



Diffusion of Symbolic Culture in the Modern Ghanaian Clothing and Textile Industry

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and ethics procedures and guidelines have been followed.

Josephine Aboagyewaa-Ntiri

21/10/2016

Dedication

To God be the glory; this thesis is dedicated to God Almighty, who has been my eternal rock and source of refuge. I also dedicate this thesis to my family, whose affection, love, encouragement and prayers of day and night help me to achieve such success and honour, along with all hard-working and respected teachers.

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Contents

Declaration	ii
Dedication	iii
Acknowledgements	iv
List of figures	x
List of tables	xii
List of publications	xiii
Abbreviations	xiv
Abstract	1
Chapter 1 Introduction	3
1.1 Problem statement	5
1.2 Scope of the thesis	7
1.3 Background note	8
1.4 Hypothesis of the thesis	10
1.5 Aims of the thesis	11
1.6 Research questions	12
1.7 Objectives of the thesis	13
1.8 Rationale of the study	14
1.9 Thesis outline	15
Chapter 2 Culture and Adinkra symbols	19
2.1 Introduction	19
2.2 Culture and symbolism	19
2.2.1 Culture	19
2.2.2 Symbolic culture	20
2.2.3 Cultural symbols and symbolic interaction	21
2.3 Adinkra symbols	22
2.3.1 Origin of Adinkra symbols	23
2.3.2 Adinkra symbols and spirituality	28
2.3.3 Some other uses of Adinkra symbols	29
2.3.4 The current trend of traditional symbols in Ghanaian society	31
2.4 Approaches to documentation of Adinkra symbols	32
2.5 Summary	33
Chapter 3 Development of traditional cloths and patterns	35
3.1 Introduction	35
3.2 Hawaii an aloha cloth	35

3.3 Ethiopian net'ela	36
3.4 Scottish tartan	37
3.5 Adinkra cloth	39
3.5.1 Traditional production processes of Adinkra symbolic cloth	39
3.5.2 Tracing the development of Adinkra cloth: Past to present	41
3.6 Framework for Western fashion and traditional costume	48
3.7 Summary	51
Chapter 4 Analysis of traditional Adinkra cottage industry	53
4.1 Introduction	53
4.2 Definition of SMEs	53
4.2.1 Textile industry in Ghana	55
4.2.2 Empirical review of SMEs	56
4.2.3 Factors affecting SMEs	58
4.3 The barriers and key facilitators for the diffusion of Adinkra symbols/cloth	62
4.3.1 The knowledge of the stakeholders	63
4.3.2 Views on technology characteristics	64
4.3.3 Relationships with stakeholders	65
4.3.4 Absorptive capacity of artisans	66
4.3.5 Understanding of consumer culture	66
4.4 Innovation	70
4.5 Diffusion of innovation	71
4.6 Consumer culture perspective on product innovation and diffusion	72
4.7 Transfer of meaning of culture from products to consumers	73
4.8 Summary	76
Chapter 5 Research methodology	77
5.1 Introduction	77
5.2 Definition of research	79
5.3 Methodology	84
5.4 Methods	86
5.4.1 Mixed-model design	86
5.5 Research process	89
5.6 Data collection strategy	91
5.7 Population	91
5.7.1 Sampling techniques	92
5.8 Data collection technique	100
5.8.1 Interviews	101
5.9 Data analysis techniques	102

5.9.1 New product development	103
5.10 Research sites	103
5.11 Summary	104
Chapter 6 Data presentation, results and discussion	106
6.1 Introduction	106
6.2 Key themes of the study	107
6.3 Quantising the data	109
6.4 Results and discussion	111
6.4.1 Knowledge of names of the symbols	111
6.4.2 Knowledge of meanings of the symbols	112
6.4.3 Choice of technology among stakeholder groups	113
6.4.4 Relationships among stakeholders	115
6.4.5 Absorptive Capacity of Artisans	117
6.4.6 Consumer requirements	118
6.5 Implications	121
6.6 Summary	123
Chapter 7 Categorisation of Adinkra symbols	125
7.1 Introduction	125
7.2 Maslow's expanded hierarchy of human needs theory and Adinkra symbols	125
7.3 Selected Adinkra symbols	136
7.3.1 Justification for selection of original Adinkra symbols	136
7.3.2 Justification of ten selected Adinkra symbols	136
7.3.3 Significance of documenting Adinkra symbols	138
7.4 Summary	140
Chapter 8 Conceptual framework for diffusion of Adinkra symbols	142
8.1 Introduction	142
8.2 Proposed supply chain model	142
8.3 Conceptual framework model	146
8.4 Summary	149
Chapter 9 Development of new Adinkra symbolic products	150
9.1 Introduction	150
9.2 Digitised printing	150
9.2.1 Textile designs for digital printing	151
9.2.2 Digitised printed fabrics in different fibres and fabric constructions	157
9.3 Three-dimensional (3D) printing	160
9.4 Three-dimensional (3D) knitting	163
9.5 Jacquard weaving	166

9.6 Summary	169
Chapter 10 Conclusion and further research	171
10.1 Introduction	171
10.2 Summary	171
10.3 Theoretical and practical contributions of the study	175
10.4 Proposal for further research	177
References	179
Appendices	189
Appendix A: Ethics approval	189
Appendix B: Interview question guide	190
Appendix C: Published articles	197

