumers of indigenous meals .....	108
4.4.1 Reason for patronage of meals .....	108
4.4.2 Indigenous packaging of meals .....	108
4.4.3 Patronise, if packaged in another alternative way of packaging the meal. ....	109
4.4.4 Integration with contemporary packaging materials.....	110
4.4 Discussion of findings from manufactures of ice cream. ....	110
4.4.1 Factors that influence ice cream packaging design.....	110
4.4.2 General requirement for designing ice cream packages. ....	111
4.4.3 What influences the shape and size of their packages. ....	111
4.4.4 What necessitate a change in the ice cream packaging design. ....	111
4.4.5 Challenges they encounter when designing ice cream packages. ....	111
4.4.6 Influence of culture .....	112
4.5 Discussion of findings from of ice cream consumers. ....	112
4.6 Discussion of result of test of indigenous materials (dried corn sheath and plantain leaves) .....	113
4.6.1 Discussion of result of test of prototypes .....	114
<b>CHAPTER FIVE .....</b>	<b>115</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>115</b>
5.1 Summary .....	115
5.2 Conclusion .....	116
5.3 Recommendations .....	117
<b>REFERENCES .....</b>	<b>118</b>
<b>APPENDIX .....</b>	<b>122</b>



## LIST OF PLATES Plate 2.1 Paper and board ..... **Error! Bookmark not defined.**

Plate 2.2 Glass jar .....	31
Plate 2.3 metal containers .....	32
Plate 2.4 PE board Paper .....	35
Plate 2.5 Alu board Paper .....	35
Plate 2.6 moalosi theoretical framework .....	42
Plate 3.1 fante kenkey.....	55
Plate 3.2 Boodoo.....	56
Plate 3.3 Ga-kenkey.....	57
Plate 3.4 Abolo m3m3” .....	58
Plate 3.5 Abolo dada” .....	59
Plate 3.6 Kaffa .....	59
Plate 3.29 label for cup .....	75
Plate 3.30 label 3 for cup .....	76
Plate 3.31 label mini bowl .....	76
Plate 3.32 large bowl .....	77
Plate 3.33 label for square cup.....	77
Plate 3.34 label for mini bowl.....	78
Plate 3.35 label for mini bowl.....	78
Plate 3.36 ice cream cup .....	79
Plate 3.37 triangular ice cream cup (corn sheath).....	79
Plate 3.38 mini ice cream bowl 1 (corn sheath).....	80
Plate 3.39 mini ice cream bowl 2 (corn sheath).....	80
Plate 3.40 square ice cream cup.....	80
Plate 3.41 large ice cream bowl.....	81
Plate 4.1 This is a picture of dried plantain leaves that is about to be used to package kenkey.....	85
Plate 4.2 The individual dried plantain leaves are cleaned with a dried rug .....	85
Plate 4.3 Then arranged together to form a unit, to be used to package the kenkey Plate	
4.4 A ball of the partially prepared corn dough is placed onto the dried plantain .....	86
leaves .....	86

Plate 4.5 “OSIMUKUR” style step 1 .....	87
Plate 4.6 “OSIMUKUR” style step 2 .....	87
Plate 4.7 “OSIMUKUR” style step 2, in 2 dimensional drawing with CorelDraw .....	87
Plate 4.8 “OSIMUKUR” style step 3 .....	88
Plate 4.9 “OSIMUKUR” style step 4 .....	88
Plate 4.10 “OSIMUKUR” style step 5 .....	89
Plate 4.11 “OSIMUKUR” style step 6 .....	89
Plate 4.12 “OSIMUKUR” style .....	89
Plate 4.13 “ASANTE” style step 1 .....	90
Plate 4.14 “ASANTE” style step 2 .....	90
Plate 4.15 “ASANTE” style step 3 .....	91
Plate 4.16 “ASANTE” style step 4 .....	91
Plate 4.17 “ASANTE” style step 5 .....	92
Plate 4.18 “ASANTE” style step 6 .....	92
Plate 4.19 “ASANTE” style step 7 .....	93
Plate 4.20 “ASANTE” style step 8 .....	93
Plate 4.21 “ASANTE” style .....	94
Plate 4.22 This is a bowl of harvested corn sheath about to be used for packaging ...	94
kenkeyPlate 4.23 The individual sheaths are separated apart by tearing from cluster, then .....	95
unwanted parts are cut away and washed in clean water.....	95
Plate 4.24 the partially cooked corn dough is shaped into balls.....	95
Plate 4.25 “GA KENKEY” step 1 .....	96
Plate 4.26 “GA KENKEY” step 1 in 2 dimensional drawing using CorelDraw .....	96
Plate 4.27 “GA KENKEY” step 2 .....	97
Plate 4.28 “GA KENKEY” step 3 .....	97
Plate 4.29 “GA KENKEY” step 4 .....	98
Plate 4.30 “GA KENKEY” .....	98
Plate 4.31 “Abolo m3m3” covered with kaffa leaf.....	99
Plate 4.32 “Abolo dada” step 2 Corn husk cut into halves .....	100

Plate 4.33 “Abolo dada” step 2.....	100
Plate 4.34“Abolo dada” step 3.....	101
Plate 4.35“Abolo dada” step 3.....	101
Plate 4.38 a graphical representation of how kaffa leaves turned .....	103

# KNUST



## LIST OF TABLES

Table 3.1 Stratified sampling process for choosing respondents .....	52
Table 3.2 schematic overview of disproportionate stratified sample .....	53
Table 4. 1 Age range .....	86
Table 4.2 Gender range .....	86
Table 4.2 response of alternative packaging .....	109



## **CHAPTER ONE**

### **INTRODUCTION**

#### **Overview**

This chapter is the pivot on which this thesis stands on. It clearly highlights the importance of Ghanaian indigenous knowledge with regards to indigenous packaging, how foreign influence has over shadowed our way of packaging and ice cream in Ghana. The purpose of the study and objectives to achieve it are clearly defined, with research questions to probe into specific areas of the study are further looked at. After this, the significance of the study is critically addressed, and the delimitation, limitation, definition of terms and abbreviations concludes the chapter.

#### **1.1 Background to the Study**

Ghana has very rich cultural heritage that dates as far back as medieval Ghana (4th to the 13th century) Ghana can boast of very rich indigenous and contemporary artifacts of exceptional intriguing philosophical values and qualities (Annku & Lodonu, 2012). Customs and folklore, proverbs and fables, mythology and beliefs are passed on from generation to generation through songs, drama, and arts and crafts at various levels (Division, 1975). And these aspects of art have played a major role in identifying Ghanaian culture, and that of Africa as a continent (Ross, 2004). In the 17<sup>th</sup> century, when the British, imposing administration of the Gold Coast outlined the 'Education Code' in which they introduced the 'Hand and Eye training', indigenous art lessons were not added to the curriculum, which was the technical and naturalistic drawing of simple objects. This was because the inhabitants of the Gold Coast were assumed as outmoded, deficient with the potential to create art (Macclancy, 1997). Here I extend this argument to the fact that Ghana indigenous knowledge in art has over the years been over taken



by contemporary or western knowledge. One area of study that has been over shadowed with contemporary system is packaging.

Packaging has now matured even though it has been around for years. Packaging has existed since man was created, and the human body or skin is in itself a package, which protects the unseen body part from exterior exposures and also transports these organs from place to place on a daily basis (Saka, 2011).

The most primitive forms of packaging materials were animal skins, large leaves and Vegetables. It could be traced to the early ancient times after the appearance of human beings but before there was civilization when humans had learned to make leather bags with animals' skin or weaved baskets with reed for use in daily life. Stanley

Sacharow in his book "*Handbook of Packaging Materials*" affirmed that the first man-made packages were containers made from clay. He learnt to bake clay vessels after he knew how to use fire but before that he probably left them in the sun to dry. Broad Leaves from high trees were perhaps used for packaging food in the primary stages of life (Risch,2009) but over the periods, materials used for packaging food has changed from organic materials such as leaves to man-made organic materials such as polyethylene (Brody et al., 2008; (Mensah, Adei, Adei, & Ashie, 2012). Packaging today, has been inseparably linked to consumer demand progression and society's influence on the corporate world. Marketers have come to readily accept the positive impact that packaging has on consumer decisions, and it is not just about shelf life and shelf space anymore. It is about adding value to the brand name and impacting the consumer's life positively (Bywater, 2013). In 2003, CIKOD, the Center for Indigenous Knowledge and Organizational Development, a Ghanaian NGO, organised a chain of workshops with the goal of "*enhancing knowledge and awareness of indigenous*

*knowledge within development.*” During one workshop presentation, ideas were graphically illustrated, a Zimbabwean woman from the

*Shona* tribe was wearing a “British hat,” a “Swiss watch,” and a “traditional *Shona* cloth”. A Ghanaian intellectual used the above illustration to show the difficulty expressed by development practioners: “How can we integrate the indigenous and foreign elements to get a unique blend” (Yarrow, 2008)? Here I extend the same argument as to how to integrate Ghanaian traditional packaging design with contemporary package design.

This study seeks to produce an alternative packaging design for ice cream using an integration of Ghanaian traditional packaging design with CPD.

Though ice cream is not a Ghanaian indigenous product, it has gained tremendous patronage by Ghanaians of all ages. For example, Ghana's major ice cream maker, Fan Milk Limited, is an unquestionable leader in the ice cream, yoghurt and fruit drink industry in Ghana. Fan Milk Ghana (FML) has proved to be one of the major forces in the economy of Ghana. In the last five years the average economic growth of Ghana is pegged at 8.7%, thus outgrowing sub Saharan Africa with an average of 4.9%. As a result, the country's per capita non-refundable income has witnessed a drastic increase since 2008, doubling to GH¢ 2,912 in 2012. This stepped up patterns in domestic consumption, particularly the food and beverages sector. Successively, Fan Milk Ghana has observed strong annual revenue growth of 27.9% during FY 2008-12 period (CBL Research, 2013). Thus using ice cream as the case study for this research serves as a platform to add to the existing knowledge on how to improve on packages of locally produced products. Also because of its high patronage by all ages, the Ghanaian identity can be communicated effectively through its package design.

## 1.2 Statement of the Problem

Macclancy, (1997) states that, “*Identity is understood as an indication of timeless ontological qualities of either individuals or social groups*”. He further states that Creative elegance is symbolized as a proof of identity, and identity as a proof of artistic style. For example, Nana Nketsia V Omanhene of Essikado (a traditional area in the Western region) and lecturer in History at the University of Cape Coast, was a guest speaker at a CIKOD workshop held in Accra, 2003. He described himself as “a very modern chief,” explaining his duties as both a member of the “traditional authority” and as a part of the “modern education system.” Although he was adorned in typical traditional attire of a Fante chief—a brightly colored kente cloth, a pair of leather sandals, and highly ornamented gold regalia—he also carried a state-of-the-art mobile telephone and spoke with a distinct English accent. He later informed participants of time spent at boarding school and at university in the United Kingdom (Yarrow, 2008a). This clearly depicts that Ghanaians have an identity and that identity is closely linked to our indigenous arts.

In packaging, the Ghanaian identity may be improved and established. The Ghanaian market is filled with over 2000 products, majority of them imported from other countries. One of such products is ice cream, which is not an indigenous Ghanaian product, but has gained tremendous patronage by Ghanaians of all age over the years. And currently, it is being produced and packaged in Ghana, thus becoming part of the modern Ghanaian. Two major ice cream brands produced in Ghana are fan milk and frosty bite. But currently, ice cream on the Ghanaian market have contemporary package design which clearly depicts the over shadowing of contemporary package design over Ghanaian indigenous package design, thus resulting in little identification

of Ghana on the ice cream packages. Wang, 2008 states consumers are easily influenced to purchase a commodity when it is readily found. Furthermore, packaging gives charm and makes a product unique from other commodities; it also arouses the buyers' desire for consumption. A packaging design that is effective arrests the attention of consumers and experience, lengthens lingering time before the shelf, and successively causes sale of the product.

It is, therefore, necessary to study the Ghanaian indigenous packaging concept and integrate it with CPD; this way, Ghanaian indigenous packaging design would not fade out completely but would add value to the current packaging design trends because of its philosophical implication.

### **1.3 Purpose and objectives of the Study**

The purpose of the study is to integrate Ghanaian indigenous packaging concept with CPD to produce an alternative ice cream package design. This can be achieved through the following objectives;

1. To find out from consumers their perception on Ghanaian indigenous packaging on edibles and ice cream packaging design.
2. To identify the various forms of Ghanaian indigenous packaging concepts on edibles that can be integrated with contemporary package design to produce an alternative ice cream package.
3. To design and produce an alternative package for ice cream.

### **1.4 Research questions**

1. What are consumers' perception on Ghanaian indigenous packaging on edibles and ice cream packaging design?



2. What are the forms of Ghanaian indigenous packaging concepts on edibles that can be integrated with contemporary package design to produce an alternative ice cream package?
3. How can Ghanaian indigenous packaging concept and contemporary package design be integrated to produce an alternative package for ice cream?

### **1.5 Significance of the study**

To provide, an appropriate documentation on Ghanaian indigenous packaging concepts of edibles.

Ayiku, (1998) indicates that common beliefs and values, and ideas about cultural behaviours and actions, cultural symbols and images are perpetuated to the undeveloped peers through stories, proverbs, and folk songs, among others. Unfortunately native philosophies are not held on as more traditional societies have adopted western culture (Appiah-Opoku, 2007). This obviously means that certain aspects of our indigenous beliefs and practices have either not been documented or have been poorly documented. A major objective of this study is to identify forms of Ghanaian indigenous packaging design. Packaging is an art that has been a vital part of the lives of Ghanaians for a long time. Unfortunately, little is known of the indigenous Ghanaian packaged forms, therefore this study seeks to document Ghanaian indigenous packaging design on edibles.

Another area of importance is giving additional value to Ghanaian ice cream packages. An important responsibility of a package designer is to create a package design that is effective, so that commodities are easily findable (Wang, Regina and Chou, 2008). Obeesi (2010) states most products on the Ghanaian market, does not depict our cultural values, making it undistinguishable. The result of this is that locally produced products find it difficult competing with foreign products on the Ghanaian market. The addition



of value to our packages can be achieved by using our cultural values or indigenous knowledge. This is because Ghanaians value their culture, and our culture represents our identity or personality. For example, the Northern smock became the preferred outfit for Dr. Kwame Nkrumah and many of his leaders at several functions (KUM-ESSUON, 2015)

In marketing, consumers are said to buy products not only based on its functionality but the cultural value it has (Underwood, 2003). This also suggests that value is symbolic, and it is important to create variance in ice cream produced in Ghana and imported ones, through packaging design.

### **1.6 Delimitation**

The dissertation will not interrogate packaging material sciences where the basic properties of each packaging material will be tested. However, the study would adopt accessible existing data on the packaging material properties where possible to support an assertion or make an assertion. Also the study is limited to production of ice cream packages using leaves that are used in the production of Ghanaian indigenous edibles from three selected regions in Ghana, namely Greater Accra, Central and Volta region.

### **1.7 Limitations**

Respondents of major players in the ice cream industry were cynical of information given to the researcher, so certain detailed information on their packaging was not acquired. Also, since packages are not designed and produced in Ghana, designing procedures were assimilated. Existing literature on ice cream packaging design is very scarce.

## 1.8 Definition of terms

**Packaging design:** it is process of systematically organizing two or more packaging materials with text, colour, and illustration to produce an enclosure that can contain, protect and advertise a product.

**Ghanaian identity:** it is a concept that determines the way of life of a Ghanaian.

**Ghanaian indigenous packaging concept:** it is a primitive way of using organic things in packaging products, example calabash for packaging palm wine.

## 1.10 Abbreviations

GIPC	Ghanaian Indigenous Packaging Concepts
CPD	Contemporary Packaging Design
ICPD	Ice Cream Packaging Design
TIEPIK	The International Export Packaging Information Kit

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### Overview

The object of my literature study is to critically examine Ghanaian indigenous knowledge with a direct link to indigenous packaging, and also discuss different aspects of CPD such as; constituents of good packaging, aesthetic and visual aspects, packaging material and so on. This would serve as the platform to do an appropriate integration, of an ice cream package design. Yakubu (1994) asks “*is it possible to integrate indigenous thought and practice with science and technology of two different cultures?*” I extend a similar argument that; can GIPC be integrated with CPD?

## 2.1 Ghanaian Indigenous knowledge

### 2.1.1 Indigenous knowledge

According to (Masolo, 2003) the term *indigenous* is an Eco factor used to describe the source of objects or humanity in concerning how their habitation is been categorized, particularly in case where others are making claim. Masolo's definition of indigenous served as the basis of his quest to clearly bridge the gap of African philosophy and external influence. Masolo further elaborates that *indigenous* is from the idea *indigeneity*, which has currently appeared on the academic scene in relation to African philosophy, through historical analysis, mobility of ideas, and schools of thought in their contribution for the formation of African philosophy. And this African philosophy is made up of indigenous knowledge of various ethnic groups all over

Africa which has existed for centuries. Johnson 1992 confirms this fact by stating, *"For thousands of years, indigenous peoples around the world have used experiential knowledge pertaining to their local environment to sustain themselves and to maintain their identity"*. Thus, indigenous knowledge is a product of indigenous peoples' direct experience of the workings of nature and its relationship with the social world.

Warren (1990), one of the foremost writers on indigenous knowledge, comments on indigenous knowledge in contrast with western knowledge, which ultimately brings out significance of indigenous knowledge in relation to development in a country. He also highlights the fact that indigenous knowledge perpetuated by the word of mouth and it is the basis that scientist and planners use to develop rural societies.

Yarrow, (2008) gives a clear understanding of indigenous knowledge by stating, realistically, *indigenous knowledge* is used to refer to various collection of people, organizations, and concepts. Yarrow mainly focused on how these ideas in the Ghanaian setting has been used by development personnel and the chieftaincy

institution.

Thus, specifically, Ghanaian indigenous knowledge deals with the original beliefs and ideas of various tribes in Ghana. Yarrow, 2008 states that in Ghana, indigenous knowledge has been linked to the political administration of the chieftaincy institution. I totally disagree with this because the chieftaincy institution is not the only medium that indigenous knowledge can be related to. Art is a major area that indigenous knowledge of the Ghanaian is related. I succinctly buttress this, by quoting Getlein (2002) who states that, the basis of life has questions that arts can give answers to. Therefore, the beliefs of foremost evolutions such as the '*sympathetic magic*' of the prehistoric era; '*life after death*' of ancient Egypt; '*man as a measure of all things*' of the ancient Greece; the moral religious teachings of the Medieval periods; the '*true to nature*' ideas of the Renaissance era, and the socio-religious milieu of the traditional African life, to mention but few, all had art forming their basic principles.