List of figures

Figure 1.1: Designs from Master of Arts	10
Figure 1.2: The researcher wearing multiple Adinkra symbolic dress.....	10
Figure 1.3: Outline of thesis.....	18
Figure 2.1: The King's sleeping room	25
Figure 2.2: Adinkra mourning cloth.....	26
Figure 2.3: Previous and current Ghanaian cedi currency notes.....	30
Figure 3.1: Aloha cloth	36
Figure 3.2: Net'ela cloth.....	37
Figure 3.3: Tartan fabric.....	38
Figure 3.4: Stamps used for Adinkra printed cloth	40
Figure 3.5: Present-day Adinkra cloth	42
Figure 3.6: Adinkra cloth in black colours.....	43
Figure 3.7: Adinkra cloth on white background with printing defects.....	43
Figure 3.8: Adinkra printed cloth made from black cotton fabric.....	44
Figure 3.9: Adinkra cloth joined with hand embroidery stitches	44
Figure 3.10: The Ashanti King in an embroidered Adinkra cloth.....	45
Figure 3.11: Adinkra cloth with an inserted hand-woven Kente cloth.....	46
Figure 3.12: (a) Kente cloth (b) Kente cloth with Adinkra printed symbols in black.....	46
Figure 4.1: Movement of meaning	75
Figure 5.1: Framework for research. The interaction to worldviews, design and research methods.....	80
Figure 5.2: Comprehensive approaches to mixed-methods research	84
Figure 5.3: Six mixed-model typologies	87
Figure 5.4: Mixed model design for the thesis.....	89
Figure 5.5: Research process for the thesis	90
Figure 5.6: Ghana map showing the selected regions for fieldwork.....	104
Figure 6.1: Model for diffusion strategy	108
Figure 6.2: Four categories of key stakeholders.....	110
Figure 6.3: Knowledge of names of symbols among stakeholder groups.....	112
Figure 6.4: Knowledge of meanings of symbols among stakeholder groups.....	113
Figure 6.5: Choice of technology among stakeholder groups.....	115
Figure 6.6: Relationships among stakeholder groups	117
Figure 6.7: Views on absorptive capacity of artisans among stakeholder groups.....	118
Figure 6.8: Views on consumer requirements in the current Adinkra cloth	119
Figure 7.1: Maslow's hierarchy of needs	126
Figure 7.2: Ghanaian presidents holding state swords at swearing-in ceremony.....	139
Figure 8.1 Proposed supply chain model	146

Figure 8.2: Conceptual framework.....	148
Figure 9.1: Digital printing machine	151
Figure 9.2: <i>Akoma ntoaso</i> – ‘Extension of the hearts’	152
Figure 9.3: <i>Nkonsonkonson</i> – ‘Chain link’	153
Figure 9.4: <i>Mate masie</i> – ‘I have heard and kept it’	153
Figure 9.5: <i>Nyansapo</i> – ‘Wisdom knot’	154
Figure 9.6: <i>Ese ne tekrema</i> – ‘The teeth and the tongue’	154
Figure 9.7: <i>Bese saka</i> – ‘Sack of cola nuts’	155
Figure 9.8: <i>Biribi wo soro</i> – ‘There is something in the heavens’	155
Figure 9.9: <i>Nyame ye ohene</i> – ‘God is King’	156
Figure 9.10: <i>Dwennimmen</i> – ‘Ram’s horn’	156
Figure 9.11: <i>Okodee mmowere</i> – ‘The eagle’s talons’	157
Figure 9.12: <i>Mate masie</i> – ‘I have heard and kept it’ symbolic digitised fabrics	158
Figure 9.13: <i>Okodee mmowere</i> – ‘The eagle’s talons’ symbolic digitised fabrics.....	158
Figure 9.14: <i>Nkonsonkonson</i> – ‘Chain link’ symbolic digitised fabrics	158
Figure 9.15: <i>Dwennimmen</i> – ‘Ram’s horn’ symbolic digitised fabrics.....	159
Figure 9.16: <i>Bese saka</i> – ‘I have heard and kept it’ symbolic digitised fabrics	159
Figure 9.17: <i>Ese ne tekrema</i> – ‘The teeth and the tongue’ symbolic digitised fabrics.....	159
Figure 9.18: <i>Nyansapo</i> – ‘Wisdom knot’ symbolic digitised fabrics	160
Figure 9.19: 3D printing machines, large and small sizes.....	161
Figure 9.20: 3D printed Adinkra symbolic rings, bangle and necklace	162
Figure 9.21: 3D printed Adinkra symbol embedded in purse, hand bag and backpack.....	162
Figure 9.22: 3D printed Adinkra symbol embedded on hat and scarf.....	162
Figure 9.23: 3D knitting machine – Shima Seiki	164
Figure 9.24: Sports clothing in <i>Okodee mmowere</i> symbolic design	165
Figure 9.25: <i>Dwennimmen</i> and <i>Okodee mmowere</i> symbols in everyday clothing.....	165
Figure 9.26: Education clothing in <i>Mate masie</i> symbolic design	166
Figure 9.27: Jacquard weaving machine (Picanol GTM – AS).....	168
Figure 9.28: Soft furnishings and academic gown in Jacquard weaving	168

List of tables

Table 4.1: Decline of the textile industry in Ghana	56
Table 5.1: The objectives of the thesis and approaches	78
Table 5.2: Reasons for mixed methods and their explanation.....	85
Table 5.3: Stakeholder types and number included in the sample	94
Table 6.1: Selected key areas for the research framework.....	109
Table 7.1: Biological and physiological needs.....	127
Table 7.2: Safety needs	129
Table 7.3: Social needs.....	130
Table 7.4: Esteem needs.....	132
Table 7.5: Cognitive needs.....	133
Table 7.6: Aesthetic needs	134
Table 7.7: Self-actualisation needs.....	134
Table 7.8: Transcendence needs.....	135
Table 7.9: Ten selected Adinkra symbols	138

List of publications

1. **Aboagyewaa-Ntiri, J., & Vijayan, A.** (2016). Adinkra symbolic clothing for the empowerment of African women: Akan example. *International Journal of Gender Studies in Developing Societies*, 1(3), 267–277.
2. **Aboagyewaa-Ntiri, J., & Mintah, K.** (2016). Challenges and opportunities for the textile industry in Ghana: A study of the Adinkra textile sub-sector. *International Business Research*, 9(2), 127–136.
3. **Aboagyewaa-Ntiri, J., Vijayan, A., & Fergusson, M.** (2015). Supply network performance and Adinkra industrial production challenges in Ghana. *Proceedings of Design for Business: Research Conference. Melbourne, Australia (12–13 May 2015)*.

Conferences

1. International Association for Feminist Economics (IAFFE) 23rd Annual Conference. Ghana, Accra (27–29 June 2014). Theme: Women’s Economic Empowerment and the New Global Development Agenda (University of Ghana, Legon).
2. Design for Business: Research Conference. Melbourne, Australia (12–13 May 2015), Australia Centre for the Moving Image (ACMI).

Abbreviations

3D	Three-dimensional
ATL	Akosombo Textiles Limited
CI	Clothing industries
DI	Design institutions
DS	Dye suppliers
FS	Fabric suppliers
GSA	Government support agencies
GSS	Ghana Statistical Service
GTMC	Ghana Textile Manufacturing Company Limited
GTP	Ghana Textiles Printing Company Limited
NBSSI	National Board for Small Scale Industries
PSD	Photoshop document
RC	Retail companies
RGB	Red green blue
RMIT	Royal Melbourne Institute of Technology
SME	Small and Medium Scale Enterprise
SMFE	Small and Medium Forest Enterprise
SSE	Small Scale Enterprise
TA	Trade associations
TIFF	Tagged image file format
TPI	Textile printing industries
USB	Universal serial bus

Abstract

This thesis explores Adinkra symbols as designs for the Ghanaian clothing and textile industry for easy communication, sustainability and development of knowledge about Ghanaian culture. The Ghanaian Adinkra symbols have figurative meanings and constitute a set with names and meanings that relate to aspects of social life, for example, wisdom, friendship and strength. These educational symbols are mostly used by textile artisans for the design of traditional cloths worn on special occasions such as funerals and durbars (cultural festivals). Artisans have been arbitrary in the selection of Adinkra symbols as designs for hand textile printing because they combine numerous symbols in a single design concept. The intended message from the use of numerous Adinkra symbols as designs on one cloth is lost in the process and does not enhance the meaning and understanding of a particular cloth design.

Ten groups of key stakeholders comprising 35 organisations and individuals from the clothing and textile industry in Ghana were selected for the study. Semi-structured interviews were used to solicit information from these stakeholders. Qualitative data was quantified with the aid of data reduction software, NVivo 10. Data was analysed using a thematic analysis approach based on five facilitating factors identified to enhance the spread of the symbols and related meanings. Innovated clothing and textile products were produced based on the findings from the interviews.

The study develops a categorisation of the Adinkra symbols under Maslow's needs theory, for easy identification of the symbols and their meanings. A conceptual framework has been constructed for the diffusion of the symbolic Adinkra products and a supply chain has been proposed and developed for the industry. Ten Adinkra symbols were selected for the study and a single Adinkra symbol was utilised at a time in the design and production of clothing

based on popular activities and practices. The names and meanings of the selected symbols chosen as designs for the study have been linked to the meanings of some current popular activities and practices such as education, democracy, friendship, religion and sport.

Modern clothing and textile technologies – 3D (dimensional) knitting, 3D printing, Jacquard weaving and digital printing have been adopted to merge symbolic culture with modern techniques in textile fabrics and clothing. The thesis has produced and documented 20 different modern Adinkra symbolic textile designs. Twenty-one Adinkra symbolic fabric samples have also been documented in different types of fabric and an array of colours. Fashion accessories such as, necklaces, rings, bangles, bags, hats, scarfs, garments, and soft furnishings of attractive colours and fabrics are included. Cultural symbolisms are adopted as designs for products and the meanings of the culture are transferred to consumers through the use of these products. Thus, the user's interaction with symbols as designs can lead to analysis and interpretation of their symbolic meanings. The varieties of clothing produced from this study are expected to enhance the use of Adinkra symbols as designs and further promote the research into other modern clothing and textile manufacturing.

Chapter 1 Introduction

There are many traditional symbols based on which artefacts and fashion products are designed and these symbols serve as a conduit for exhibiting aesthetics and transferring meanings to individuals and consumers all over the world. For example, the traditional Chinese characters, Australian Aboriginal symbols, Maori symbols of New Zealand, Aloha motifs of Hawaii (USA), Gicandi symbols of Kenya in East Africa, Kongo symbols of Angola in Central Africa. Also, the Nsibidi symbols of Nigeria, Dogon symbols of Mali and Adinkra symbols of Ghana, all in West Africa.

Adinkra describes a collection of traditional symbols with figurative meanings that are mostly used to enhance traditional cloth (Adinkra cloth) in Ghana (Agbo, 2011; Arthur, G. F. K., 2001; Cole & Ross, 1977; Mato, 1986; Quarcoo, 1972; Rattray, 1927). Adinkra symbols have meanings which are said to be derived from various aspects of life. These include themes of well-known proverbs, eminent historical events, expressions of particular human attitudes, noted animal behaviours, plants and abstract shapes of inanimate and synthetic entities (Arthur, 1994; Danzy, 2009; Magee, 2010; Willis, 1998). The symbols are based on the culture of the people of Ghana and serve as a vital source of design for Adinkra cloth.

Adinkra symbols have been adopted as designs for the production of a cloth popularly known as Adinkra cloth. The cloth has mainly been used for funeral purposes in the past, but the modern generation does not embrace this cloth for funeral activities. Without the use of the symbols for other specific activities and practices that recur in the society, there is a gradual process of symbolic cloth extinction in Ghana. Symbolic cloth is becoming less popular; this research considers that there are clear indications of losing it if nothing is done about the situation. The main function of the Adinkra symbols as designs for Adinkra cloth

is to transmit pattern of meanings embodied in symbols – symbolic culture (Shweder & LeVine, 1984), to the people of Ghana through the use of selected symbols as design for the cloth. As Temple (2010) affirms, Adinkra symbols can serve as communicators to express deeper meanings embedded in them. Adinkra symbols are also employed for their aesthetic quality, but the actual meanings of the symbols are known to few Ghanaians (Delaquis, 2013; Williams, 2011). In order to ensure that Adinkra symbols are conserved and their educational meanings spread to the people of Ghana, it is important to find ways through which the symbols can communicate to Ghanaians, especially the younger generation, which accounts for the largest portion of the population. This means adopting the symbols as designs to meet the needs of present Ghanaian consumers.