The knowledge on indigenous Ghanaian art is very important, because it helps us to understand the way of life of the Ghanaian, in other words how the Ghanaian lives traditionally aside influence from western culture. Ayiku, (1998) asserts to this fact by stating Art to the Ghanaian, therefore, is conceived as a phenomenal aspect of the human life and condition -- an integral part of the life force -- because each art form performs some specific functions that contribute to the maintenance and sustenance of life and living. He further asserts that, there is no '*art* for art's sake' in Ghana. The arts are always represented as part of the culture; they are linked up with the history of the culture, as well as the history of the Ghanaian people. Therefore, an understanding of the arts of Ghana requires knowledge of the Ghanaian social and cultural history. According to a study prepared by the cultural division of the ministry of education and culture (1975), the social and cultural history of Ghana is made up of the beliefs and



ideas of a particular tribe in Ghana. These beliefs and ideas are made manifest through art. So in other words to every art work there is a philosophical implication, which makes it distinct from the modern western art. The various indigenous Ghanaian art forms like clothing, pottery, jewellery, wood carving and so on, are mediums through which the Ghanaian philosophy is established.

Another important assertion that needs to be critically reviewed is integrating Ghanaian indigenous knowledge with western influence. Yakubu (1994), in a journal article titled *“Integration of indigenous thought and practice with science and technology: a case study of Ghana”* pursued the goal of integrating indigenous Ghanaian culture and western science. Applying Horton’s explanatory framework, the comparisons and variances between indigenous thought and practice of the Mamprusi’s of Walewale in Northern Ghana, and western science and technology were validated. The farming practices and medicine were the case studies used to prove that the integration of the two cultures is possible. These case studies was done to show the implication of science education for national development. I would like to use Yakubu’s work as a mirror to carry out my thesis, because he explicitly illustrates how indigenous knowledge on farming and medicine was integrated with western science. This is the aim of this thesis, to integrate GIPC on edibles with CPD, to design an ice cream package design.

## **2.2 Ghanaian indigenous packaging and packaging materials**

The word *“packaging”* to the indigenous Ghanaian is an alien word reaching Ghana through western influence or formal education. Differently put, Ghanaian local dialects or languages don’t have an appropriate word for packaging. This is because packaging to the Ghanaian, is an integral part of the way Ghanaians live. The earliest product that



was packaged was food. Broad Leaves from high trees were perhaps used for packaging food in the primary stages of life (Risch, 2009). Some of these leaves are used today to package ready-to-eat corn meals. These corn meals include Fante Kenkey (Ntaw) (packaged in dried leaves of *Musa paradisiaca*), Fante Kenkey (Dokon Pa) (packaged in dried leaves of *Sterculia tragacanta*), Ga kenkey (packaged in dried sheaths of *Zea mays*), Fomfom (packaged in fresh toasted leaves of *Musa paradisiaca*), Nsiho (packaged in fresh leaves of *Musa paradisiaca*), Estwe (packaged in dried leaves of *Musa paradisiaca*), Kaafa (packaged in fresh leaves of *Thespesia populnea*), Nkyekyera (packaged in dried sheaths of *Zea mays* or in fresh leaves of *Thespesia populnea*), Aboloo (packaged in fresh leaves of *Thespesia populnea*), Sugared Kenkey (packaged in dried leaves of *Musa paradisiaca*) and Osino graphic (packaged in dried leaves of *Marantochloa cuspidata*) (Amoa and Muller, 1976). Twisted palm fronds or vines were used to bundle firewood for sale, and some of the palm fronds were woven into a container called “*Bede*” in Twi language, to transport foodstuffs and game from farms to the marketplace or homes. The traditional concept behind packaging is to basically protect the food and also serves as a container for the food which in other words makes it transportable from one place to another. Several layers of the leaves are wrapped around the cornmeal which eventually gives it shape and size. Packaging materials used traditionally in Ghana include corn husk, plantain leaves, bamboo, and gourd.

Mensah et., al (2012), in the article “*Perceptions of the use of indigenous leaves as packaging materials in the ready-to-eat cornmeals*” provides deeper insight concerning indigenous leaves used as packaging material. Perceptions of consumers and producers about indigenous leaves such as dried plantain leaves (*Musa paradisiaca* or *Sterculia tragacanta*) and dried corn husk *Zea mays*) were examined. The major reason relating

to the perpetual usage of leaves as a packaging material given by producers was medicinal, that is the infusion of valuable phytonutrients into the meal, and this in turn provides unique aroma and taste for the meal-61%. Other reasons include biodegradability- 14%, availability-4% at relative low cost-4%. This subjective evidence of the leaves being medicinal was factually demonstrated as Mensah et al., (2012) cited Milder et al., (2005) saying the leaves of *Musa paradisiaca* comprise alkaloids, tannins, and a broad class of polyphenolic phytochemicals that reveal chemopreventive anticancer properties in humans. Another concern raised was the shelf life of meals packaged with leaves, consumers 69% via experience accurately deduced that fante Kenkey has a shelf life of 6-10 days while 81% indicated that the shelf life of Ga Kenkey was 2-5 days. This perception is highly attributed to the fact that dried plantain leaves of fante kenkey helps to maintain moisture content of the meal, preventing spoilage of food and longer shelf life of fante kenkey. Ga kenkey on the other hand value is attributable to the physical separation between adjacent *Zea mays* sheaths wrapping. This gap allows loss moisture and also access of microbial bacteria. Ghana indigenous packaging should not be underestimated because of the advancement in packaging trends, because it provides a strong foundation as to how packaging can be improved to suit consumers.

Hence the above assertion is very relevant to this study as it provides a hypothesis on Ghana indigenous packaging concept, which in effect help the researcher achieve his aim.

### **2.2.1 Corn Sheath**

These are some of the characteristics of corn husk;

- It is light green in colour but when dried turns whitish yellow.
- It tapers towards a pointed edge at the top but broad at the bottom.

- It is not totally flat but slightly curves towards the broad edge.
- It has lines running through it from the pointed edge to the broad edge. And these lines are in a slight relief thus making a pattern for the corn sheath.
- It is flexible but doesn't tear easily.
- Become very pliable when soaked in water for some time.
- Corn husks closer to the fruit, are very soft than the outer husks.
- Dried corn husk absorbs water easily.
- Dried corn husk has poor tensile strength. Thus extremely dried husk breaks easily.

### 2.2.2 Plantain leaves

These are some of the characteristics of plantain leaves; □

Green in colour but turns brown when dried.

- It has a broader surface.
- Becomes slightly crisp when dried.
- It has various shades of brown on the surface.
- It has poor tensile strength thus tears easily vertically.
- The dried leaves become flexible and pliable when wet.
- The fibre of the dried leaves has a lot of pores; thus it absorbs water at faster rate.
- A single dried leaf cannot be used alone unless combined with at least 4 or 5 leaves to wrap kenkey.

### 2.2.3 Gourd

The botanical name of Gourd (bottle gourd) is *Lagenaria siceraria*, from the *Cucurbitaceae* family (Decker-Walter et al., 2004). The fruits are bottle shaped and tough in texture (Pradhan, Said, & Singh, 2013) .

Price 1982, in her article “*WHEN IS A CALABASH NOT A CALABASH?*”

outlined some features of gourd

- The shell is woody like in fibre.
- They are compressed, spherical, bottle- or club-shaped and sometimes crook-necked or spiral.
- They have a maximum diameter of about 100 centimeters.
- The shell is denser and more porous.

### **2.3 Contemporary Package design**

According to Rabinowitz (2003), packaging design is demarcated as the art of producing a vessel, with visual aids and visible outer presence of a commodity, a user buys at retail or might receive in the mail. Hence packaging design is an influential part of a product that attracts consumers to purchase. The above statement by Rabinowitz clearly demystifies the idea a lot people have about packaging design, which is just about the graphics. The main aim of this study is to create a package design that is mainly distinct in structure or form and also graphics, as stated by Rabinowitz. There are so many schools of thought about package design, which over the years have evolved because of the increasing demand of products from consumers. The Ghanaian concept of indigenous packaging design only serves the primary function to contain, protect and preserve the meal, example kenkey. It has nothing to do with graphics and how aesthetically the package would look. The only concern for this Ghanaian indigenous package is to contain and protect a product for transportation.

A package forms part of the product and the brand. A product's package represents its features and conveys the product information. For consumers, a product and its package are one entity when they see it on supermarket shelves (Polyakova Ksenia, 2013). A package design represents the product which might be seen or not, so therefore it is



imperative to disseminate information which influences the consumer to purchase. The Ghanaian indigenous package design on the other hand does not communicate product information as stated by Ksenia. There is no written information about the product that can represent the product. And this is a limitation of Ghanaian indigenous packaging design. Rundh 2009 also elucidate that a package design enhances the value of both package and product. For this study, I deem it necessary to communicate the value a package design adds to the product. And on the part of Ghanaian indigenous packaging, its uniqueness in shape and size gives it a perpetual value appreciated by all. Ghanaian indigenous packaging design also attracts even though it doesn't have different colours and illustration, but its attraction stems from its unique shape and size. But consumers don't buy such products because of this attraction, it is the content. Saka, 2011, says contrary in relation to contemporary package design. Consumers do not buy the content; their decision about purchasing a product is affirmed by the package design; it is a silent language between the consumer and the manufacturer. Packaging design is an important factor in creating sales. Consumers are not necessarily interested in the Ghanaian indigenous package design, rather the product in the package. So sales are gained through the value of the product which has been on the market for years. Therefore, it is very important to integrate the GIPC and the contemporary package design, to bridge the gap which would foster development.

#### **2.4 Functions of packaging**

To effectively redesign a package, it is essential to understand what packaging is intended for. Since this study has the prime objective to re-design the existing package of ice cream, it is therefore expedient to know the roles of packaging in order to design an appropriate package.



The function of packaging is not just restricted to protection, but also provision of information on package contents as well as enabling and facilitating other logistics processes - including transport and handling as well as storage, order processing and warehousing (DHL,2004).

#### **2.4.1 Containment and convenience to handle**

This function of packaging is so evident that many may have overlooked it. The basic concept of Ghanaian indigenous packaging is to contain food, which is put in an enclosure so that the food can be handled properly. And this enclosure as seen above is mostly broad leaves.

Obeesi (2010), the package volume should be used as efficiently as possible, to hold a specified amount of product. A tightly packaged product, with very limited empty space, is normally able to tolerate weight and usage stresses better than a loosely packaged one; the product itself being able to add to pack strength. A loosely filled package has to bear the stresses alone (TIEPIK, 2005). The "package", whether it is a juice box or a bulk cement rail wagon, must be able to hold the commodity to work effectively. According to a Workshop: Procurement of Packaging for Exports held in Guyana (2010), *“a tight package is stronger than a loose one, It is usually smaller and so cheaper to make, to ship and to recycle, A loose, over-size package is wasteful of space and materials, and perhaps deceptive, depending on its contents, it should be liquid and/or air-tight”*.

Products come in all shapes and sizes; the kind of packaging needed to contain and protect a commodity depends on the physical state of the commodity, hence products in the fluid and powder form must not be used far from the production site without proper packaging. Ice cream as a product is originally liquid before it is frozen, so it is

expedient to choose an appropriate package material that can contain ice cream to prevent it from leaking. Two other aspects of convenience are important in package design. One of these can best be described as the **apportionment** function of packaging. In this context, the package functions by reducing the output from industrial production to a manageable, desirable "consumer" size. Thus a vat of wine is "apportioned" by filling into bottles; a churn of butter is "apportioned" by packaging into 10 gram mini-pats and mini-tubs; a batch of ice cream is "apportioned" by filling into 2 litre plastic tubs. Put simply, the large scale production of products which characterizes a modern society could not succeed without the apportionment function of packaging. An associated aspect is the **shape** (relative proportions) of the primary package in relation to convenience in use by consumers (e.g. easy to hold, open and pour as appropriate) and efficiency in building into secondary and tertiary packages. The GIPC has unique way of containing the food, and that would be integrated with contemporary ways of containing food to form a distinct shape which can be handled easily. This would be the primary package.

#### **2.4.2 Protection and preservation**

These two words are used simultaneously in packaging, even though the former (protection) is the basic fundamental reason for packaging, before a product is preserved.

Pilditch (1961) stressed on the basic duty of a pack: *"to protect goods against shock, vibration, light, odour, bacteria, moisture, climate, pilferage, chemical reaction and physical risks"*. Indigenous Ghanaian package has a limitation in this area; that is protection of the food in the leaf is minimal. Also the leaves attract some form of bacteria that destroys the food. On the other hand because the study aims at integrating

indigenous Ghanaian packaging concept with CPD, to design an ice cream package, it is very important to understand this role of packaging well.

The physical damage is the main thing that a package protects against, and the probable causes are; shock, tremor or compression damage. It is mandatory for a package to endure vigorous treatment during circulation so that the products are received by consumers in the same function they left the factory. Ice cream, like other food product are transported from one place to another, during this period the risk of the product damaging is high. TIEPKI, 2005 affirms this by stating, commodities are sheltered from occurrences from all quarters: heat, dampness, air, bumps suffered during transportation.

When a product is protected from these things, preservation also takes place. Packaging lengthens the lifespan and reliability of their contents by excluding atmospheric gases, light, water, radioactivity, bacteria and smells. The evolution of packaging was initially meant to protect and preserve the product from spoiling but currently packaging preserves the heritage, culture and tradition, integrity, and longevity of brands. The researcher wants to preserve the unique indigenous packaging concepts of Ghana through packaging. Packaging has played an important role in the conservation of genuine regional specialties such as J & R Rare Scotch whisky (Kirkpatrick, 1993: p.59). In Ghana also each tribe has an authentic way of packaging food or any other item, and as such it is very expedient to perpetuate it to other generations through packaging, hence the need for this study.

### **2.4.3 Communication**

The adage that "*a package must protect what it sells and sell what it protects*" is ancient, nevertheless very profound; a package performs as a "*silent salesman*". This function

of packaging was introduced during the evolution of industrialisation, this is where goods were manufactured and placed on a shelf in a market. Traditionally packaged goods did not have to communicate anything to the consumer, because there was no competition from any manufacturer.

A package transfers both sensitive and practical profits to the consumer and must be in line with the trademark identity (Frost, 2005). A significant aspect of this study is to help in maintaining our indigenous packaging concepts by integration with contemporary design, this I believe would stir emotions within the Ghanaian. Because selected ready-to-eat packaging concepts from selected tribes in Ghana would be used. In other words our indigenous packaging concepts can trigger emotions within, and it's important to communicate it well through packaging. If packages didn't play the communicative role, consumers during shopping would go through frustration because packages didn't have graphics and information that would help a consumer in purchasing decision. Rob also writes "the sole thing that effectively speaks out a brands identity is packaging design. Package design has also rates first in influencing consumer purchasing decision and hence it is the ultimate platform that the company has in influencing a consumer. Therefore the primary function of communication of the intended ice cream package design is to inform consumers about our Ghanaian indigenous identity through the packaging concept.

## **2.5 Constituents of Good Packaging**

Judd (1989) states that, "*The package or its label is the silent salesman and the way in which we present its proposition and the intelligibility of its argument is the difference between sale and no sale, life and death*". An effective packaging naturally portrays this role, and it can be actualised when certain aspects of the package are critically looked at. Hanlon (1971) commented on the function of packaging, said it is necessary



and very important to use elements like shape, colour and decoration on a package to ascertain the innards of a package. He further added that this feature of a package has come out of the bag and most designers are using it in different dimensions. In my opinion shape colour and decoration does not only help in identifying the contents within a package but also can be used to identify the culture and tradition of a tribe. And in this context certain shapes, colours and decorations that is accustomed to a tribe can be used to identify our culture and tradition. In doing so a philosophical value is created on the package, meaning this package holds some values that a tribe highly esteems.

Informants in the trading business are making quality use of this feature to lure consumers to purchase their products Obeesi (2010). Indigenous ways that is old methods or concepts and better ways referring to contemporary methods can be successful integrated to produce a more sustainable package that is unique that can increase sales. Even though there is that hunger to learn new and better ways of packaging, the indigenous ways must not be pushed aside.

An effective package must have the following features: *“Have adequate capacity (volume) to hold the content; Be compatible with the content (inert) and should not cause any deterioration in the integrity of product/or be affected by content; Have adequate strength to withstand the weight of the content as well as other stresses that may be encountered during transportation and handling; Attractive to enhance marketability of product, Informative; providing information on product identity and its use and disposal precaution in the event of accident or misuse as appropriate; Safe to handle and use convenience; Containing products, defining the amount the consumer will purchase; Protecting products from contamination, environmental damage and*

*from theft and quality; Facilitate transportation and storing of products; and Carry information and colourful designs that make attractive displays”*

(<http://www.fao.org>).

## **2.6 Aesthetic and Visual Aspects of Contemporary Packaging**

Suradjijo, 1990 cited Edmund Burke that, “*aesthetics as an observation activity not separated from art and design experience*”. Then the term aesthetics gradually advances into beauty, the work of getting a common meaning about attractive work, our evaluation on it, and idea behind the creator’s act (Humardani et al, 1981). Aesthetics also means the dispersal of the functional, combining the information and sensory opinions at the same time, enlightening the presence of something alongside and limiting related inside (Ranciere, 2004). Aesthetics in indigenous Ghanaian art seems to be missing because art to the indigenous Ghanaian serves the functional purpose, even though there are several traces aesthetic qualities about the work. Because the most indigenous Ghanaians saw art to fulfil the functional roles the aesthetic quality has been neglected in most of our indigenous art. Packaging in the Ghanaian context also serves a functional purpose so the aesthetic value is not seen in it.

According to Asadollahi and Givee (2011), an attractive and effective packaging design, with significant planning, illustrations and adornments is highly prosperous in gaining customers attention. The appealing worth of a package propels the package to be easily identified at the supermarket. I strongly support this statement because the basic thing about packaging that would attract a customer is its aesthetic value. (Mutsikiwa & Marumbwa, 2013), gives more enlightenment on this by stating, the packaging design of a product is the avenue where consumers are exposed to perceivably experience the product in the package. From the above statements, it is very evident that aesthetic

appreciation of packaging is very pivotal in the increase in sales and as well satisfying consumer expectations.

There are codes that are visual, that have been confirmed by several studies concerning all product packages (Dano, 1996; Heilbrunn, 2006; Bobrie 2009). These visual codes are *forms, colours, typographies, page layouts, illustration styles and themes* are always seen on product packages (Celhay, 2010). There are two ways that designer select one and use to design a package (Heilbrunn, 2006): *“the first one consists to conform to those visual codes in order to reassure the consumers and give him what he expects to see on a given product category. The second, conversely, consists to get out of these codes. This second strategy allows to surprise the consumer, and so to catch his attention or to stimulate his interest. It allows to differentiate a brand from a visual point of view and so to communicate a different brand positioning. Finally, it allows – by a contrast effect – to gain in visibility on the selling point”*. On the category of food products such as ice cream, an improvement in the aesthetic and visual value of the package design is very necessary if manufacturers want to increase in sales. The researcher would want to design an effective ice cream package design that is not conformed to strict or normal visual codes that is seen daily on the market. But has the ability to surprise the consumer and stimulate his or her interest. An appropriate design for a package makes a product more likely to be purchased because it attracts consumers.