The success of fashion generally depends on its power to use appropriate designs to attract the target market. Consumers of fashion products in the modern era are sensitive to the trends and dynamics in the fashion industry. Hence, fashion designers are engaged in constant research to design products that match these trends and meet the needs of consumers in the marketplace. Incorporating the tastes and preferences of consumers into the design and production process has become imperative and causes consumer culture theory to feature prominently in the development of strategies for marketing fashion products. In view of this, Entwistle, as cited in Aage and Belussi (2008), argues that fashion items embody the latest desirable and popular aesthetics in society. Since the Adinkra symbols are originally from the culture of the people of Ghana, it can be argued that using them as designs can affect the adoption rate of the end product because of the acceptance of the symbols within the population.

1.1 Problem statement

The significance of the meanings embedded in the Adinkra symbols with their potential for communicating desirable traits to people who use and appreciate these symbols is the reason for the need to conserve these symbols for posterity. Besides, the symbols serve as a source of design for Adinkra traditional cloth in Ghanaian society. These symbols have been part of Ghanaian culture from time immemorial and their value to the society cannot be overemphasised.

However, the use of Ghanaian cultural symbols has diminished in recent times (Kquofi et al., 2013). As a result of the diminishing usage of these cultural symbols, there is an attendant effect on Adinkra symbolic cloth. The reasons for this problem are many and changes in society resulting in the loss of symbolic literacy along with loss of traditional values; a parallel loss is also occurring in the understanding of other traditional signs and symbols (Mato, 1986). Also, De Mooij (2011) stresses that the advance of English as a global language can damage or destroy traditional cultures which may be true for the Ghanaian context due to the colonisation of Ghana by the British leading to cultural adulteration.

Modern technology has a lot to offer in replacing outmoded methods of production. At the level of the production of Adinkra cloth, the production technology has been a hand-printing technology from its first documentation until today. The hand-printing technology is outmoded and as such does not ensure efficiency in production and adaptation for the production of other products using the symbols as designs. Also, the natural dyes for the hand-printing technology are water soluble, leading to non-fastness of the dyes after production. Moreover, the weight of the fabric is also heavy, leading to its inability to be adopted for various clothing purposes on different occasions. Again, because the symbols

have predominantly been used for designing funeral cloths, the perception among Ghanaians is that the symbols are funeral symbols. However, this notion is wrong because different Adinkra symbols have different meanings and hence send specific messages. Artisans have also been indiscriminating in their selection of symbols as designs for Adinkra cloth. The artisans normally combine different symbols for their visual aesthetics with mismatched meanings for the production, ignoring the names of the symbols and their intended messages. As a result, the messages embedded in the symbols are lost in the process.

The specific factors relating to Adinkra traditional cloth such as, its weight and the non-fastness of the dyes prevent many users, especially the young generation, from patronising this textile print. As a result, clothing designers are also not making maximum use of the symbols and symbolic cloth. These hinder wider usage of the symbols and Adinkra traditional cloth, and consequently affect the spread of the educational meanings of the Adinkra symbols and practical usage of the symbols as designs for other clothing purposes. As a consequence, the Adinkra symbols face imminent extinction from the Ghanaian clothing and textile industry as well as in the society. Besides, the production of Adinkra traditional cloth is also a dying art, which has serious implications for the artisans who have businesses operating in the Adinkra textile cottage industry.

Substantial research has been done on Adinkra symbols, especially the symbols as an art form and their cultural significance (Arthur, 1994; Willis, 1998). Some researchers have also focused on documenting the Adinkra symbols in an attempt to conserve them for posterity (Agbo, 2011; Mato, 1986). However, there is a limited study that has focused on making improvements to the application of Adinkra symbols to traditional cloth and enhancing it to meet the needs of modern consumers (the younger generation) in terms of choice of clothing. Also, no study has focused on the exploration of modern technology for

the production of enhanced Adinkra traditional clothing and accessories. More importantly, there is a lack of studies on how the meanings associated with the symbols can be diffused among Ghanaians. Such a study could serve as a way of perpetuating the symbols through the use of clothing as a conduit to send the messages associated with the symbols. This thesis accepts the value of conducting an investigation into the use of modern technologies for the production of enhanced Adinkra symbolic clothing. Documentation of the symbols is also important in an attempt to conserve the symbols. This investigation proceeds from the examination of barriers to the diffusion of the meanings of the symbols to the use of clothing as a conduit for sending messages through Adinkra symbols. In doing so, the research delivers solutions to the problems with the existing production of Adinkra traditional cloth. By identifying modern technologies capable of improving production methods, and develops a supply chain model and conceptual framework for the diffusion of the meanings of Adinkra symbols by providing solutions to the barriers to this diffusion.

1.2 Scope of the thesis

The focus of this thesis is on symbolic culture (the transmitted patterns of meanings embedded in symbols) and innovation in an attempt to enhance both the finished products and the production techniques of Adinkra symbolic clothing in Ghana. No other traditional cloth made in Ghana, for example, kente, batik, fugu, tie and dye (tie-dye), is part of this research. This research focuses on adopting and using Adinkra symbolic clothing across Ghana and keeping it as a part of everyday life. Clothing that has been chosen in this discussion for enhancement through the use of newly identified technologies are fabrics, garment, fashion accessories and soft furnishings. Four modern clothing and textile technologies have been identified, adopted and utilised for the clothing production in this research. These technologies are 3D printing, 3D knitting, digital printing and Jacquard weaving.

According to Rovine (2004), African clothes have seen a lot of change in their traditional and authentic forms, losing their originality. This has sometimes been seen as creative adaptation, not a sign of loss. This research has the aim of conserving, preserving, protecting, and creating products to ensure continuity of Adinkra symbols in Ghanaian society. There is therefore a need to avoid the risk of distortion and denigration of the selected Adinkra symbols in the clothing and textile designs. The symbols are to be used to send messages and as such should be easily recognisable in their original forms.