Silayoi and Speece (2007, pp. 1498 - 1500) outline four fundamental packaging components which inspire a consumer to buy a product. They are divided into two classifications: *“visual and informational”* components. The visual components include graphics, colour, size and shape, and pictures and illustrations. Informational elements

consist of product information (typography) and information about the technologies used on the package. The following are the elements that compose a package design:

## **2.6.1 Visual Elements**

### **2.6.1.1 Graphics and Colour**

Silayoi & Speece, (2007) elucidated that the importance of graphics is explained by the illustrations created on the package, whether these pictures are purposely developed by the marketer, or accidental and unimagined. Graphics includes image layout, color combinations, typography, and product photography, and the total presentation communicates an image. Therefore when designing a package it is important to critically choose colours and make colour combinations.

Meyers (1998) asserted that structural design of a package has a lot of impact on the emotions of the consumer, the packaging graphics on the other hand attracts a consumer to make a purchase. He specified therefore that, *“the packaging graphics must be based on a distinct positioning strategy for the product and project this strategy in the most forceful and comprehensible manner”*. Meyers has clearly spelt out the intention of the study, because he directs the graphics of a package to a distinct positioning strategy which has the ability to distinguish a product on a shelf and increase sales. Most package designers don't do this, but researcher would use this study to communicate to ice cream package designers. The graphics of the intended ice cream package design would be based on the philosophical value of the indigenous Ghanaian package concept of a specific tribe. This graphics would make use of specific colours which would make it identifiable.

Graphics affect colors and printed lines on a package on which different elements are located (Rundh 2009, pp. 999 - 1000). In addition to the above statement, different shades of a colour and line combinations are vital to note, for example a colour



combination of a shade of red and black with printed lines in white colour can cause attraction.

### **2.6.1.2 Size and Shape**

Another important factor in designing a package is its shape and size. These two elements help consumers to access a package in terms of volume e.g. buyers think of a product weight when the package is longer (Silayoi et al. 2007, p. 1499). A package size and shape is a factor that most designers in Ghana overlook, and I think it's because of lack of appropriate equipment.

According to Soroka (1996), the first approach of a package to the consumer is the shape, which is the outline of the package. The study would basically incorporate indigenous Ghanaian ready-to-eat packaging concepts with contemporary design, to design a new package design. And this package design would have unique size and shape which reinforce the product's brand image. Three basic types of shapes are "*geometric, natural, and abstract*". Geometric shapes are structured, often symmetrical shapes. These include squares, circles, and triangles but also octagons, hexagons, and cones. Natural shapes are found in nature or they can be man-made shapes. Leaves are an example of a natural shape. Natural shapes are often irregular and fluid.

Abstract shapes provide a platform for uniqueness and originality, and in turn make a product brand image distinguishable from the brands. This is what the study strives to achieve in practicality.

### **2.6.1.3 Pictures and Illustration or Imagery**

The use of suitable photographs is worthy in speaking especially to children. It hastens consumer's decision to purchase a product. An appropriate illustration representing our Ghanaian culture would be placed on the ice cream package design.

Imagery perception differs from culture to culture; for example the meaning of visual images and symbols in one culture may represent happiness while in another culture may represent death or sadness (Klimchuk and Krasovec, 2006 p.119). Operative illustration considers ethnic importance and experience. Effective illustration through pictures, drawings, and signs is able to talk without words but creates a rich visual language and provide visual stimuli (120).

### **2.6.1.4 Product Information (Typography)**

Every packaging has message it communicates to the consumers about the product. This message is information that helps customers to make the correct choices in the purchasing process. Packaging information can result to confusion. It can lead to misleading or inaccurate information through small fonts and dense writing styles which are used on the package. (Polyakova Ksenia 2013). Polyakova further asserts that typography in packaging design is very key to the consumer, because it is through that the consumer knows more about the product. Hence it is imperative to use fonts that are legible and readable. Legibility and readability of a type on a package also helps the consumer to appreciate the product. Size of type is very critical to the consumer; hence an appropriate size that the consumer can see. The size of the font can either create interest or boredom in the consumer as he or she reads the information.

## 2.7 Labelling

Labelling is a concept of fastening or pasting labels on a product surface. Labels don't only serve as a means to communicate about a product but also a medium to publicize it, (John Wiley & Sons, Inc., Publication, 2009). Hence diverse labels are designed, printed and fixed on various containers or products to attract customers.

Labelling is an essential procedure in the food processing chain and should not be ignored. The label is the first point of contact between a consumer and the producer. It is used to pinpoint one product from another and also to make a choice over which product to purchase. In marketing labelling is an expedient apparatus for a product. It should be beautiful and good looking while at the same time being informative. A dirty, confused, untidy label will not help to sell a product.

## 2.8 Classification of Packaging

The main classifications of packaging are: Primary, Secondary and Tertiary Packaging

- **Primary packaging** is described as the material that is intended to case the product itself. Primary packaging is usually the entire smallest possible unit of use or of distribution, and it is also commonly regarded as the packaging that actually comes in a close contact with the actual contents. Eg. vials, ampoule, bubble wrap and so on. Fizzy drinks are sometimes emptied into aluminum cans and sealed, the aluminum can is perceived to be the primary form of packaging because it is the closest form of packaging to the actual product.
- **Secondary packaging** is the type of packaging that is external of the primary level of packaging and this level of packaging is used to gather various units of primary packaging into a group, to prevent disorder.
- **Tertiary packaging** is used for bulk handling, warehouse storage and transport shipping. The most common form is a palletized unit load that packs tightly into

containers.eg metal containers, wood racks, and so on. Tertiary packaging is used for the purpose of wide spread distribution, such as pallet system , where large number of cased can of carbonated drinks are wrapped in shrink wrap and carried on large wooden pallets to their destination, (packaging.com).

## 2.9 Packaging Materials

Materials used to package variety of products depend on the nature of the content it will hold. Packaging a product has a basic aim of keeping the product safe and intact during transportation and storage. Different kinds of packaging materials are used for retail products that will be put on display and sold.

Some factors that should be considered when choosing a packaging material include the strength of the item being packed, its weight, the value of the item, and whether the package will be subjected to moisture or other adverse conditions. All these factors would be considered in selecting an appropriate packaging material for an ice cream package. Ice cream is a fluid product, that is consumed into the body, and for that matter is very fragile. Food product such as ice cream requires a packaging material that can properly protect it from contamination before it get into the hands of the consumer. Packaging materials would be selected for each category of packaging ice cream that is primary, secondary and tertiary packaging

Common material used for packaging are: **Plastics, Paper/Board, Metals, Glass, and Wood.**

### 2.9.1 Paper & Board

Paper is widely used because it is low cost, holds its shape, and is easily decorated. Commercially-available paper is predominantly made from cellulose fibre from Box



pulped wood, but can also be made from other sources such as cotton, straw, sisal and hemp. All are recyclable.

Paper and board are usually measured by weight or calliper. Material weighing less than 250 grams per square metre (gsm) is referred to as paper, and material at about 250 gsm is referred to as paperboard.

The fibres of machine-made paper run parallel to the length of the machine that produced it. This machine or grain direction affects performance:

- Paper tears easiest along the fibres
- Folding is easiest along the fibres
- Fold endurance is greatest across the fibres
- Stiffness is greatest when flexed across the fibres

Paper can also be laminated to increase strength or provide barrier properties. The materials used can be gloss or matt finished or embossed. Other materials can be laminated onto paperboard e.g. foil or plastics.

Packaging produced using paper and board includes cartons, labels, leaflets, tubes, corrugated cases, rigid boxes and pulp packs.



*Plate 2.1 Paper and board*

### 2.9.2 Glass

Commercially-available glass is made from silica, sodium carbonate and calcium carbonate.

Other compounds can be added to give colour, sparkle or heat shock Glass jar resistance.

Glass is a popular and useful packaging material because it is:

- Inert
- Sterilisable
- Barrier to moisture and gas
- Pressure resistant to a degree
- Can be moulded into a variety of shapes
- Transparent making the product visible
- Glass is also highly recyclable

The most obvious drawback is fragility and the danger of broken glass. The transparency of glass can be a problem where the product is degraded by light.

Glass can be directly decorated but is most commonly labelled.



### **2.9.3 Metals**

The metals used in packaging are predominantly tin-plate or aluminium and are used to make food and drink cans, aerosol cans, tubes, drums and slip or hinged lid Drums boxes for gift sets and selections of confectionery or biscuits. All packs are recyclable. Tin-plate is tin-plated steel and the most common material used in food cans. Steel can also be used un-plated or with coatings.

Aluminium is used for drinks cans, closures, trays, tubs and tubes. As foil it can be used in multi-laminate constructions or as a blister pack or container seal.

Metal can be exploited to produce the following packaging characteristics:

- Strong and rigid
- Barrier to gas and moisture
- Pressure resistant
- Temperature and pressure resistant / tolerant
- Corrosion resistance via coatings
- Sterilisable
- Directly decorated or labelled

The limitations of metal packaging are in weight and shapes achievable, especially when compared to plastics.



#### **2.9.4 Plastic**

Ice cream is mostly packaged in plastic sachet. Plastics can be used as single materials or in combination. Their properties vary considerably but usually include:

- Lightweight
- Easily mouldable into almost limitless shapes
- Can produce rigid containers or flexible films
- Can be impact resistant
- Directly decorated or labelled
- Heat sealable

The relative disadvantages of plastics are typically polymer specific and the correct choice of polymer can to a practical degree mitigate the weakness. Factors to consider are:

- No plastic provides absolute gas and moisture barrier
- Plastics melt at temperatures ranging from 650°C to 2,300°C
- Chemical resistance varies
- Additives in plastics can contaminate some products.

Common plastic polymers used in packaging

- Polyethylene (PE)

Low Density (LDPE): They are used for flexible tubes, film and some bottles. It has a low melting point and as a film relatively poor oxygen and moisture barrier.

High Density (HDPE): widely used for bottles and tubs. They have higher melting point but not oven able. Also they are reasonably wide chemical resistance which can be enhanced by fluorination. Not a sufficient gas barrier for carbonated drinks.



Linear Low Density (LLDPE) predominantly used as a film or as a sealing layer on multi-laminate materials for bottle seals, sachets, pouches, bags. They available in expanded form for wads.

- PolypropylenePolypropylene (PP)

Widely used for closures for its ability to form a hinge which resists cracking and splitting. Also used for dispensers, actuators, bottles, jars, cartons, trays and as film on its own or within laminations e.g. crisp bags or pouches. Available in expanded form for tubs and trays.

Typically has higher melting point than PE so although still not “ovenable” it is better suited to hot fill products. Resistant to a relatively wide range of chemicals.

- Polyethylene Polyethylene (PE)

This can be subdivided as follows:

Low Density (LDPE) for flexible tubes, film and some bottles

High Density (HDPE) for bottles and tubs

Linear Low Density (LLDPE) as a sealing layer on multi laminate materials for bottle seals, sachets, pouches, bags. Available in expanded form for wads.

- Polyethylene terephthalate (PET)

PET is widely used for stretch blown bottles containing drinks, toiletries and food, it has excellent clarity. Also used for jars, tubes and trays.

By far the best gas and moisture barrier of any packaging plastic used for containers. It is ideal for carbonated beverages. Its heat resistance makes it suitable for oven able trays for ready meals.

- Polyvinyl chloride (PVC)

Not widely used even though only has a third of its content derived from oil. It still has a strong presence in vacuum forming used for inserts, clam packs and blister packs, due

to its good production line performance. PVC films have excellent stretch and cling properties for hand wrapping fresh products.

- Polyvinylidene chloride (PVDC)

While normally only used in multi-layer films, PVDC has exceptional moisture and gas barrier properties. Many pharmaceutical products could not be packed in blister strips without using PVDC as a layer in the blister film.

- Polystyrene (PS)

It mainly seen in its expanded form, as protective mouldings for fragile products. Also available as moulded toiletries/cosmetics containers (compacts), some bottles, jars and cups. It has good chemical resistance and excellent clarity although it can be coloured.

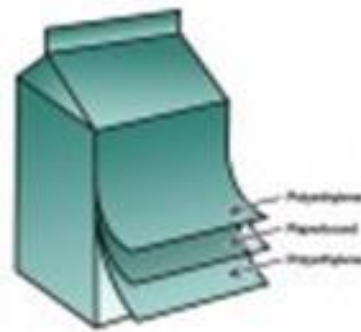
### **2.9.5 Laminates and Co-extrusions**

Laminates and co-extrusions are designed to benefit from the properties of two or more materials. Technically laminates are two materials bonded together and coextrusions are multiple polymers extruded together from molten to form a single piece material.

The following laminates are used widely from sachets through to form-fill-seal cartons such as Tetrapaks:

- PE board Paper (or board) / Polythene (PE)

Typically the paper or board gives rigidity and an easily decorated surface while the polythene gives heat-sealability and liquid containment. (But not a barrier in true sense, because water vapour can pass through PE.)

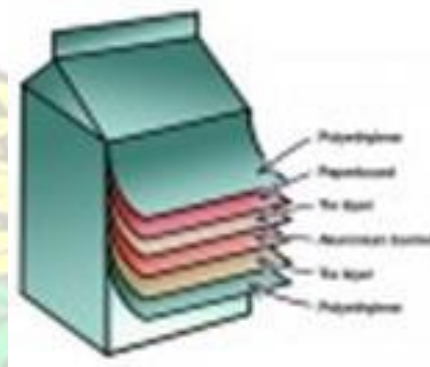


*Plate 2.4 PE board Paper*

□ Alu board Paper or PET / Aluminium foil / Polythene

Again the polythene provides heat-sealability while the aluminium foil provides barrier properties, with the paper or PET on the outer surface allowing for decoration.

PET in particular gives a high gloss finish.



*Plate 2.5 Alu board Paper*

## 2.12 The concept of integration

According to [searchrm.techtarget.com](http://searchrm.techtarget.com), integration (from the Latin *integer*, meaning whole or entire) generally means combining parts so that they work together or form a whole. It further states that integration during product development is a process in which separately produced components or subsystems are combined and problems in their interactions are addressed.

The Cambridge International Dictionary of English defines integration in two terms:

**“of people”**- to integrate is to blend with and join society or a group of people, often changing to suit their way of life, habits and customs.

**“Of systems and things”**-to integrate is to be suitable for each other and combine with each other or combine with what already exists. In both cases suitability is the key word which means that there can be a combination without integration when the members in the combination are not suitable for one another in terms of the common purpose they are coming together to serve. Integration therefore can also be termed a suitable combination of members to form a unified whole. From the above definitions it is very clear that integration serves to achieve a “wholeness” goal, in other words to form something that you can’t see the individual components. Integrating customs of two or more cultures demands an in-depth understanding of both cultures, thus taking into consideration factors that can create that beautiful union. This study is geared towards the of produce an ice cream package design that resulted from the integration of GIPC with CPD, and as seen from the above reviewed literature on both subjects the researcher deems integration very essential because it helps in creating durability in anything. Agyeman k. k, (2010) confirms this by stating “the basic importance of integration is to achieve optimum results through mutual support of the integrants”. Integrating two different concepts of packaging would to create a package design that would make the ice cream a *Novelty*. A novelty according to Kilara Arun & Chandan, 2007 “*is product that have unique characteristics such as shape, color, and packaging. Typically, novelties offer convenience, portion control (individual serving), unique forms (shape, size, color, flavor, and package).*” This novel design concept would be an innovation of the existing ICPD in Ghana, and this would bring out the social, cultural and economic value.



## 2.11 Food packaging

For the past fifty years food production globally has increased due to improved methods in agricultural activities (Coles et al, 2003). Another is because of rising demand pattern of consumers, and this comes along with proper ways of packaging. The food industry, the distributors and the retailers of food, together denoted as the food chain, must collaborate to offer safe foods to consumers with strongly changeable consumption and buying patterns (Gerding, Kruijf, Jetten, Rijk, & Berg, 1996). Hence provision of safe foods denotes a package that is suitable to protect the food till it gets to the consumer.

Gerding et al., 1996 confirms by stating that

Packaging is essential to the food chain and thus helps it to achieve its goal.

According to Gelici-Zeko et al., (2013), the selection of food in supermarkets is a complex process, i.e. determined by sensory and non-sensory attributes, such as labelling and packaging. Food in this modern time can be processed in various ways in order to suit demand of the busy consumer. Thus in a supermarket the consumer can find what it desires through a package that is easily identifiable. Food packaging embodies an important role that must attract customers, generating positive or negative expectations (Gelici-Zeko et al., 2013 as cited by Gomez, Mar, 2015). Food product such ice cream must have a package design that is very attractive, and this is what customers expect. The expectations that consumers have about ICPD is very high because of their love for ice cream

China is a major export market for U.S. food products. Products exported to china include snack foods, cereal, meat, dairy products, fresh and processed fruits and vegetables. The values of these products increased from \$67 million in 1995 to \$158 million in 2000, according to the USDA Food Agricultural Service (FAS) report (USDAFAS Report 2000), as a result a complete understanding of the special features and needs of the Chinese food packaging systems is needed on the packages of the

imported products to China. When designing packages for the Chinese market, considerations should include packaging that maintains food quality and safety; packaging materials that meet recycling regulations; packaging size that fits the standard shelf space of the Chinese cooling and freezing systems; package labeling that meets the Chinese labeling law; and packaging print and graphics that appeal to the Chinese consumer (Zhao, Y, J. H. WELLS, J. XIES, 2000). I would like to extend an argument here that the Ghanaian market is filled with processed food products produced locally and some from foreign countries, which have been packaged in different ways. But unfortunately some of these food packages do not meet the Ghanaian food packaging system. In other words, special features and needs of the Ghanaian food packaging systems is not met. For example, creating a package that communicates the indigenous packaging concept of Ghana. And this what this study seeks to achieve, by designing an ice cream package design which has the Ghanaian indigenous packaging concept integrated with the CPD.

## **2.10 Ice Cream Packaging Design**

Ice cream is product that is popular all over the world. Some of obvious reasons why it's popular are: partial freezing, cooling and invigorating feeling created when it is consumed, its sweet taste and the lack of a preconditioning aroma (Kilara Arun & Chandan, 2007). And in Ghana ice cream is enjoyed by both young and old without any restriction of culture, hence there are companies in Ghana which produce ice cream like fan milk Ghana limited, Frosty bites Ghana limited and some also import it. Kilara Arun et al, 2007 comments that ice cream was first packaged in the 1920s in small sizes in paperboards with handles with easy open flaps. From 1930s through 1950s various shapes of packages which were small enough to fit into the ice cube tray compartments

of home refrigerators appeared. In the 1960s through 1970s the use of plastic containers was introduced to provide graphics on the package. Kilara Arun et al, 2007 further gives factors to consider when designing an ice cream package. *“First, the package has to protect against temperature fluctuations, photo oxidation, dehydration, and odor transmittance. Second, it has to take into consideration distribution related factors such as package integrity, thermal shock and cube efficiency. Third, municipal solid waste management factors have also to be considered.”* From the above I can conclude that a suitable packaging material for ice cream must be carefully selected to meet the considerations, to satisfy the consumer. I support my assertion with a study conducted in USA prior to passing the Nutritional Labeling and Education Act NLEA where 80% of consumers preferred an ice cream packaging material that can hold ice cream well and not get mushy. In this light, research would make use of the above factors, to design and produce an ice cream package.

ICPD plays a role in consumer purchasing decision. According to a research conducted by Gaoshang, Limbe Jin Fengyuan, Huang Zhen Ying, in 2009 on the *“The Effect of ICPD on Consumers' purchasing intention: taking shaomei and duroyal as examples”*, 6% of ice cream consumers purchase ice cream because of its packaging design, 50% purchase ice cream because of its flavor and 22% consumers bought ice cream based on the price and brand of ice cream. On the other hand 82% showed the desire to purchase ice cream in a new packaging, in other words a novel packaging. From the above statistics I conclude that packaging design doesn't influence purchasing decision of consumers but majority desire a new ICPD which is quiet contracting. But suggests the current ICPD needs to be redesigned to suit consumer specification, hence increasing sales. Therefore I would like to extend such argument that packaging design

of ice cream produced in Ghana needs to be redesigned to suit consumer specification, because the foreign ones on the market look more attractive than the locally produced.

## **2.11 Theoretical Framework of the Study**

The word theory merely refers to a particular kind of explanation. Leedy and Ormrod (2005, p.4) point out: *“A theory is an organized body of concepts and principles intended to explain a particular phenomenon”*. Thus, theories explain “How” and “Why” something operates as it does (Johnson & Christensen, 2007, p. 7). The main aim of this thesis is to integrate indigenous Ghanaian packaging design with CPD to produce an effective ICPD. And thus a theory is required to help effectively achieve this aim. The suggested theory for this thesis would help explain philosophically how GIPC can be integrated with CPD.

In the course of reviewing literature, the researcher came across two theoretical frameworks that seem appropriate for the study, but only one would be selected.

### **□ Horton's explanatory framework**

In his revised paper, *“On African traditional thought and western science”*, he replaced the 'everyday discourse' or the 'world of everyday observation', terms he used in his 1967 paper, with the term 'Primary Theory', and the 'theoretical discourse' with the term 'Secondary Theory'. The primary theory does not diverge very much from culture to culture where experience is a variable factor: it holds the world of human beings and 'enduring solid objects'. It has a foundation of relationships between human beings and objects, among human beings, and between human beings and spirits. It is inherent in



custom-made explanations. The secondary theory on the other hand is founded on immaterial objects. It institutes relationships between ideas and ideas.

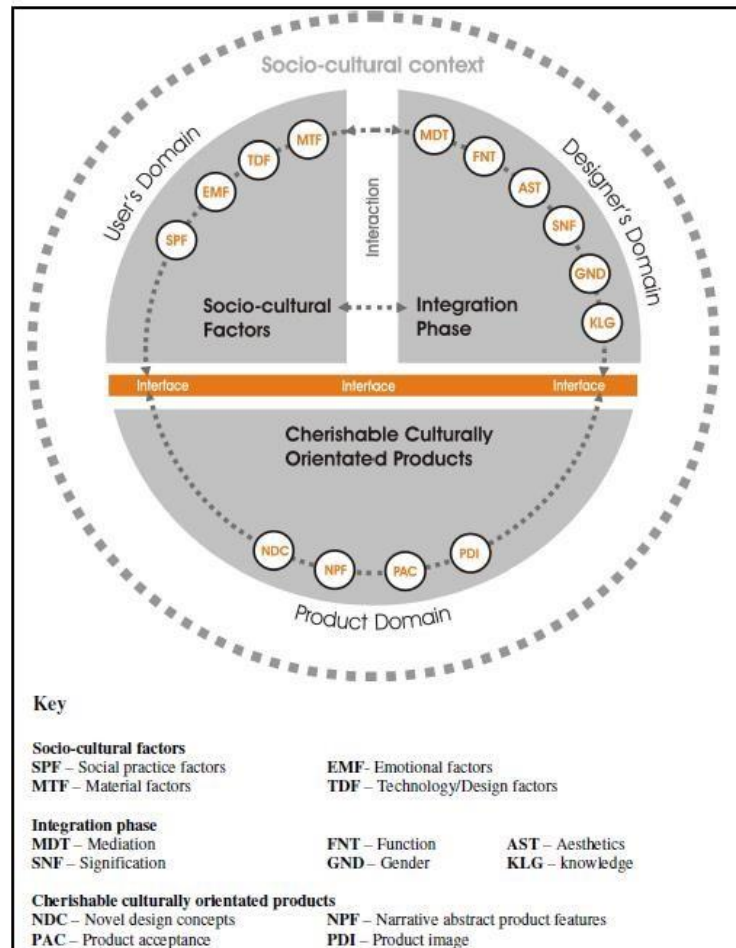
The lesser stage of theory is the primary theory which occurs in all cultures, and the secondary theory is an advanced level and exists in, scientific thought. By inference, through multicultural exchanges, it is possible for the primary theory to be developed into a secondary theory. The question of why the primary theory has existed in some cultures for a very long time is elucidated in terms of acceptability. The primary theory exists because it has been tested by time. Agreement is the method of acceptability of the primary theoretical system while race among rival theories is the method of legitimacy of the secondary theoretical system.

This theoretical framework was explicitly used by Yakubu (1994) in a journal paper titled *“Integration of indigenous thought and practice with science and technology: a case study of Ghana”*. He sought to find an answer to a problem he investigated namely; “Can indigenous thought and practice be integrated with science and technology”? Using the primary theoretical system and the secondary theoretical system of Horton as a model, Yakubu asserted that the gap between indigenous culture and imported western culture is real, but can be closed – integrated. This framework has limitation which doesn’t favour this study. That is, it doesn’t provide specific approach towards product design development – it’s too general.

#### □ Moalosi theoretical framework

Moalosi,(2007) developed a theoretical framework in thesis titled *“The impact of socio-cultural factors upon human-centred design in Botswana”* which sought to explore the connection among culture and human-centred design in Botswana. This framework of

traditional investigation equates indigenous with modern socio-cultural elements that can be useful to designing products. The figure below is the cultureoriented model



*Plate 2.6 moalosi theoretical framework*

The culture-orientated strategy ideal is presented as an opinion that adds value to, instead of a contrasting opinion of, present design approaches. This ideal develops information and confidence to defy the dominant Western culture in Botswana's design training and improvement in local thought, content and solutions Moalosi, (2007). This theoretical framework basically provides a clear model by which designers in Africa can create unique products that is integrated with the culture of a group of people. And this thesis is no exception because the researcher sought to design a package design that is cultural-oriented, that is both indigenous art concepts and contemporary package

design concepts integrated. Therefore, I would use this framework to undertake my research, and I would justify my choice with the following reasons

Culture oriented packaging is what this thesis is about, and this model would help add to the existing knowledge on packaging design.

Also this framework as compared to the Horton's explanatory framework, is specific towards the development of product design, which packaging is a major aspect. In other words, Moalosi's framework was created for product designers and as such uses appropriate jargons understood by the designer.

Finally, Moalosi's framework provides a detailed approach in the quest to integrate culture with contemporary design concepts. The framework shows how to state, examine and incorporate socio-cultural features in the primary stages of the design procedure by progressing local thought, content and solutions Moalosi, (2007).

## **Conclusion**

When I introduced the literature study on this topic, I stated my aim was to examine Ghana indigenous knowledge with a direct link to Ghana indigenous packaging, and also discuss different aspects of CPD such as; constituents of good packaging, aesthetic and visual aspects, packaging material and so on. And asking how both GIPC and CPD can be integrated. In pursuance of this aim, I first reviewed literature on Ghanaian indigenous knowledge, but initially gave general explanation of indigenous knowledge. Yarrow (2008), defines indigenous knowledge as a diverse range of people, institutions, and ideas. With this definite explanation, I further examined Ghanaian indigenous knowledge. Yarrow (2008) links the indigenous knowledge of Ghana to the political systems and beliefs of a particular tribe whiles

Ayiku (1998) on the contrary relates Ghanaian indigenous knowledge to art. He stated that Art to the Ghanaian, therefore, is conceived as a phenomenal aspect of the human life and condition -- an integral part of the life force -- because each art form performs some specific functions that contribute to the maintenance and sustenance of life and living. He further states that, there is no '*art* for art's sake' in Ghana. Packaging to the indigenous Ghanaian is not an art but a sustainable life force. Indigenous Ghanaian Packaging is particularly linked to ready-to-eat cornmeals, where leaves of different sizes and shapes are used. With this understanding of Ghanaian indigenous packaging, I began the journey to understand contemporary package design. I reviewed articles on the modern concept of packaging design written by Rabinowitz (2003), Polyakova Ksenia, (2013), Rundh 2009, Prone (1993). They all examined the basic concept of packaging design, whereby package design is seen as the container, graphics and visible outer presence of a product, then a product's package represents its characteristics and communicates the product information. Then most importantly package design adds value to the package and to the product respectively. Functions or the roles of packaging was reviewed. This was done to understand how the increase in demand for products has resulted in new roles or functions of packaging. In addition to this other topics that relate to CPD like components of a package design, aesthetic and visual aspects of a packaging design, classification of packaging, types of packaging and packaging materials were reviewed to understand the contemporary concept of packaging. The concept of integration was reviewed to ascertain the essence of integration, thus integrating indigenous packaging concept with CPD. Because this thesis is on case study about ICPD, it was relevant to review literature on food packaging design then specifically ice cream package design, to assess how ice cream package design has been done by other designers and how it impacted sales on the ice cream market. It concludes



by selecting an appropriate theoretical framework for study, and with this Moalosi's theoretical framework was adopted.

# KNUST



## **CHAPTER THREE**

### **METHODOLOGY**

#### **Overview**

**This chapter gives account of the processes used for the data acquisition; including how the research was planned, the research design that was used, the sample used and data collecting procedures for each of the three objectives this study sought to achieve; as well as the data analysis plan.**

#### **3.1 Research design**

Cohen et al., (2007) assert that inquiry design is administrated by the concept of ‘fitness for purpose’, and the drive of the study defines the approach and design of the research. In line with this, the purpose of the study is to integrate indigenous Ghanaian packaging design with CPD to produce an alternative ICPD. The study employed the qualitative research method, adopting the case study and ethnography under it. The researcher further used interviews and participant observation to collect data on GIPC on edibles from three selected regions and consumer perception on packaging design of ice cream produced in Ghana.

#### **3.2 Research Methods**

Having taken into consideration factors needed to undertake this study, the researcher adopted the qualitative method of approach. Berg (2001) states that quality refers to the what, how, when, and where of a thing – its crux and characteristics. He explains that qualitative research refers to the implications, ideas, definitions, features, representations, codes, and explanations of things. Basically qualitative research is carried out resolutely to achieve an understanding of fundamental reasons and motivations, which provide comprehensions into the setting of a problem. Creswell,

(2012) confirms this by stating “A central phenomenon is the key concept, idea, or process studied in qualitative research”.

This approach suits this study because the central phenomenon is packaging design, where ICPD in Ghana is specifically studied. The study will make use of a smaller number of respondents, the required detailed accounts of responses and large amounts of information to be analyzed will be derived using this approach. This would allow the researcher to probe underneath the surface appearance of issues and provide detailed information about how to integrate Ghanaian indigenous packaging concept with CPD to produce an effective ice cream package design. However, the researcher would adopt the case study approach.

### **3.2.1 Case Study Research**

According to Kumekpor (2002) a case study research is:

*“A systematic way of in-depth collection of information for investigating the circumstances of a person, a group, a commodity, an institution, or an incident. This necessarily implies a comprehensive examination, a critical analysis and interpretation of available data or information on real situation of a particular issue, event, occurrence or problem”.*

In other words case study is used for thorough study of a central phenomenon or a unit; hence with this study ice cream package design in Ghana is the case study. Where Ghana indigenous packaging concept is integrated with contemporary package design. Stake (1995) uses three expressions to define case studies; inherent, comprehensive, and combined. If you are concerned in an exceptional condition according to Stake, conduct an inherent case study. This simply means that you have a deep-down interest in the issue.

There are several suitable strategies for case studies according to Yin (1994) and Winston (1997). They include exploratory, explanatory and descriptive case studies Berg, (2001)

Therefore the researcher would adopt the exploratory, explanatory and descriptive case study design to undertake the study

#### **3.2.1.1 Explanatory**

According to Berg, (2001) “Explanatory case studies are useful when conducting causal studies. Particularly in complex studies of organizations or communities, one might desire to employ multivariate cases to examine a plurality of influences.” Unfortunately, Berg failed to include to **ideas or concepts** in the above definition. An idea or concept accustomed to a community or organisation might be studied to bring out an appropriate explanation. This case design would help answer the research question that sought to identify the packaging concept of ready-to-eat meals that are accustomed to chosen tribes in selected regions.

#### **3.2.1.2 Descriptive**

This type of case study is used to give a detailed step-by step description of an activity (Yin, 2003).

The researcher would vividly describe the procedure by which the ice cream package design was produced, by showing preliminary sketches of ice cream packages.

#### **3.2.2 Ethnography**

Ethnography is the exertion of defining a culture. Ethnographic research is the collection and analyzing of data about a specific phenomenon in a culture. In light of this the researcher would use the ethnography to describe to the concept of packaging



in the Ghanaian culture. This type of research uses a method called participant observation where the researcher is expected to be physically and socially immersed in the culture and everyday life of the people who are the subject of study but does so critically.

In this research, the ethnographic study would be used to unravel the various indigenous packaging concepts specifically ready-to-eat meals accustomed to selected cultures in Ghana by retrieving data from key informants and making use of the participant observation to gather the needed data

### **3.3 Population for the Study**

According to Bhattacharjee, (2012) a population can be expressed as all general public or things (unit of analysis) with the features that one desires to study. They are 2 Ice cream Manufacturers, 80 Ice cream consumers (This comprises ice cream consumers in the Kumasi metropolis specifically the sub-districts of Ayeduaase and Kotei), 60 consumers of indigenous meals and 10 manufacturers of Ghanaian indigenous meals in three regions.

#### **3.3.1 Sampling Design**

**Sampling** is a process of choosing a division (called a “sample”) of a population of interest for purposes of making observations and numerical conclusions about that population (Bhattacharjee, 2012). In this study, the sampling technique used, was the stratified random sampling. This technique as described by Latham (2007) is a technique that allows the researcher to divide the population into subgroups known as strata and randomly select samples from each of the subgroups. This technique would aid in identifying the right sample of people to be interviewed and observe right things that related to the study. The sample size for the study will number up to 152

respondents. 10 manufacturers of an indigenous meal from three regions (Central, Greater Accra and Volta regions) 20 consumers of indigenous meal from each region (60), 2 ice cream manufacturing companies, 80 ice cream consumers.

**Table 3.1 Stratified sampling process for choosing respondents**

Population level	Random sample	Number
Stratum (ST1)	Manufacturers of indigenous meals from three regions	10
Stratum (ST2)	Ice cream manufacturers	2
Stratum (ST3)	Consumers of indigenous meals	60
Stratum (ST4)	Consumers of ice cream	80
<b>TOTAL</b>		<b>152</b>

The table that follows (Table 3.2) is a schematic overview of the stratified accessible population using the disproportionate allocation method of stratified sampling. The formula used in determining the percentage for each stratum is

$$\text{Percentage of stratum} = \frac{\text{Frequency}}{\text{Total accessible population}} \times 100\%$$

**Table 3.2 schematic overview of disproportionate stratified sample**

Strata	Disproportionate Stratified Sample	
	Frequency(number)	Percent
ST1	10	6.6%
ST2	2	1.3%
ST3	60	39.4%
ST4	80	52.6%

<b>Total population</b>	<b>152</b>	<b>100%</b>
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### **3.4 Data collection methods**

To be able to obtain the needed answers to the research questions and objectives, the study will make use of interviews, and observation approaches.

The researcher made use of different methods or approaches to collect data which would be presented in different sets that might complement each other thereby increasing the validity of the information. The interviews was made with the various key informants to record information on the concepts of the various packaging design of ready-to-eat meals from selected regions and also views of the general public within the specified population was sought to understand consumers' perception on

ICPD in Ghana and GIPC.

Participant observations was made to closely observe the various ICPD and also how selected ready-to-eat meals are packaged in order to do good integration to design an alternative ice cream package design.

### **3.5 Data collection instruments**

The instruments used mainly for the gathering of data will be interview guides and participating by observation.

#### **3.5.1 Interview Guide**

The researcher would use the open ended and unstructured interview guide. The researcher chose open-ended interviews as it allows the respondents to freely discuss their opinions, views and experiences in detail whereas perhaps a set interview with closed ended questions may inhibit them to express their full opinions. Unstructured is

chosen because most sellers of ready-to-eat meals are assumed to be illiterates. Berg, (2001) confirms this that unstructured interview is appropriate when the researcher is not familiar to the way to living of a group of people. The interviews will consist of a number of open ended questions, inimitably developed by the researcher for the sole purpose of this study.

### **3.5.2 Participating by observation**

This is where the researcher observed how packaging of local meals from selected regions was done, and also participated in it. enables the researcher to have an exclusive experience in the activities of the people under study in the natural setting which will provide first-hand knowledge on these activities.

### **3.6 Data Analysis**

The researcher discussed and interpreted results using tables, charts and text formats. Data will be divided into two main sources: primary data and secondary data. Primary data comprised of data retrieved directly from the field vis-à-vis data from interviews, participation by observation and also photographs would be taken whilst carrying out the research. Secondary data comprised of information taken from books from the library and internet, journal publications, research reports, and other reference materials relevant to the study.

### **3.7 Validity and Reliability**

According to Ritchie and Lewis (2013), reliability means 'sustainable' and validity means 'well grounded' – the understanding these words is very important to a qualitative research because it helps describe the strength of the data. For validation purposes, the



model to be used would be that of the content analysis where interview guides, and observation guides will be critically reviewed by colleagues and lecturers for constructive criticisms and suggestions. Furthermore, interviews will be audiotaped with permission from the respondent and can be replayed whenever the need arises to authenticate the dependability of data retrieved. The use of open-ended interviews will allow the respondents to freely discuss their opinions, views and experiences in detail which will give the researcher first-hand information and ensure that the information retrieved is valid. The use of interview and observation guides will test the consistency of the responses received from respondents to ensure that the data retrieved is trustworthy enough.

### **3.8 Work Procedure**

#### **3.9 Objective One**

The first objective is to understand consumers perception on ghanaiian indigenous packaging on edibles and ICPD. To achieve this the researcher reviewed literature on ghanaiian indigenous packaging and also ICPD. Using the information gathered as a basis for scientific enquiry to get empirical evidence from the consumers of traditional edibles from Greater Accra, Central and Volta regions and consumers of ice cream, unstructured and open ended interview guide was developed. The reason for using unstructured and open ended questions was to allow respondents to feel free to express themselves well.