Again, the focus of this research is not on a debate about who invented the Adinkra symbols, but the hidden significance of the meanings in these symbols. This research is based on cultivating a deeper sense of awareness of Ghanaian culture, history and the tradition of Adinkra symbols through the use of symbolic clothing for users, especially the young generation.

1.3 Background note

Adinkra symbols originate from the Ashanti Region of Ghana and that is where most of the cloths are made. The researcher hails from this region and this served as motivation for the research. The researcher's association with and deep admiration for the Adinkra symbols started at an early age in her life in the Amaniampong Palace, in the Ashanti Region. The researcher is a member of the royal Amaniampong Silver Stool family in Mampong. The Amaniampong Silver Stool is the second highest royal paramount stool in the Ashanti region after the Golden Stool in Kumasi, the seat of the Ashanti King. Many artefacts used in the palace are designed with Adinkra symbols. These include chairs, stools, jewellery, umbrellas and cloths.

The researcher grew up to understand that in the past Adinkra symbols were reserved for use during funerals by royal members of the courts to bid farewell to the dead. Connection with Adinkra symbols raised the enthusiasm and awareness of the researcher into looking at the background and the less revealed meanings of these cherished symbols. This has influenced the researcher's desire to make Adinkra symbols and meanings widely known for people to become conscious of their presence and possible impact in society.

The researcher's mother had formal fashion training and became a headmistress in a vocational School where she taught fashion for thirty years. The opportunity of observing and participating in practical fashion at an early stage in life gave the researcher practical experience. As a result, at age fourteen the researcher was already producing dresses for friends and family members. This background encouraged the researcher to pursue her education at a teacher training institute which had clothing design and production as one of the study options.

The researcher pursued further studies in fashion and textiles at Kumasi Polytechnic in Ghana and obtained the Higher National Diploma (HND) certificate. Still not having satisfied her thirst for knowledge in fashion and textiles, the researcher pursued further studies at the University of Cape Coast to obtain the Bachelor of Education in Home Economics (Clothing Option). This qualification offered the researcher the chance to teach at her alma mater, Kumasi Polytechnic, before leaving for postgraduate studies in the United Kingdom. During the researcher's Master of Arts degree study in Nottingham Trent University in England, she produced some fabrics and garments with the designs from one Adinkra symbol, by name *Adinkrahene*, that is, the 'King of Adinkra symbols'; see Table 7.4. The following are examples of the researcher's products: Figure 1.1 shows products made during her Master of Arts (Fashion and Textiles); Figure 1.2 illustrates the researcher's interest in the use of original Adinkra symbols in apparel designs.



Figure 1.1: Designs from Master of Arts

Source: Photo by researcher, Fashion and Textiles, NTU, UK (2006)



Figure 1.2: The researcher wearing multiple Adinkra symbolic dress

Source: Photo by researcher (2013)

The researcher has a close affinity with her Ghanaian roots and the influence of her studies and experience in Europe has not changed it entirely. Her Ghanaian identity still plays a key role in the mind of the researcher. The researcher returned to Ghana and taught in the Fashion and Textiles Department of University of Education, Winneba, where she sometimes used Adinkra symbols, usually in their original form, in designing garments.

1.4 Hypothesis of the thesis

The present study investigates the adoption and utilisation of new clothing and textile technologies that could allow for the sustainable extension of significant symbolic cultural

knowledge. The educational cultural transmitted meanings embedded in Adinkra symbols could be enhanced and sensitised in Ghanaian society. This could be established through the innovative development and usage of a range of modern, fashionable symbolic clothing and accessories with cultural meanings.

1.5 Aims of the thesis

This research seeks to answer the central question: How can the use of Adinkra symbols be enhanced and their meanings be shared in the modern Ghanaian society? The aim is to address the research question in an attempt to spread the meanings of Adinkra symbols among Ghanaians using clothing as a conduit, in order to conserve the symbols from extinction.

The thesis focuses on transforming Adinkra symbols to more meaningful use in the modern Ghanaian clothing and textile industry. This research elaborates on the wider use of Adinkra symbols to avoid a state of redundancy and preserve the uniqueness of the symbols by adopting them for use in modern society. In this regard, several popular social activities and practices are identified that can be associated with particular Adinkra symbols in order to adopt the symbols as designs that best fit the identified activities. In other words, the research attempts to analyse and determine specific symbols that can best fit as designs for specific social activity to send the specific intended message from the symbol.

The design of products in the thesis to fit modern trends by adopting the symbols is based on the concept of symbolic culture combined with innovation. This is expected to result in the enhancement of existing Adinkra cloth, as well as proposing new forms of clothing based on Adinkra symbols as designs. These proposed designs and the forms of clothing are based on the needs of potential consumers in Ghana. In this respect, it would seem that,

once the products are made based on the needs of consumers, these products will receive the needed patronage in the market. As the designs incorporate the intended messages of the Adinkra symbols, the use of the products by consumers could lead to the spread of the educational meanings of the symbols.

The research first focuses on reviewing the literature on the Adinkra symbols and tracing the historical perspectives of the symbols, Adinkra symbolic cloth and its evolution through time. The aim of discussing historical perspectives is to trace and determine the present state of the Adinkra textile cottage industry, Adinkra cloth and the use of the symbols within the Ghanaian manufacturing textile industry. This results in the identification of the potential barriers to the diffusion of the meanings of the Adinkra symbols in Ghana through clothing and specific products. Based on this, opportunities for further use of the symbols are discussed in this text and designs are created for modern products. After creating the designs, a conceptual framework for the diffusion of the new design ideas in the textile industry is developed to facilitate the adoption of these new ideas in the marketplace. Then modern technologies are explored and used to produce enhanced textile fabrics, clothes, assorted fashion accessories and soft furnishings using Adinkra symbols as designs.