**Interviews:** the researcher conducted the interview with respondents using the unstructured and open ended interview guide. The researcher started by introducing himself and then updated the respondent on the purpose of the interview. The researcher read the questions to the respondents carefully so they would answer accordingly, and

also follow up questions were asked which gave the researcher a clearer understanding of responses given. Using an audio recording device the researcher recorded the responses from respondents; this was not easy as some respondents were not comfortable with it. 20 respondents from each of the selected 3 regions were interviewed generally on their perception concerning Ghanaian indigenous packaging then specifically the traditional meal associated to the region. 80 respondents in Kumasi were interviewed on their perception of ICPD. With regards to ICPD, researcher purchased ice cream, so respondents could easily give assess and precise answers to questions. Ice cream from two local companies in Ghana was used; Fan Milk Ghana limited and Frosty bite Ghana limited. The data gathered were assembled and analysed.

### **3.10 Objective two**

The second objective is to identify the various forms of GIPC on edibles that can be integrated with contemporary package design to produce an effective ice cream package. To achieve this the researcher reviewed literature Ghanaian indigenous packaging, package design and the concept of integration. This informed the researcher to appropriately to develop an unstructured and open ended interview guide for soliciting empirical data from sellers of traditional edibles from three regions (Greater Accra, Central and Volta regions).

**Interviews:** the researcher interviewed respondents using unstructured and open ended interview guide. The researcher visited the respondents in their homes where the production of a particular meal was made. the researcher conducted the interview with respondents using the unstructured and open ended interview guide. The researcher started by introducing himself and then updated the respondent on the purpose of the interview. The researcher read the questions to the respondents carefully so they would answer accordingly, and also follow up questions were asked which gave the researcher

a clearer understanding of responses given. Using an audio recording device the researcher recorded the responses from respondents, this is was not easy as some respondents were not comfortable with it. The data gathered were assembled and analysed.

**Observation:** the observation method was employed along side the interview in gathering primary data. The resecher made critical observation of how the various traditional meals are packaged. Photographs of the packaged meals was taken to support the data taken.

### 3.10.2 Central region

#### I. (“*fante kenkey*” and “*Boodoo*”)



*Plate 3.1 fante kenkey*

The meal is made from corn, where the corn is processed into a dough then cooked partially. The partially cooked corn dough is mixed with uncooked dough and stirred well to get a plastic state dough, after this packaging would commence. The dough is packaged into dried plantain leaves or the “*Akunkun*” leaves. Fanti kenkey packaged with dried plantain leaves look bigger in size and shape, because of the layers of plantain

leaves used, whereas the kenkey packaged with “Akunkun” looks smaller in size and shape. The dried plantain leaves are used to package the kenkey immediately after harvest or stored in cool dry place then used later. On the other hand the “*Akunkun*” leaves are used fresh, they are not dried because it possesses medicinal value which is infused into the kenkey during cooking.



*Plate 3.2 Boodoo*

“**Boodoo**” is also an indigenous Fanti meal made with corn, sugar and flour. The corn is milled into a dough, then sugar and flour are added to form a homogenous paste. The paste is scooped onto clean fresh leaf called “*Disi*” before it is baked. After baking the leaf turns to look dry. The leaf protect the meal for at least 3 days



## II. Greater Accra region (Ga kenkey)



*Plate 3.3 Ga-kenkey*

“GA-KENKEY” natively known as “*komi*” is a traditional meal appreciated by all people of different tribes but especially the natives of “GA” people. The “GA KENKEY” is similar to the “FANTI KENKEY” in preparation, because corn is used in both meals, and the dough is cooked partially before package and cooked again.

Dried corn husk (dried sheath of zea mays) is used to package Ga kenkey.

## III. Volta region (“ABOLO (M3M3 and DADA)” and KAFFA

“Abolo” is one the delicacies of Ewe’s, eaten with fried shrimps, tiny fingerlings of fish popularly known as “one-mouth thousand), friend oyster, octopus and so on: without pepper. There two tpyes of “Abolo”; abolo m3m3 and abolo dada.

“Abolo m3m3” is smoked abolo, in other words abolo that is prepared by smoking and

“Abolo dada” is steamed abolo, it is prepared by steaming. “abolo m3m3” is packaged

with “kaffa” leaf and sometimes the dried plantain leaf. Whiles the “Abolo dada” is normarlly packaged with dried corn husk (called “AGBO” in Ewe) and sometimes the “kaffa” leaf. Both are prepared from corn. The kaffa leaves are used in the fresh state. According to the manufacturers the fresh kaffa leaves adds taste to the meal and the dried corn husk used to package the “abolo dada makes steaming fast.



*Plate 3.4 Abolo m3m3”*



*Plate 3.5 Abolo dada”*

“Abolo dada” is prepared in a similar way to the “abolo m3m3”. The mixture of corn, yeast flour, baking powder and sugar, scooped onto cleaned corn husk. Now the entire top of the meal is left open when put into the steaming bowl, and after steaming it is also packaged into a plastic bowl for sale at the market. So the corn husk only supports the base of the abolo to take shape while it’s being steamed.

### “KAFFA”



*Plate 3.6 Kaffa*

“kaffa” is a meal this is prepared from maize, in a like manner of “banku”, just that a lot of hot water is added it while on fire to make it very soft. The packaging material is kaffa leaves, two leaves are used to package a meal.

From the above edibles in the selected regions, the researcher identified two main concepts of traditional packaging, namely: using **dried leaves** and **fresh leaves**. The

researcher decided to adopt the concept of the dried leaves like “Ga-kenkey” “Fante kenkey” and “Abolo Dada”

### **3.11.3 Objective three**

The third objective is to design and produce an effective package for ice cream.

### **3.12 Designing and Production of Ice Cream Package Design**

The designing and production of ICPD was executed by a product design process, which is as follows;

1. Design Brief
2. Product Design Specification (list of requirements)
3. Concept Design (concept generation and concept evaluation)
4. Prototyping
5. Testing
6. Refining and Detail design
7. Production or Manufacturing

#### **3.12.1 Design Brief**

To integrate Ghanaian indigenous packaging concept that is dried leaves with CPD, to produce an effective ICPD.

#### **3.12.2 Product Design Specification**

*List of requirements of ice cream packaging design*



- The packaging material must be a Ghanaian indigenous packaging material, specifically dried corn sheaths and dried plantain leaves.
- The ICPD must be an integration of either dried corn sheaths or dried plantain leaves with aesthetic and visual aspects of CPD, specifically labelling.
- The packaging design must be easy to handle and carry about.
- The package must protect against temperature fluctuations, photo oxidation, dehydration, and odour transmittance.
- Also it must not add up to the existing solid waste management problems.

#### **3.12.2.1 Testing of indigenous packaging materials (Dried corn sheaths and dried plantain leaves)**

Step 1: dried corn sheaths and dried plantain leaves was harvested.

Step 2: dried corn sheaths and dried plantain leaves were individually separated from the vine.

Step 3: dried corn sheaths are cleaned with a dried rug and dried plantain leaves are cleaned by putting it into water for some time.

Step 4: the tapered end of the corn sheaths and the curled end of the dried plantain leaves were cut off.

Step 5: individual dried corn sheaths and dried plantain leaves were glued together to form abstract receptacles. Two layers of both materials were used to make the receptacles strong and also to prevent leakages.

Step 6: water was then poured into the dried corn sheath and dried plantain leaves receptacles. They were observed for some minutes to see if they could contain the water.

Step 7: the receptacles were placed in a refrigerator.



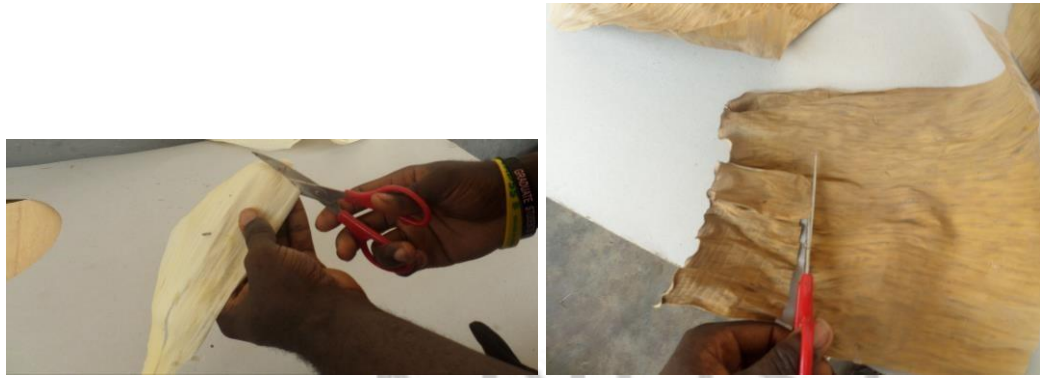
*Plate 3.7 Dried corn sheaths and dried plantain leaves*



*Plate 3.8 Tearing of dried corn sheath into individual sheaths*



*Plate 3.9 Individual dried plantain leaves soaked in water*



*Plate 3.10 Cutting of unwanted parts of dried corn sheaths and plantain leaves*

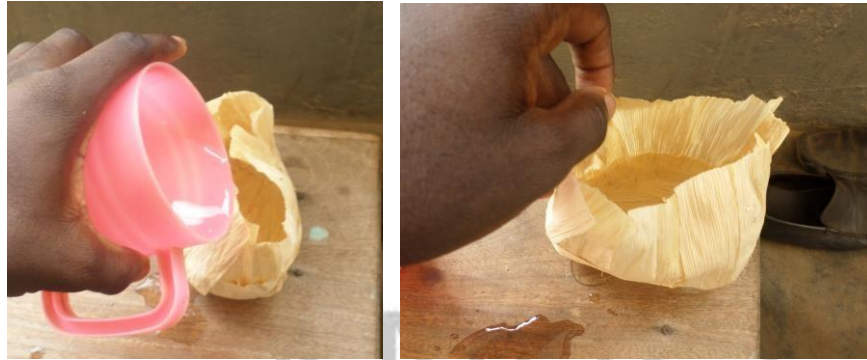


*Plate 3.11 Gluing of dried corn sheaths and plantain leaves*



*Plate 3.12 Abstract receptacles in dried corn sheaths and plantain leaves*





*Plate 3.13 Pouring water into receptacles*



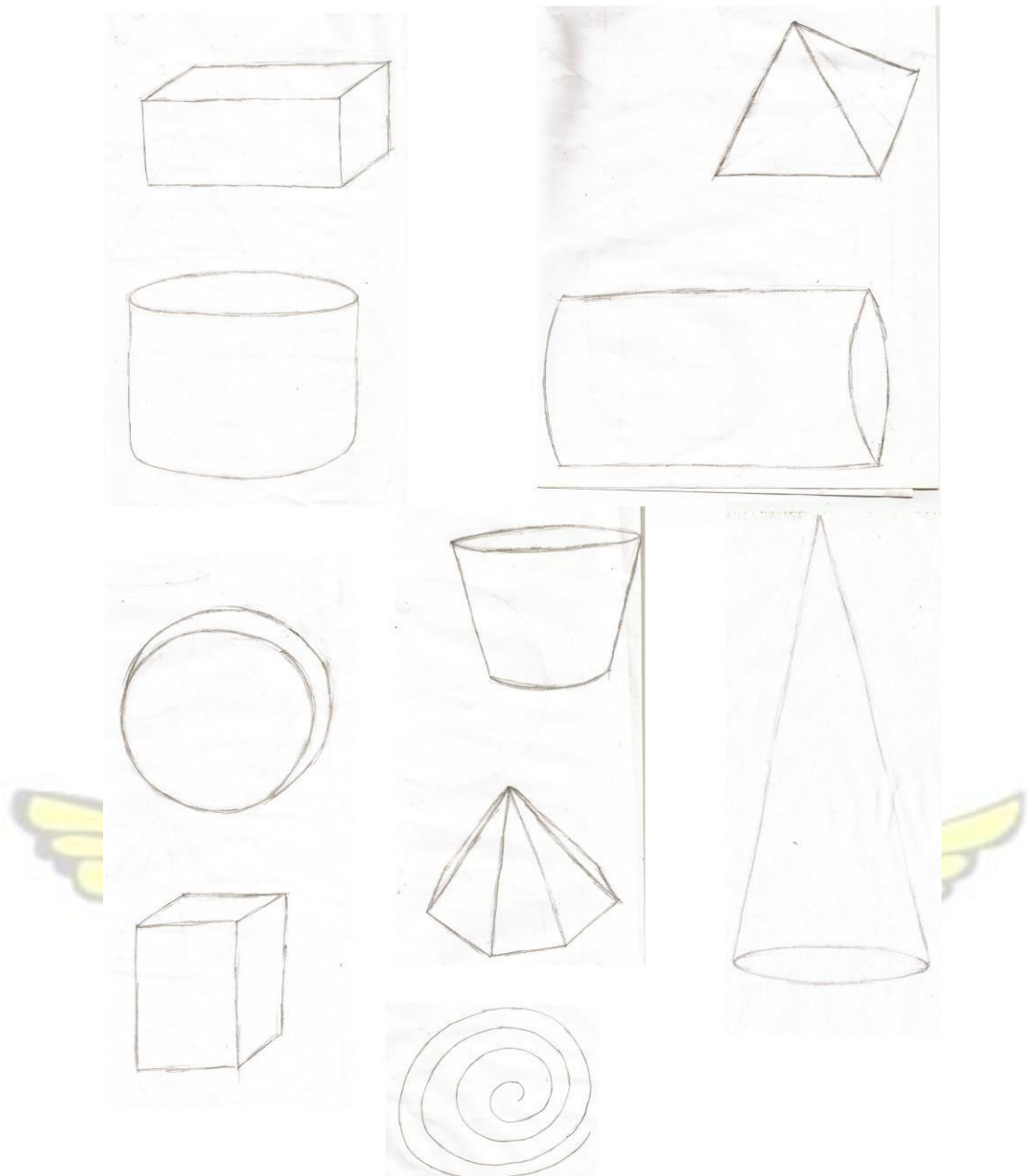
*Plate 3.14 Water leaking out of the receptacle*

### **3.12.3 Concept Design**

#### ***Concept generation***

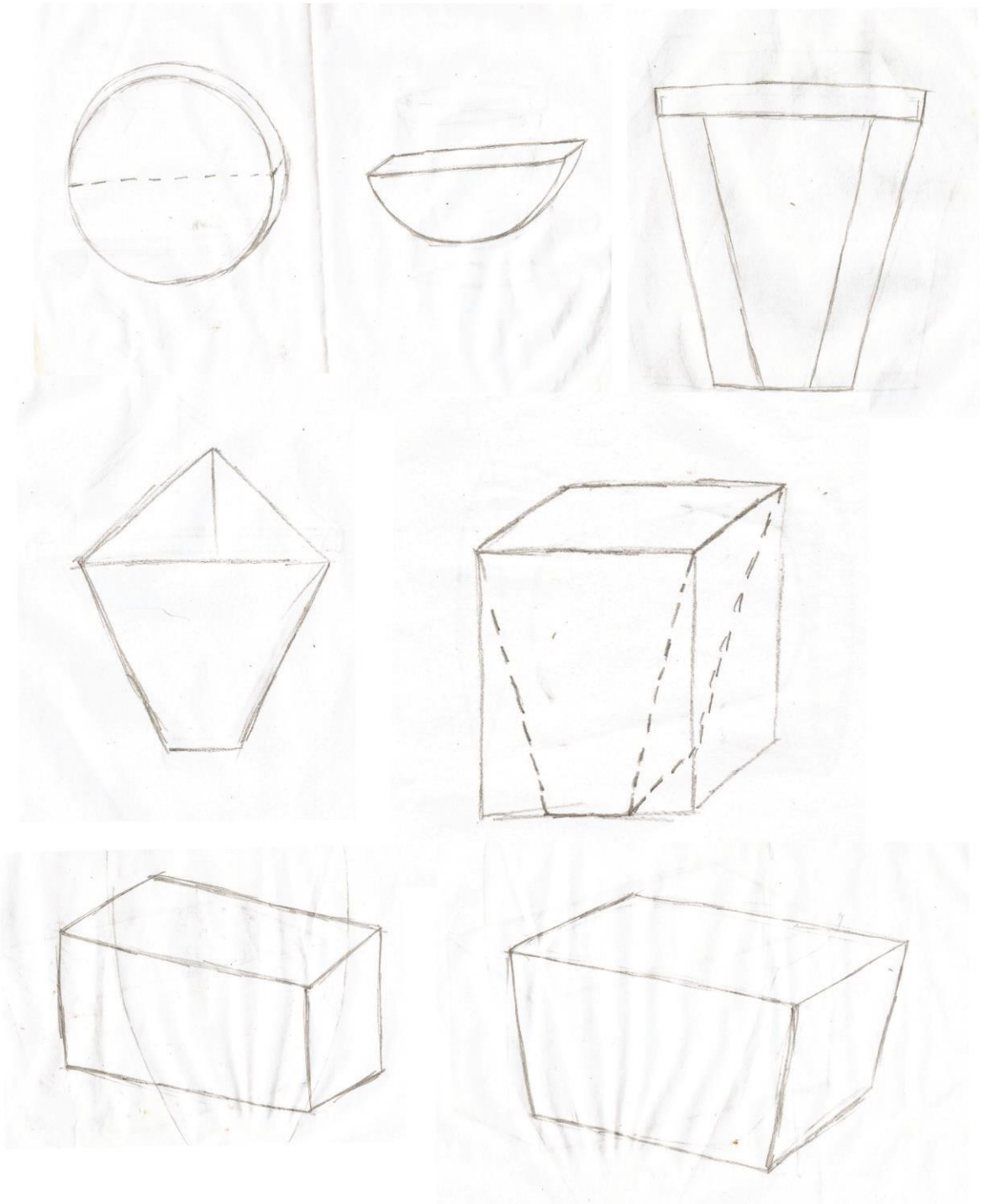
**Step 1:** Preliminary sketches of ice cream packages were done in freehand





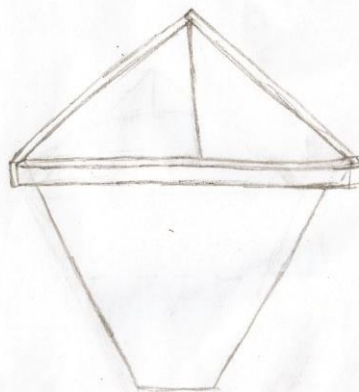
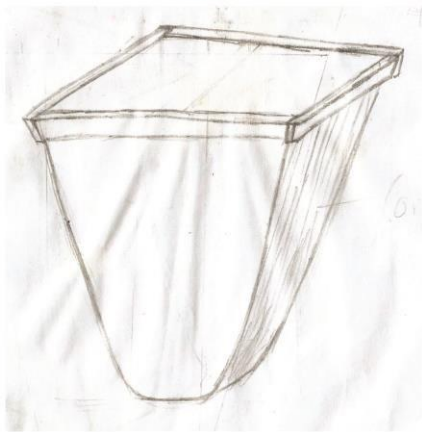
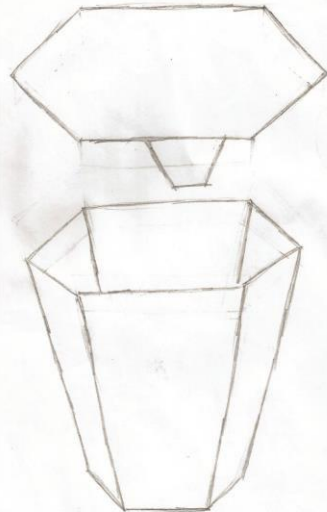
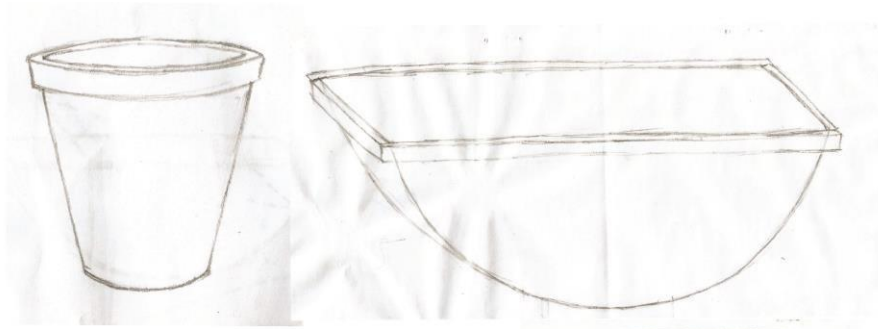
*Plate 3.15 freehand sketches of preliminary drawing*

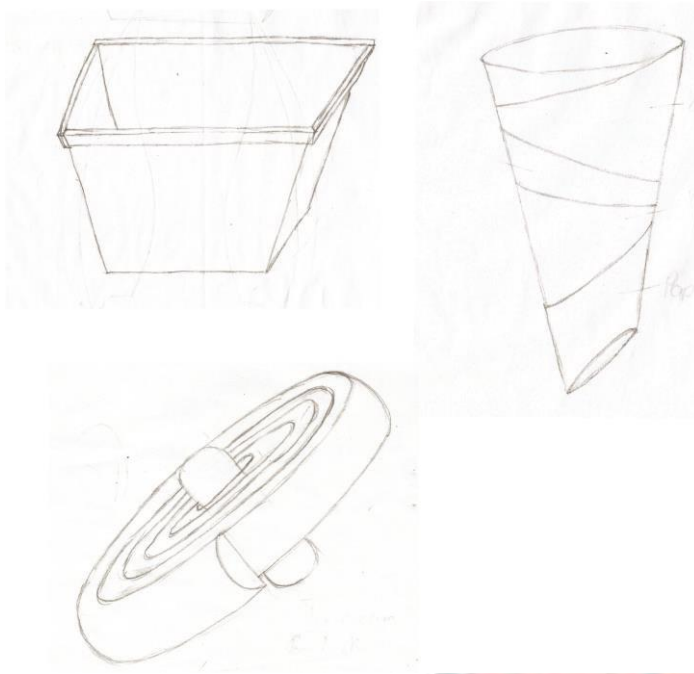
**Step 2:** sketches were further developed



*Plate 3.16 freehand sketch of development of drawing*

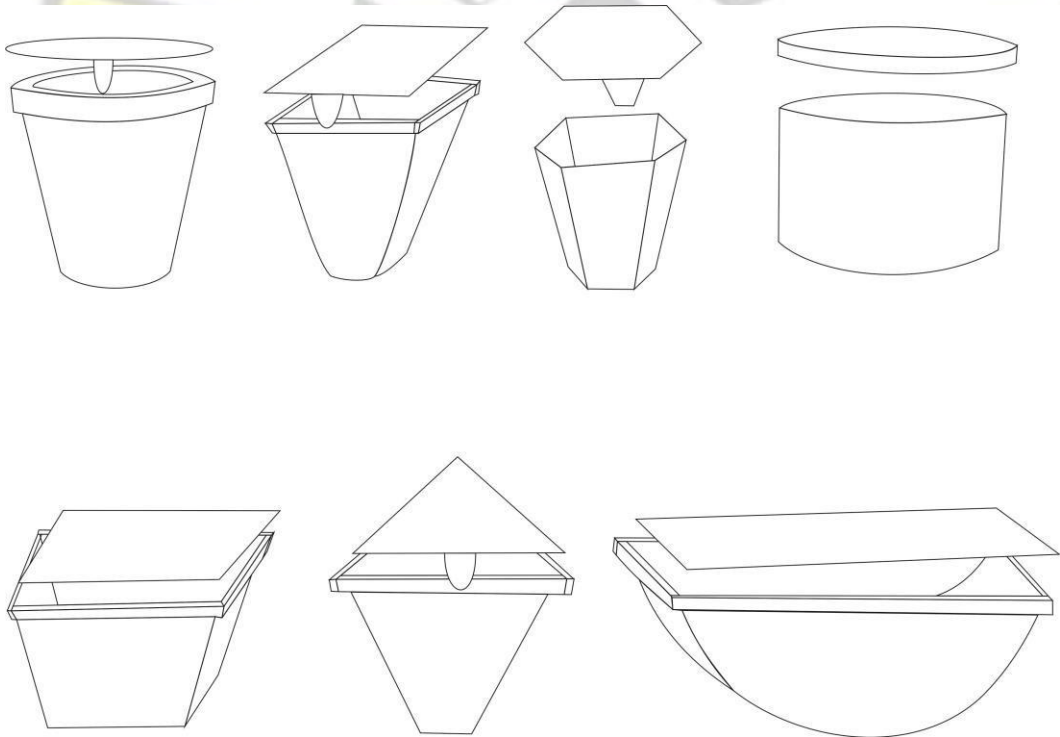
**Step 3:** final design were adapted from the above designs.





*Plate 3.17 final drawing*

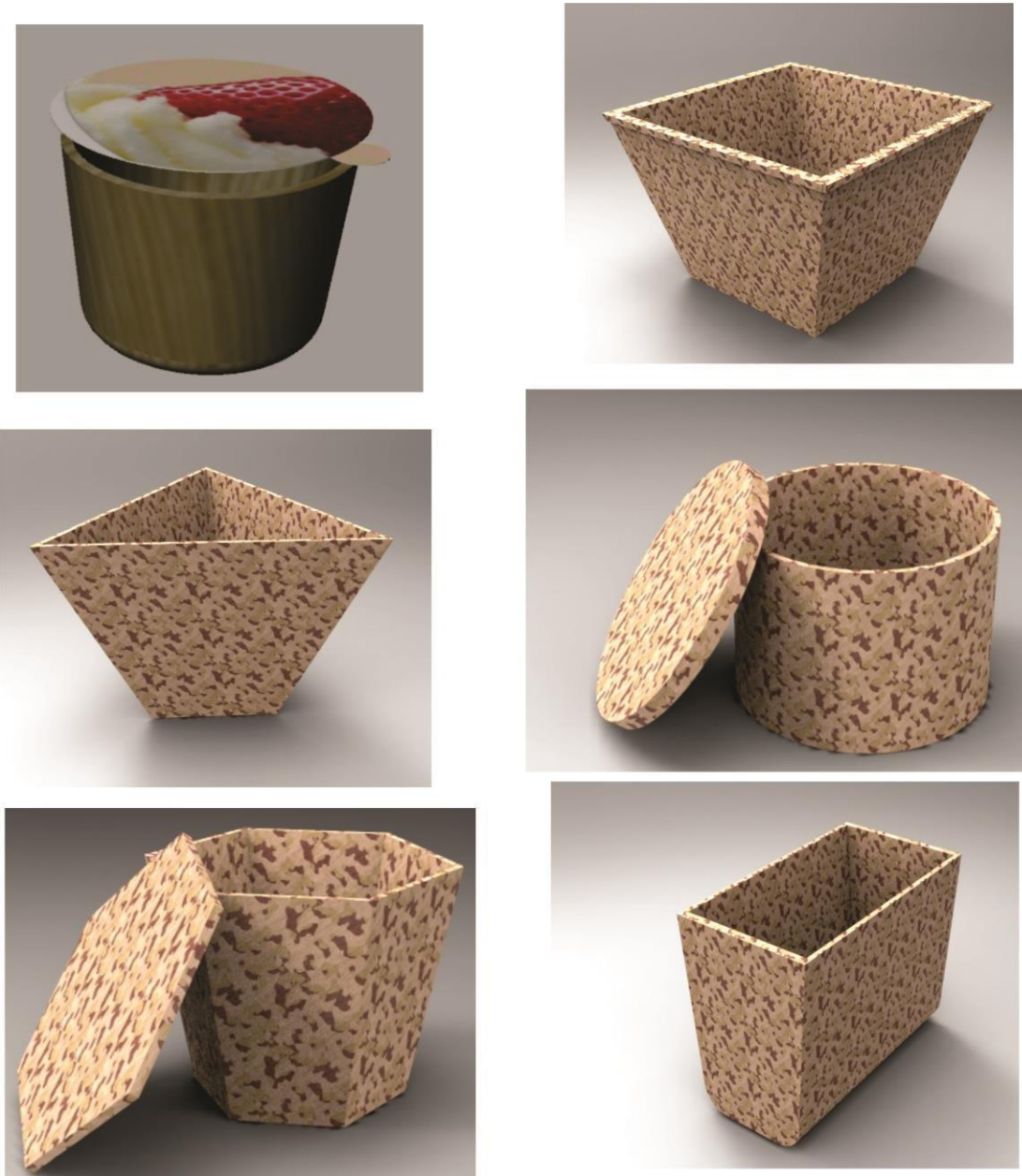
**Step 4: 2 dimensional drawing using CorelDraw©**



*Plate 3.18 selected works done in 2 dimensional, with CorelDraw*



**Step 5:** 3 dimensional drawing using Rhinoceros©



*Plate 3.19 selected designs done in 3 dimensional, using Rhinoceros.*

**3.12.4 Prototyping**

## **Producing the ice cream packages**

Tools and materials used to produce the ice cream packages include: pencil, easer, ruler, compass, pair of cutter, pair of scissors, strawboard, chip board, glue, dried corn sheaths, dried plantain leaves. Out of the above final designs only 7 of them were produced in both dried corn sheath and dried plantain leaves.

Step 1: Outlines of designs were done on chip board or strawboard depending on the design.

Step 2: the drawn outlines were cut out using the scissors or the cutter. This formed the foundation of the package that is because the dried corn sheath and plantain leaves cannot be used to form definite shapes. The chip board or straw board is used to give it rigidity.

Step 3: the shapes were laminated on one side with Aluminium board paper.

Step 4: then they were joined together with glue

Step 5: the tapered end and the bottom end of the dried corn sheath and also curly ends of the dried plantain leaves were trimmed off.

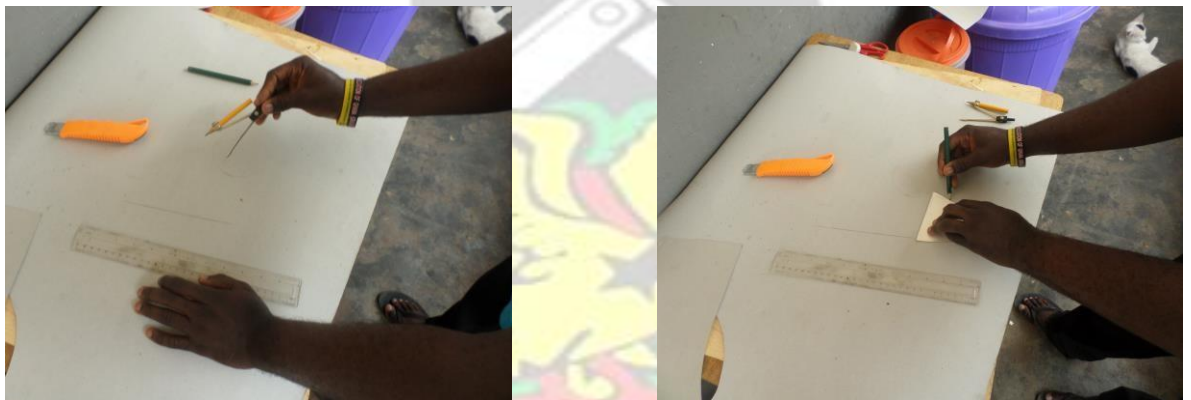
Step 6: the dried corn sheath or dried plantain leaves were fixed around the shaped chip or straw board.

Step 7: an appropriate lid depending on the design was produced using either dried corn sheath or plantain leaves to cover the container.

Step 8: the labels were wrapped around them



*Plate 3.20 Tools and materials used*

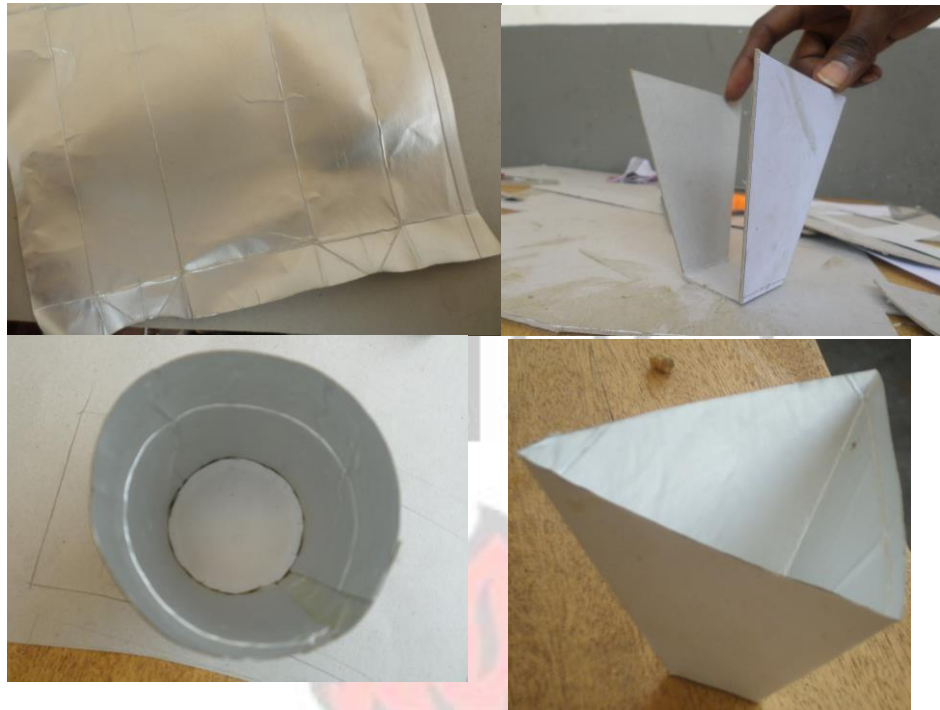


*Plate 3.21 Drawing of outlines of various shapes*



*Plate 3.22 Cutting out the shapes*





*Plate 3.23 Laminating with aluminum board paper and fold to get 3 dimensional shapes*



*Plate 3.24 Fixing of dried plantain leaves and dried corn sheath around the paper boards*





*Plate 3.25 Samples of ice cream packages, made from dried corn sheaths and plantain leaves*

### 3.12.5 Testing

#### *Testing of prototypes*

Step 1: Water was poured into the prototypes and observed.

Step 2: The prototypes are placed in the refrigerator for the water to freeze.

Step 3: after the water freezes the refrigerator is switched off.

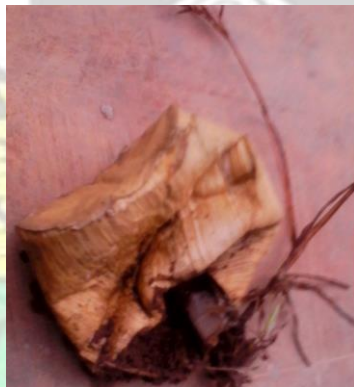
Step 4: A prototype is crushed buried in the ground.



*Plate 3.26 water in prototypes*



*Plate 3.27 prototypes in refrigerator*



*Plate 3.28 prototype in the process of decomposing*

### **3.12.6 Refining and Detailing**

#### **Designing of labels**



Plate 3.29 label for cup





Plate 3.30 label 3 for cup



Plate 3.31 label mini bowl





Plate 3.32 large bowl



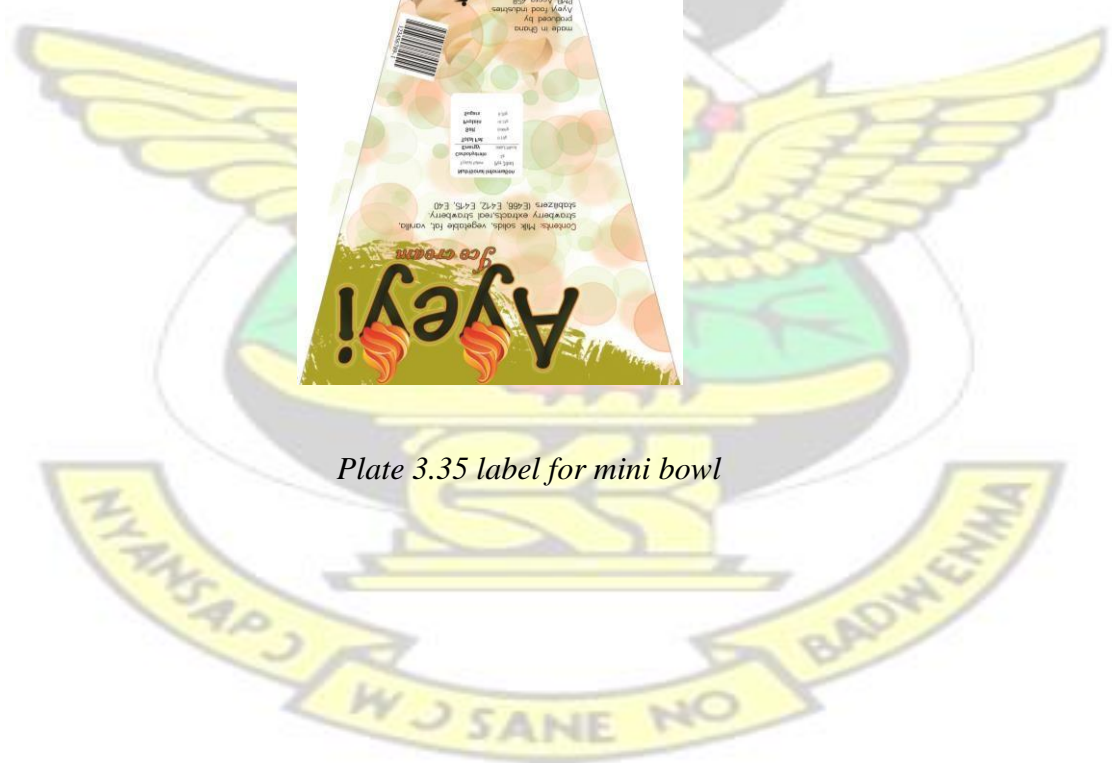
Plate 3.33 label for square cup



Plate 3.34 label for mini bowl



Plate 3.35 label for mini bowl



## Final works labelled



*Plate 3.36 ice cream cup*



*Plate 3.37 triangular ice cream cup (corn sheath)*



*Plate 3.38 mini ice cream bowl 1 (corn sheath)*



*Plate 3.39 mini ice cream bowl 2 (corn sheath)*



*Plate 3.40 square ice cream cup*





*Plate 3.41 large ice cream bowl*

## CHAPTER FOUR PRESENTATION AND DISCUSSION OF FINDINGS

### **Overview**

This chapter provides a presentation and discussion of findings of data retrieved from sampled population of 152 respondents from manufacturers of Ghanaian indigenous meal, ice cream manufacturers, and consumers of both indigenous meals and ice cream. The data are then organised and well deliberated under each category.