1.6 Research questions

Sub-questions were created from the central research question, stated in section 1.5 and these are found below:

1. What categorisation of the Adinkra symbols most appropriately represents Ghanaian cultural principles?
2. Which specific Adinkra symbols can be adopted and adapted as designs to relate to popular social activities and practices by developing an association between the

meanings of the symbols and the selected popular social activities and practices in the Ghanaian context?

3. What are the barriers to the diffusion of Adinkra symbols and their solutions for the clothing and textile industry in Ghana?
4. How can a conceptual framework be formulated to understand industrial requirements through the development of a supply chain model?
5. What clothing and textile technologies are available and capable of embedding and heightening awareness of specific Adinkra symbols as designs in clothing?
6. How can the identified clothing and textile technologies be used to develop enhanced Adinkra symbolic clothing as a solution to the problems associated with the existing Adinkra cloth?

1.7 Objectives of the thesis

In order to achieve the aims of the thesis, these objectives are stated as a guide to ensure that clarity and focus are maintained. In view of this, the research objectives are:

1. To construct a culturally sensitive categorisation of all the symbols in an attempt to conserve them from extinction.
2. To adopt specific Adinkra symbols as designs to relate to popular social activities and practices by developing associations between the meanings of the symbols and the selected popular social activities and practices in the Ghanaian context.
3. To identify the barriers to the diffusion of the meanings of Adinkra symbols and propose solutions through the clothing and textile industry in Ghana.
4. To formulate a conceptual framework to understand industrial requirements in the production of enhanced Adinkra symbolic clothing through the development of a supply chain model.

5. To identify available clothing and textile technologies capable of embedding and heightening specific Adinkra symbols as designs in clothing.
6. To use the identified clothing and textile technologies as a means of developing enhanced Adinkra symbolic clothing as a solution to the problems associated with the existing Adinkra cloth.

1.8 Rationale of the study

1. The documentation of original Adinkra symbols will serve as reference material for teaching purposes and general public use. Again, it is an expansion of the theoretical base on symbolic culture by combining the categorisation with a theory from management to further the theory of symbolic culture.
2. This research is important because it seeks to expand the scope of the clothing and textile industry in Ghana by introducing designers to creative ways of designing textile fabrics and symbolic clothing that contribute to the modernisation and wide applicability of Adinkra symbols.
3. Again, the research links popular social activities and practices clothing to the meaning of Adinkra symbols to enhance better understanding of the symbols. This is the first study to explore ways of linking Adinkra symbols to selected activity-based clothing.
4. This thesis will help to archive and preserve the Adinkra symbols and the continuity of Ghanaian culture for future generations.
5. Other fashion and textile designers may use this thesis as a starting point and think of other ways to improve the appearance and aesthetic look of other traditional cloths and clothing for their continued survival in society.
6. Furthermore, the research is intended to create more jobs for textile designers, fashion designers, machinists, retailers and other auxiliary clothes manufacturing

workers (textiles and clothing supply chain) who will be involved in the production and merchandising of the intended products.

7. Moreover, the research is expected in the long run to support the goals of the government in promoting economic development and social responsibility in Ghana through textiles and clothing as an avenue for economic development.
8. Finally, the research hopes to promote Adinkra symbols through the creation of knowledge by reaching a new understanding of the symbols, especially for the youth. The work seeks to provide an expression of identity that connects to a special place.

1.9 Thesis outline

In Chapter 1, there has been a discussion of how Adinkra symbols have been prominent in the Ghanaian textile cottage industry, particularly for Adinkra symbolic textile cloth. It has also been established that the use of the symbols has not received sufficient attention in modern Ghanaian society and as a result the research focus was established. Based on this, the objectives of the thesis have been outlined and the rationale for the study discussed. The research questions were set based on the gaps identified from the literature review. These questions served as the foundation for the development of the objectives. Also in Chapter 1, the scope, background note, hypothesis, rationale of the study and the research outline have all been discussed.

Chapters 2, 3 and 4 are dedicated to discussion of the literature on the Adinkra symbols, the symbolic cloth and the cultural background of the Ghanaian people. The discussion centres on understanding the meanings of the different symbols and tracing historically the uses of the symbols in textiles. Other culturally based cloths are also discussed. The contribution of other researchers on the Adinkra symbols and their uses are also reviewed to determine gaps

in knowledge. The gaps established in Chapter 1 are substantiated in Chapters 2 to 4 and the contribution of the thesis to knowledge from different perspectives is discussed. In attempting to perpetuate the symbols and bring their meanings closer to everyday, real-life issues in Ghanaian society, the researcher develops a categorisation of the symbols based on Maslow's needs theory. The effect is to enhance easy identification of the Adinkra symbols for the understanding of their symbolic meanings.

Again, it is argued that, if Adinkra symbols are to be renewed for use in modern society, theories of symbolic culture, innovation and consumer culture can play a role in developing new fashion products to meet the needs of the marketplace. Therefore, innovation as a concept is discussed including how it could shape new product development in conjunction with symbolic culture and consumer culture practices. Once a new product is developed, the idea must be diffused; therefore, diffusion theory as a strategy for spreading new ideas is also discussed.

Chapter 5 discusses the methodology and establishes the research paradigm of the thesis. The methodology discusses how the research questions and the objectives of the thesis were to be achieved. The chapter begins with the various research paradigms and how they are connected to the research questions and the research strategy of enquiry. The research strategy of enquiry is also selected, grounded in the research questions and the objectives. Next, the research techniques and instruments adopted for the thesis were discussed. Also, sampling framework, procedures, population and the sampling size are all discussed to ensure that the validity requirements of the thesis have been met. Finally, the sources, types and analysis of the data are discussed in depth in this chapter.

In Chapter 6, the findings from the analysis of the data collected from the field study are presented. The discussion is grouped under the five respective headings used for the

development of the interview questions. Based on the findings, new symbolic products are identified, adopted and constructed to meet the changing needs of the modern clothing and textile market in Ghana.