### **4.1 Categorisation of respondents**

In order to analyse the data with difficulty, data was categorised into identical characteristics (Table 3.1). Respondents in ST1 totalling 10 in number were put together as respondents from manufacturers of indigenous meals from three regions. ST2 representing the ice cream manufacturers with 2 respondents. ST3 representing

consumers of indigenous meals with 60 respondents. And ST4 representing consumers of ice cream with 80 respondents.

#### 4.2 Discussion of findings from manufacturers of indigenous meals from three regions (Central, Greater Accra and Volta regions).

Manufacturers of indigenous meals in three regions namely Central, Greater Accra and Volta regions were interviewed and also how its packaging is done was observed. This is very expedient to the study in order to thoroughly understand the philosophy of traditional packaging concept and also providing a foundation in designing an ice cream package. The researcher went directly to houses where these traditional meals are produced. The researcher identified the following meals in three regions Central region -“*Fanti kenkey*” and “*Boodoo*”; Greater Accra region – “*Ga kenkey*”; Volta region – “*abolo*”; abolo dada (steamed abolo) and abolo m3m3 smoked abolo) and “*kaffa*”.

The following tables show the age range and gender of manufacturers in all the 3 regions who were interviewed during the fieldwork.

**Table 4. 1 Age range**

Region	Age	Frequency(number)	Percent (%)	Cumulative percent(%)
Central region	40-50	4	40	40
	35-45			
Greater Accra region	40-60	3	30	30
	50-55			

Volta region	40-50	3	30	30
	50-55			
	<b>Total</b>	<b>10</b>	<b>100%</b>	<b>100%</b>

**Table 4.2 Gender range**

<b>Region</b>	<b>Gender</b>	<b>Frequency(number)</b>	<b>Percent (%)</b>	<b>Cumulative percent(%)</b>
Central region	female	4	40	40
Greater Accra region	female	3	30	30
Volta region	female	3	30	30
	<b>Total</b>	<b>9</b>	<b>100%</b>	<b>100%</b>

#### **4.3.1.1 Importance of indigenous packaging**

All respondents (100%) were in full support of the fact that indigenous packaging is important because it identifies their culture but lost its value in recent years. They gave reasons why most people look down on indigenous packaging:

- Technological advancement in packaging
- Consumer demand
- Perceived unhygienic nature of leaves

But amidst all these reasons there is a perpetual patronage of fante kenkey, from one generation to another.

#### **4.3.1.2 Name of the packaging style of indigenous meals**

Only few of the respondents proved to have knowledge about the subject matter. Out of 10 respondents only 3 of them (30%) were able to give the name of packaging style of meals and they were found in the central region – fante kenkey. The rest (70%) that is respondents in other regions said there is no name for the packaging style of Ga kenkey, Abolo (dada and m3m3), and kaffa. Respondents in central region were able to provide the researcher with traditional packaging style names of fante kenkey. The researcher was provided with three unique names used in packaging fante kenkey. Out of the 3 names gathered, one respondent gave 2 names representing 66.6% and the other gave name representing 33.3333%. they are “Osimukur”, “Asante style” and “Kwabonyi”. All respondents used to package kenkey with the “OSIMUKUR” style but when the “ASANTE” style was introduced retailers advised the manufacturers to package the kenkey in that way. The “ASANTE” style according to respondents is well patronised by retailers who come to buy from in bulk. The retailers like the “ASANTE” style more than “OSIMUKUR” because consumers appreciate the shape of the package and also the style adds to the shelf life of the meal. So currently most manufacturers now use the “ASANTE” packaging style.

#### **4.3.1.2 Reason for using indigenous packaging material.**

Manufacturers gave specific reasons as to why they use packaging material such as dried plantain leaves (*musa paradisiaca*), dried corn sheaths (*zea mays*), kaffa leaves (fresh leaves of *thespesia populnea*) and abolo (*thespesia populnea*), they are:

- They are Medicinal
- Passed on from generation to generation
- Easy to acquire



- Cost effective, that is it doesn't add to the cost of the meal.
- Unique taste and aroma

#### **4.3.1.3 How the meal is packaged.**

Respondents demonstrated how the meals are packaged. In the case fante kenkey “Osimukur”, and the “Asante style” was demonstrated. The researcher would describe how fante kenkey, Ga kenkey, and Abolo (dada and m3m3) are packaged.



*Plate 4.1 This is a picture of dried plantain leaves that is about to be used to package kenkey.*



*Plate 4.2 The individual dried plantain leaves are cleaned with a dried rug*



*Plate 4.3 Then arranged together to form a unit, to be used to package the kenkey.*



*Plate 4.4 A ball of the partially prepared corn dough is placed onto the dried plantain leaves.*

□ The packaging style to be demonstrated here is the  
**“OSIMUKUR”**



*Plate 4.5 “OSIMUKUR” style step 1*

The plantain leaves are bent around the ball of dough length wise.



*Plate 4.6 “OSIMUKUR” style step 2*

The excess plantain leaves around the ball of dough is pressed to form the below shape

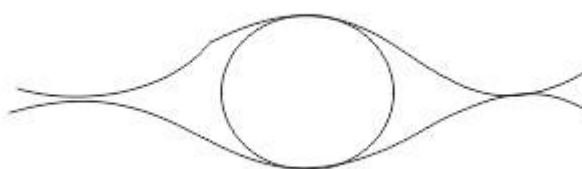


Plate 4.7 “OSIMUKUR” style step 2, in 2 dimensional drawing with CorelDraw





*Plate 4.8 “OSIMUKUR” style step 3*

Both ends of the excess plantain leaves are bent around ball of dough tightly, which is already surrounded by some layers of leaves.



*Plate 4.9 “OSIMUKUR” style step 4*

At this point the package is taking a shape of cube. After both ends of the leaves on the left and right are bent over each other, the upper part of the ball of dough would be exposed meaning the plantain leaves directly above it has to cover it.





*Plate 4.10 “OSIMUKUR” style step 5*

So here the leaves standing above the ball of dough is bent and pressed firmly from all directions.



*Plate 4.11 “OSIMUKUR” style step 6*

Plantain leaves bent over and firmly pressed from one direction. So here is the final packaged kenkey in the “OSIMUKUR” style.



*Plate 4.12 “OSIMUKUR” style*

The “**ASANTE**” style looks similar to the “OSIMUKUR” but only difference is the process the dried plantain leaves goes around the ball of dough.



*Plate 4.13 “ASANTE” style step 1*

A ball of dough placed onto the plantain leaves.



*Plate 4.14 “ASANTE” style step 2*

The right side of the plantain leaves are bent over the ball of dough firmly, leaving the end loose.



*Plate 4.15 “ASANTE” style step 3*

This forms a sought of hollow figure where the ball of dough is in its middle. The hollow figure has a ball of dough in the middle and plantain leaves upright on both ends of the hollow figure. The widely loose plantain leaves on left is still left untouched.



*Plate 4.16 “ASANTE” style step 4*

The excess plantain leaves on both ends of the hollow figure are firmly bent over and pressed from all angles.





*Plate 4.17 “ASANTE” style step 5*

The excess leaves bent over and pressed at one end of the hollow figure



*Plate 4.18 “ASANTE” style step 6*

It is then turned over so that widely loose sheets of plantain leaves are bent around the hollow figure which has one end closed, to form an entire closed ended cylinder.





*Plate 4.19 “ASANTE” style step 7*

The end that is not closed is now firmly bent and pressed



*Plate 4.20 “ASANTE” style step 8*



*Plate 4.21 “ASANTE” style*

This is the finished kenkey package in the “ASANTE” style.

### **“GA KENKEY”**



*Plate 4.22 This is a bowl of harvested corn sheath about to be used for packaging  
kenkey*



*Plate 4.23 The individual sheaths are separated apart by tearing from cluster, then unwanted parts are cut away and washed in clean water.*

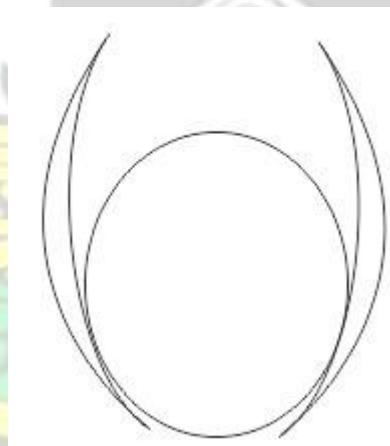


*Plate 4.24 the partially cooked corn dough is shaped into balls.*



*Plate 4.25 “GA KENKEY” step 1*

The individual corn sheaths is placed around the ball of dough such that slender part of the corn husk would be standing up right.



*Plate 4.26 “GA KENKEY” step 1 in 2 dimensional drawing using CorelDraw*

This is a graphic representation how the corn husk is placed around the ball of dough.





*Plate 4.27 “GA KENKEY” step 2*



*Plate 4.28 “GA KENKEY” step 3*

After placing the corn husk around the dough the slender part, pointing upwards is turned and twisted, and inserted into the dough.



*Plate 4.29 “GA KENKEY” step 4*

The turned and twisted part inserted into the dough.



*Plate 4.30 “GA KENKEY”*

This is the packaged kenkey.

**“Abolo m3m3”**

The abolo is scooped half way onto the kaffa leaf then covered with the end of the leaf, exposing some part open.



*Plate 4.31 “Abolo m3m3” covered with kaffa leaf*

### **“Abolo dada”**

“Abolo dada” is in a similar way to the “abolo m3m3”. The mixture of corn, yeast flour, baking powder and sugar, is scooped onto a cleaned corn husk. Now the entire top of the meal is left open when put into the steaming bowl, and after steaming it is also packaged into a plastic bowl for sale at the market. So the corn husk only supports the base of the abolo to take shape while it's being steamed.





*Plate 4.32 “Abolo dada” step 2 Corn husk cut into halves*



*Plate 4.33 “Abolo dada” step 2*

The corn husks being washed in water





*Plate 4.34 “Abolo dada” step 3*

The mixture being scooped onto the corn husk



*Plate 4.35 “Abolo dada” step 3*

An arranged set of “abolo dada” about to be steamed.

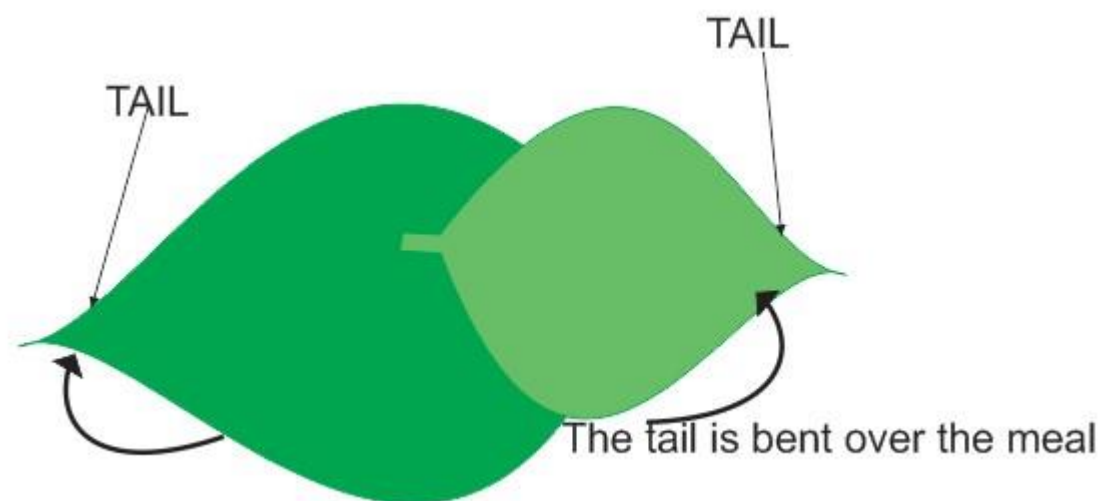
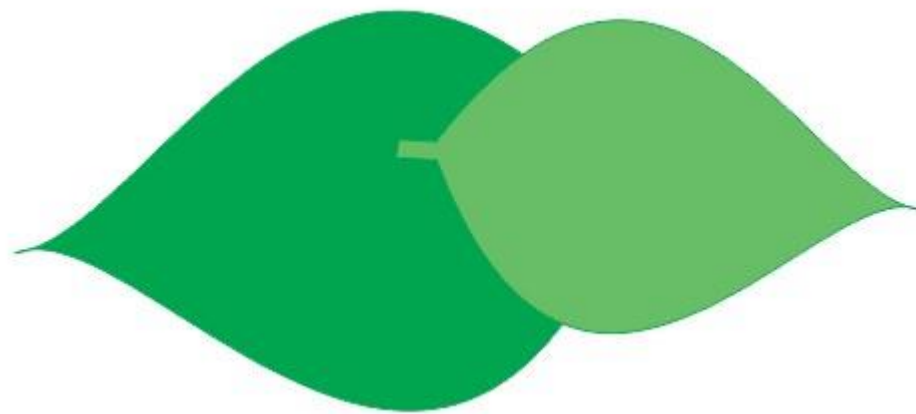


*Plate 4.36 “Abolo dada” on sale at the market.*

**“KAFFA”**

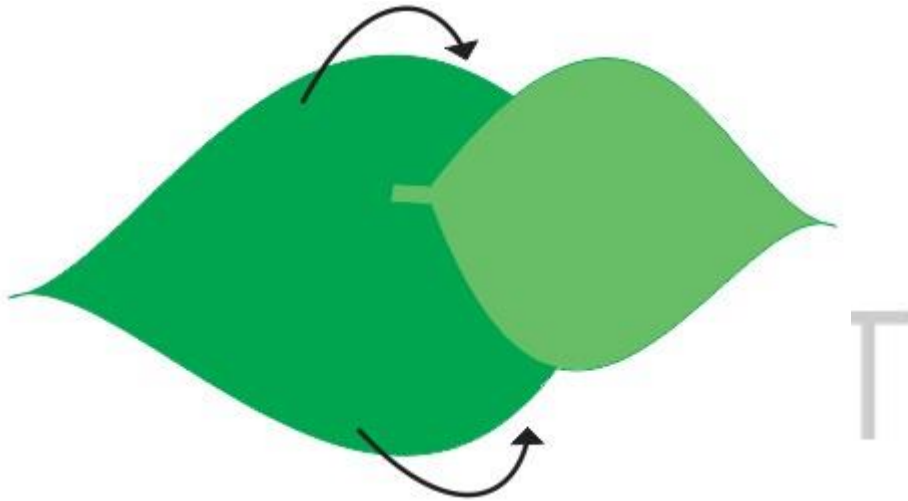
“kaffa” is a meal this is prepared from maize, in a like manner of “banku”, just that a lot of hot water is added it whiles on fire to make it very soft. The packaging material is kaffa leaves, two leaves are used to package a meal. One big leaf and a small leaf.

The big one is placed beneath the small one half way, like this:



The tail ends are bent over uprightly.

*Plate 4.37 a graphical representation of how kaffa leaves placed*



*Plate 4.38 a graphical representation of how kaffa leaves turned*

The sides of the leaves are folded are fold up, and the excess leaves are tucked beneath the food to form a pyramid-like symbol.



*Plate 4.39 a graphical representation of how kaffa leaves turned*

#### **4.3.1.4 Any other alternative way of packaging the meal**

All respondents suggested that there is no other alternative packaging material such as plastic, for fante kenkey, Ga kenkey, abolo (dada and m3m3) and kaffa, reasons they gave are;

- The meal is cooked while the leaves are wrapped around it, thus no material can be used to substitute the leaves.
- The leaves give a unique aroma and taste to the meal, which no other material can give.
- Low patronage of the meal

In the case of fante kenkey, respondents used to use plain rubber as a primary package before the dried plantain leaves. The reason they did this was because some consumers noticed that the dried plantain leaves emit some dark juice which stains the meal, and assumed it was toxic to their health. But later on they were advised that plain rubber causes cancer, so they should desist from using rubber. The manufacturers informed the retailers that those stains are from the plantain leaves which is good for their health-its medicinal. They didn't have any scientific proof for this assumption but because that is what they have used over the years and it has become a belief.

#### **4.4 Discussion of findings from consumers of indigenous meals**

60 respondents were interviewed in total, 20 respondents from each of the three regions the researcher visited; Central, Greater Accra and Volta region.

##### **4.4.1 Reason for patronage of meals**

Among all the 60 respondents interviewed, 55 (91.6%) of them across the three regions patronise meals like the fante kenkey, Ga kenkey and so on, for the following reasons.

- Love for the meals.
- Economical, that is it is affordable.
- They are healthy.



The rest of the 5 respondents (8.333%) didn't any particular reason for patronising the meals. Respondents don't buy such meals because of it package.

#### 4.4.2 Indigenous packaging of meals

To ascertain respondents' perception of the way traditional meals are packaged, the researcher was able to prove that the respondents sampled appreciated indigenous packaging of the various meals. Hence it is appropriate to package meals in leaves.

All the respondents representing 100% positively affirmed indigenous packaging *Table 4.1: response of Indigenous packaging of meals*

Answer	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	60	100	100	100
No	0	0	0	100
<b>Total</b>	<b>60</b>	<b>100</b>	<b>100</b>	-

Respondents gave various reasons why they like indigenous packaging concept but 50 respondents (83.333%) like it because of its medicinal value. The rest gave reasons such as;

- Represents our culture □ Makes the meal healthy.
- Preserves the meal.

#### 4.4.3 Patronise, if packaged in another alternative way of packaging the meal.

*Table 4.2 response of alternative packaging*

Answer	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	60	100	100	100
No	0	0	0	100
<b>Total</b>	<b>60</b>	<b>100</b>	<b>100</b>	-

All respondents (100%) do not like any other alternative package apart from the various leaves in which they are packaged. They wouldn't patronise it in other material. But 50 of them added if these leaves were improved to help increase the shelf life of the meals.