In Chapter 7, a framework for categorising the symbols is developed as a way of expanding knowledge of Adinkra symbols. Some researchers have documented and categorised the symbols using different approaches, including alphabetical order and religion. The framework of this thesis is based on the human needs theory of Maslow as a way of associating the meanings of the symbols to the different needs of individuals in society. The research also associates the names and meanings of the symbols with particular popular social activities and practices in society.

Chapter 8 is used to develop a conceptual framework for the diffusion, adoption and spread of the meanings of the symbols through new product development. The framework combines the factors that are capable of serving as a catalyst for the diffusion of an idea/new product. A supply chain model is developed to establish a relationship between the various actors within the clothing and textile industry in order to ensure the exchange of important information within the industry. This exchange of ideas underpins the process of new product development and the adoption of the new products in the marketplace is propelled by the theory of consumer culture.

In Chapter 9, the researcher adopts some of the Adinkra symbols as designs on new products that are capable of fitting into the modern consumption era. These designs are used in clothing products as a way of expanding the use of the symbols and spreading their meanings. The use of the symbols as designs in clothing can enhance and sustain these designs for posterity.

Finally, Chapter 10 provides the conclusion for the thesis. This takes the approach of reviewing the work and how the different sections of the thesis are interconnected. Also, the review is based on exploring the answers provided to the research questions of the thesis. Further research on the symbols is proposed for other researchers interested in cultural symbolic product development. Figure 1.3 gives a summary of the ten chapters of the thesis.

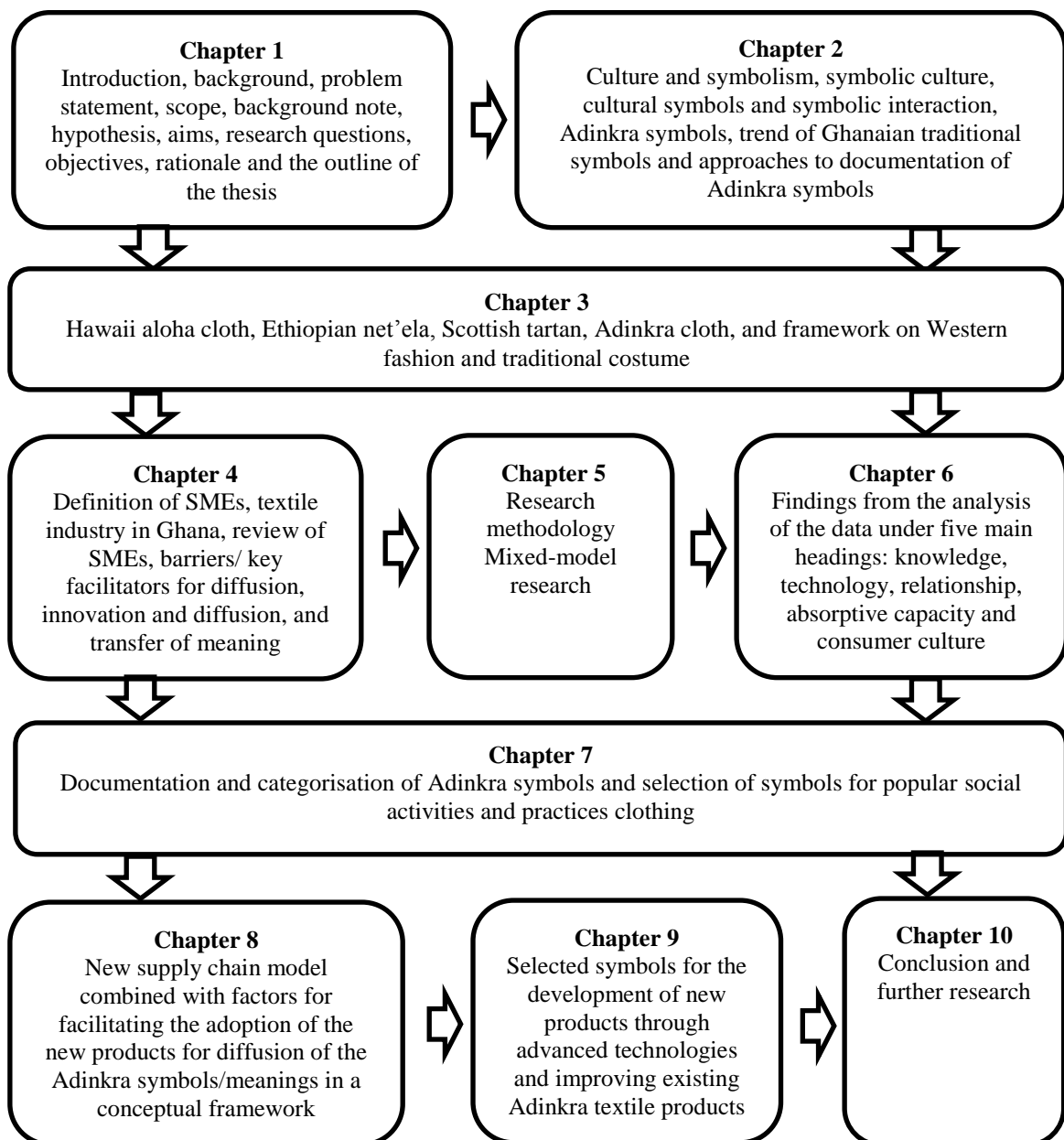


Figure 1.3: Outline of thesis

Chapter 2 Culture and Adinkra symbols

2.1 Introduction

This chapter conceptualises knowledge through a review of relevant literature. It looks at the various aspects of culture and symbolism, and the origin and nature of Adinkra symbols including their spirituality. Some of the uses of Adinkra symbols from past and present times have been traced and reviewed. Also, the position of the current trend of the use of traditional symbols in Ghana has been discussed. Finally, the chapter reviews the different approaches to the existing documentation of Adinkra symbols and suggests the use of Maslow's expanded hierarchy of needs theory for the documentation of the symbols to further develop cultural knowledge.