#### **4.4.4 Integration with contemporary packaging materials**

55 respondents (91.6%) didn't think traditional concept of packaging and the contemporary packaging can be integrated because it would not work and also it would not look nice. 5 (8.33%) on the other hand express their desire to see such integration because they think it would be an innovative package.

#### **4.4 Discussion of findings from manufactures of ice cream.**

Two ice cream companies were visited and the informants responsible for the packaging were interviewed. These companies produce ice cream in Ghana and they are Fan Milk Ghana limited and Frosty Bite Company limited.

##### **4.4.1 Factors that influence ice cream packaging design.**

According to these companies factors that influence their ice cream packaging design are:

- Attractiveness to consumers
- Cost
- Ease of handle
- Ability of package to expand and contract
- High resistance to get soggy

Attractiveness to consumers is related to the aesthetic value of a package which has been discussed in the review of literature. When it comes to attractiveness, these companies look at the colour combination of the graphic design, of the ice cream

package. The researcher was informed that, colours used must attract children. Some of these colours used are red, blue, pink, and green, and also an appropriate type face that can be seen by the consumer. They also use a packaging material that would not incur additional cost on the unit price of an ice cream, and that packaging material is rubber.

#### **4.4.2 General requirement for designing ice cream packages.**

Respondent from one company said there is no general requirement in the designing of ice cream package but the other said the colours of the packaging graphics must not conflict with other competitors.

#### **4.4.3 What influences the shape and size of their packages.**

Both respondents affirmed that, the shape and size of the ice cream packages are not critically looked at, because these ice cream packages are designed in a foreign country. They gave no appropriate reason for that.

#### **4.4.4 What necessitate a change in the ice cream packaging design.**

Unfortunately, both respondents directed their change in the packaging design to the packaging graphics. One respondent alluded to the fact the consumers' satisfaction is the main factor that facilitates the need for a change in packaging graphics not the shape and size. But their consumers are satisfied with their packaging design and no consumer has reported about their packaging design. The other said evolving trends in packaging graphics is main factor that facilitates the need for a change in packaging graphics

#### **4.4.5 Challenges they encounter when designing ice cream packages.**

Both respondents said their packages are not designed and manufactured in Ghana but one of these companies faces the challenge in designing a package that would increase

sales since wants to take over the ice cream market. While the other doesn't face any challenge because it has a large share of the ice cream market-70%.

#### **4.4.6 Influence of culture**

Both respondents believe culture can influence their packaging design. An informant from one of the companies said **“think global act local”** meaning you design a package that can compete globally but portrays the rich culture of a country or tribe. With regards to waste management issues both companies are well aware of the difficulty rubber possesses in degradation; therefore, they are plans of introducing a biodegradable package.

#### **4.5 Discussion of findings from of ice cream consumers.**

80 ice cream consumers were interviewed to find out their perception on ICPD in Ghana. 70 respondents out of the 80, purchasing decision on ice cream is based on the taste not the packaging design even though the packing design is nice. They are satisfied with the current ICPD in Ghana. They think the ice cream packing design is attractive enough, in terms colour combination, and type face used in the packaging graphics. They just want an increase in the size of the product. And they would patronise ice cream if the current packaging design is changed. Integrating traditional packaging concepts with CPD wasn't possible at all because traditional packaging is complex and not attractive. 10 respondents on the other hand, purchasing decision is based on packaging design even though they love ice cream intrinsically. And for that matter they think the packaging design of ice cream produced in Ghana, is not at par with that of imported ice cream. Some expressed the emphatic concern about the packaging graphics of ice cream produced in Ghana, is not attractive enough compared to imported ones. They said shapes and sizes of the packages are so monotonous, and there is no variety in the packaging design as compared to the imported ice cream. Colours used in



the packaging graphics have been the same since they were little children, there suggested colours like purple, orange, lime green and even black to be used in the packaging graphic. They even expressed the fact that the various flavours of the ice cream produced in Ghana has been same for long time, but the imported ice cream has a lot of variety in taste, so there is that desire to try a new taste. Thus there wanted an innovative package that is attractive persuade them to purchase locally made ice cream. They also elucidated on integrating traditional packaging concepts with CPD, such that they were very optimistic about it. Some thought it would be complicated but attractive. Others also thought it was an interesting challenge, and as such would produce a unique package.

#### **4.6 Discussion of result of test of indigenous materials (dried corn sheath and plantain leaves)**

When receptacles were filled with water, the water leaked out of it. Hence the researcher laminated the materials with aluminium board paper and, formed receptacles again. They were then placed in the refrigerator. The dried plantain leaves package froze early than the dried corn sheath. After three hours the refrigerator was switched off, and both packages became wet with the water around it in the refrigerator, but not mushy. After the water in the packages had melted, they were brought out of the refrigerator, and with 1hr both packages had dehydrated back to its normal state. There was no permeation of any scent from the dried corn sheath and dried plantain leaves.

##### **4.6.1 Discussion of result of test of prototypes**

The prototypes Prevented leakage of the water, after water was poured into it and placed in the refrigerator. When the water froze, the prototypes expanded, and also contracted when the water melted but got a little soggy. With this the prototypes absorbed water easily from the exterior and also dries quickly when brought out of the refrigerator.

During temperature fluctuation, the prototypes held the water frozen for 30 minutes, before melting. After one month of being in the refrigerator with water around it, the prototypes didn't grow mouldy. With decomposition issues, it was observed that the prototype starts to decompose after 2 days.

# KNUST



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary

The main purpose of the study has been to integrate GIPC with CPD to produce an effective ICPD. The researcher adopted the Moalosi theoretical framework, which seeks to provide insight on producing culture-oriented products, to critically analyse the Ghanaian indigenous packaging concept on edibles and how it can be integrated with current packaging concepts. Hence it was important to find out consumers perception on the current ICPD produced in Ghana and Ghanaian indigenous packaging concept on edibles, and to identify GIPC that can be used to integrate wit CPD. Personal interview and obseravtions were made in the following sectors namely: Manufactures of Ghanaian indigenous meals, ice cream producers, consumers of Ghanaian indigenous meals, consumers of ice cream. Some of the major finding include, irreplaceability of Ghanaian indigenous packaging design, packaging design of ice cream packages not done in ghana, satisfaction of current ICPD, high desire for an innovate ice cream packaging that is biodegradable, no Ghanaian identity with ice cream package and packaging graphics.

Ghanaian indigenous meals accustomed to the three selected regions include, GAkenkey (Greater Accra), Fante kenkey and Boodoo (Central region), Aboloo M3m3 and Dada (Volta region). All these are packaged in leaves, with the exception of GAkenkey, Fante kenkey, and Aboloo M3m3, the rest are packaged with fresh leaves. GA-kenkey, and Aboloo M3m3, Fante kenkey are packaged with dried corn sheaths and dried planatian respectively. Based on this concept of using dry leaves to package edibles, the researcher integrated with CPD concept such as constituent of good

packaging, (Have adequate capacity (volume) to hold the content; Be compatible with the content (inert) and should not cause any deterioration in the integrity of product/or be affected by content and so on) aesthetics and visual aspects of contemporary packaging (Visual Element, Product information (typography) and so on, to produce an effective ice cream package.

## **5.2 Conclusion**

In conclusion, a culture-oriented ice cream package provides the foundation for Ghanaian designers to produce products that do not entirely reflect western influence. The researcher realised the Ghanaians appreciate meals packaged in leaves and the Ghanaian identity of packaging when it comes to food. The dried and fresh leaves are the concepts that Ghanaian manufacturers of edibles such Ga-kenkey, Fante kenkey and so on use to package these edibles. Some consumers were optimistic that, these leaves are healthy and don't pose any environmental hazard. Hence they should be improved to be used for contemporary product on the market. With regards to ice cream which is now produced in Ghana, its packages are not designed and produced in Ghana – reasons to this fact wasn't revealed to the consumers. But manufacturers of ice cream in Ghana believe ice cream packages can be a means of portraying Ghanaian identity, and this would make the packages unique from the imported ones. They also face the issue of waste management since current ice cream packaging material in Ghana is rubber and plastic, which doesn't decompose easily. Integration of these two concepts to design and produce an ice cream package has brought some enlightenment to the researcher, and would like to inspire other package designer to delve deeper into this area.



### 5.3 Recommendations

The researcher found out that Ghanaians place a lot of value on packaging indigenous edibles, and as such believe that no other way of packaging can replace it. And since Ghanaian market is being filled with product that are not indigenous to the Ghanaian but some are being manufactured in the country, I would first and foremost recommend to packaging designers not integrate our indigenous packaging concepts in their design process.

Secondly Ghanaian researchers should come up with theoretical framework that can help designers to integrate a Ghanaian indigenous concept with current design processes.

Thirdly ice cream producers should entrust designing of ice cream packages in the hands of Ghanaian designers, to help develop the economy. Ice cream producers spend huge amount of money in foreign currency in designing ice cream packages and importing them into the country.

Fourthly Ghanaian indigenous packaging materials are mainly leaves, which are easily degradable without harming the environment; hence further research should be done on producing biodegradable packages from leaves.

And lastly, ice creams produced in Ghana have packages graphics that are not aesthetically good as compared to imported ice cream packaging graphics. In this light, ice cream producers in Ghana should improve on the aesthetic quality of the packaging graphics.

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## APPENDIX

### **Interview guide for ice cream consumers**

1. Do you like ice cream?
2. Which one do you prefer? Locally made ice cream ☐ Imported ice cream ☐
3. If locally made ice cream why?
4. Do you like the current packaging design of locally made ice cream?
5. If Yes why?
6. Do you think there should be an improvement in the package design of locally made ice cream?
7. If Yes, what aspect of the packaging design?
8. Do you think traditional packaging and contemporary packaging concept can be integrated?
9. Would you like an ice cream package design that has both traditional and contemporary design concepts?
10. Does the package design influence your purchasing decision?

### **Interview guide for consumers of traditional meal**

1. Location .....

2. Name of meal.....

3. Reason for patronage

.....

.....

.....

4. Do you like the meal packaged the traditional way?

5. Why?

6. Do you think it's appropriate to package the meal that way?

7. Is the packaging important to you?

8. Would you still buy the meal if it was packaged in a different way,  
maybe in rubber?

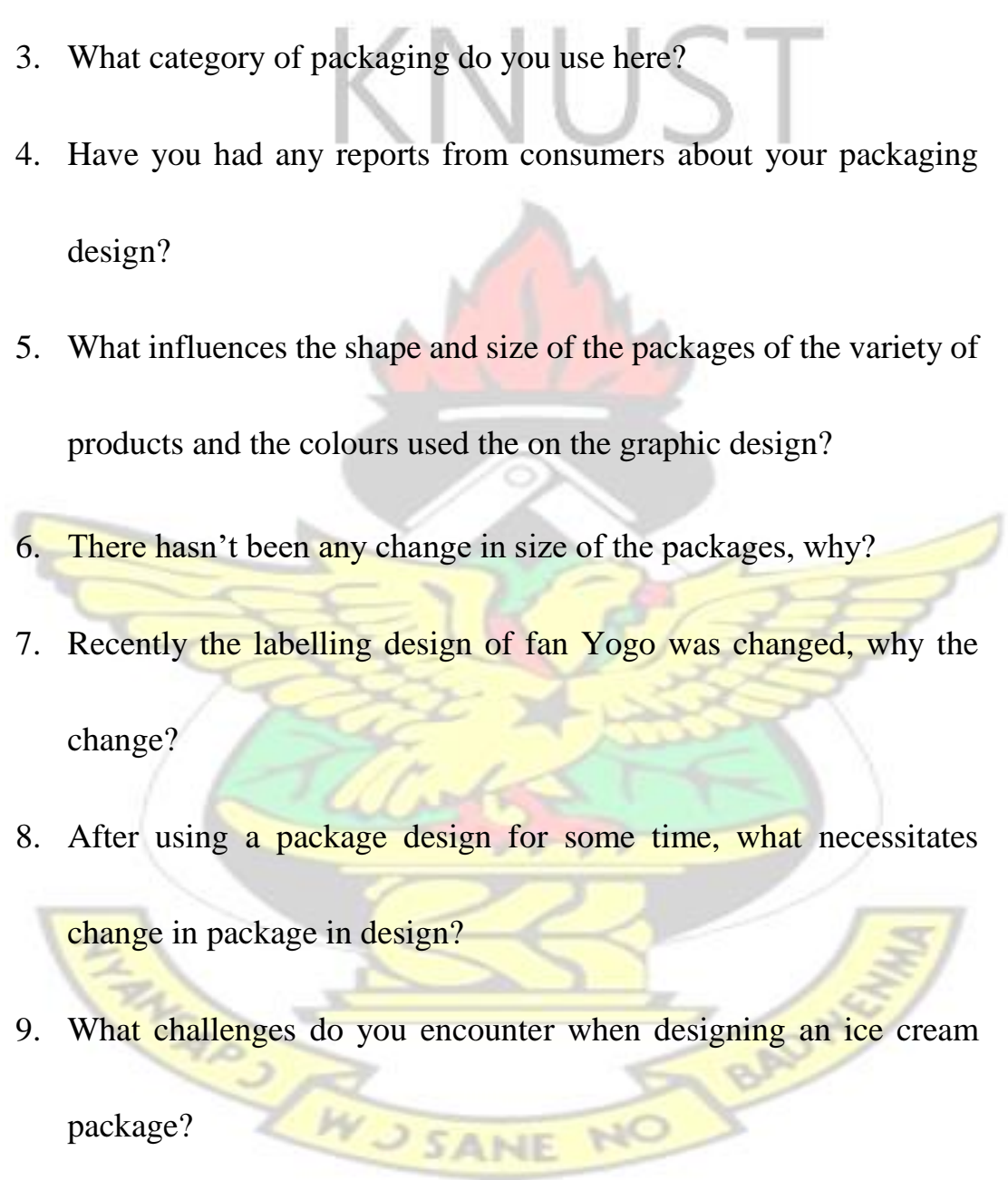
9. Would you like to see another product having this style of  
packaging? (eg, biscuit)

10. Is packaging very important your culture?

11. Why?

### **Interview guide for ice cream manufacturers**

Name of company.....

- 
1. What are the factors that influence ice cream packaging design?
  2. Is there any general requirement for the designing of ice cream packages?
  3. What category of packaging do you use here?
  4. Have you had any reports from consumers about your packaging design?
  5. What influences the shape and size of the packages of the variety of products and the colours used on the graphic design?
  6. There hasn't been any change in size of the packages, why?
  7. Recently the labelling design of fan Yogo was changed, why the change?
  8. After using a package design for some time, what necessitates change in package in design?
  9. What challenges do you encounter when designing an ice cream package?
  10. Do you think culture can influence your package design?

### **INTERVIEW GUIDE FOR SELLERS OF READY-TO-EAT**

### **MEALS**



1. Name of community

.....

2. Traditional name of meal

.....

3. Brief history about the meal

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4. Preparation of meal

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.....

.....

5. The name of the package

.....

.....

6. Reason for using that package

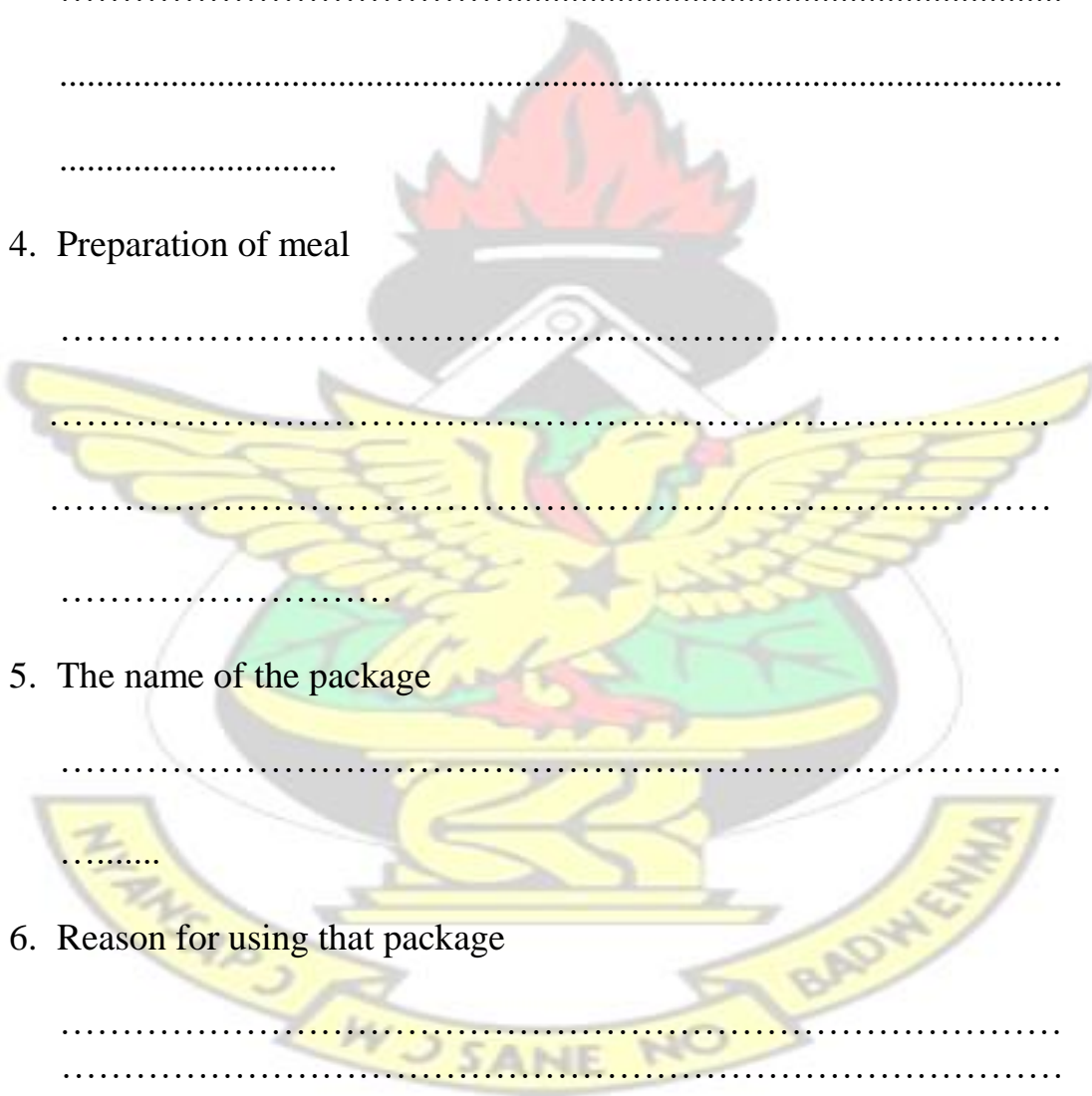
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7. How the meal is packaged

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8. Any other alternative way of packaging, like rubber or paper

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.....  
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9. It packaging very important to their culture?

10.Can the packaging be used to promote the Ewe culture?