2.2 Culture and symbolism

2.2.1 Culture

The traditions of a group of people can be referred to as the culture of that society. Several researchers have examined the impact of culture on society and how culture is connected to the fashion industry. Culture is perceived as knowledge of a given society that guides people on attitudes, desires, beliefs and values, and serves as a symbolic representation (Geertz, 1973; Shin et al., 2011; Turner, 2012). Culture compels individuals within a specific society to conform to what prevails in that society; as such, individuals cannot control the culture. In every society, there are clearly defined and uniform codes, rules, norms and principles that govern the populace. Culture is a complete way of life within a particular community, society or nation. Culture has the power to bind its members together and make them behave accordingly. Fair (2004) states that culture has the power to construct, define and identify social territories. Unacceptable behaviour is seen as antisocial within a particular

society. Many people in society try to behave with propriety. To understand any culture and all that it constitutes, one has to learn, interact and practise, because culture is always dynamic. In practising culture, societies tend to adopt fashion and clothing as part of culture (Crane, 2012). This may be appropriate, as fashion provides a window through which culture can be examined (Arthur, L. B., 2001). In view of this, numerous societies have developed symbols for designing products in order to perpetuate and express their culture. For example, fashion and other dressing accessories are designed using symbols from a particular culture or society. This can be contextually interpreted as symbolic culture.

2.2.2 Symbolic culture

Symbols can represent the culture of a group of people, through which they can make the right choices, attitudes and beliefs. Shweder and LeVine (1984) define symbolic culture as historically transmitted patterns of meanings embodied in symbols and systems of inherited concepts. These have been expressed in symbolic forms by which people communicate, perpetuate and develop their knowledge about their culture and their attitudes towards life. In this sense, symbols that represent a certain aspect of culture can visually impact on the lives of consumer society through designs. These representations can be communicated through fashion designs in textiles and clothing, for the propagation of symbolic culture and related meanings. This view is supported by Lin et al. (2007), who suggest that design is the motivation for pushing cultural developments forward. Krug (2003, p. 16) summarises the application of symbolic culture in society as “entangled in a complex web of meanings and values that include aspects of language, cultural and socio-historical references, processes of sense perceptions and cognition, and politics of display”. Symbolic culture as a politics of display is highly exhibited through clothes, which serve as a mirror of what happens in a particular society (Lurie, 1992).

2.2.3 Cultural symbols and symbolic interaction

A symbol is an object, image or anything that communicates an idea. If a message from that image is understood by others, then it qualifies as a symbol (Harper & White, 2010). DeLoache (2004, pp. 66–67) argues that “a symbol is something that someone intends to represent something other than itself. Nothing is inherently a symbol; only as a result of someone using it with the goal of denoting or referring does it take on a symbolic role”. Similarly, Cole and Ross (1977) look at symbols as a shorthand method of representing information. Symbols have been observed as physical objects embedded with specific and deeper meaning which are capable of providing emotional sentiments among their users. Major inferences from the views of the abovementioned authors on symbols are that not any object or drawing can be called a symbol.

According to Livingston (1967, p. 3), “man has the ability to create symbols ... the creation of symbols – is the fact that there is no inherent relation between the symbol and the thing it represents”. Therefore, if symbols are socially created, then there is a need to have a collective understanding, agreement and acceptance among the creator/s and the users. Symbols can be selected or created based on the history, interest, vegetation, faith, belief and other elements among a certain group of people. They form part of the cultures of ethnic groups, regions and nations. Symbols are used in many disciplines, for example, music, geography, computer science, chemistry, pattern drafting and garment construction, just to mention a few. National flags and coats of arms are some examples of national symbols, which represent identity and heritage and also distinguish natives from others.

Symbols are used to support communication by training the mind to interpret the meanings associated with those symbols. This serves as a kind of mental drill: quickly conceiving a mental picture of the symbol and figuring out the correct name and meaning of that

particular image. According to Erel-Koselleck (2004, p. 2), “symbols make possible for human beings to send and receive messages, first within their specific community and then with the whole world, and therefore, to establish relations with their overall social surroundings”. So this statement refers to the symbolic role that DeLoache (2004) mentions, as the ability to send and receive messages across the board.

It has been identified that symbols have been used and reused over the years around the globe. Some examples of traditional symbols are Native American symbols, Maori symbols of New Zealand, Australian Aboriginal symbols and Chinese symbols. In Africa, Abraham (2011) notes that there were a lot of traditional symbols like the Gicandi symbols of the Kikuya of Kenya in East Africa, Kongo symbols of Angola in Central Africa, Nsibidi symbols of the Igbo, Ibibio and Ejagham of Nigeria in West Africa, Dogon symbols of Mali in West Africa and Adinkra symbols from the Akans of Ghana, also in West Africa.

2.3 Adinkra symbols

Ghanaian Adinkra symbols, unlike those of many other cultures, are a collection of symbols with rich meanings that have guided the society. Adinkra means ‘farewell’ and each symbol within the collection has a name and a meaning (Rattray, 1927) that are still relevant in modern society (Arthur, G. F. K., 2001; Mato, 1986; Ofori, 2011). The meanings of the Adinkra symbols are educational and can be used to show admonishment, courtesy, caution and integrity, among others. These human traits are applicable and general to wider societies (Arthur, 1994; Essel & Opoku-Mensah, 2014; Quarcoo, 1972; Willis, 1998). The symbols are mainly adopted as designs for traditional hand-printed cloths (Mato, 1986; Willoughby, 2005).

2.3.1 Origin of Adinkra symbols

It is a singular thing that these people – the Ashantees – who had never seen a white man nor the sea, were the most civil and well-bred I have ever seen in Africa. It is astonishing to see men with such few opportunities so well behaved (Mr James Swanzy, given before a Commission of the House of Commons: Parliamentary Paper No. 506, p. 32, 20 June 1816 cited in Rattray, 1927, p. vi).

This observation of the Ashanti people of Ghana may be due to the introduction, understanding, spiritual belief and use of Adinkra symbols. Arthur (1994, p. 2) affirms that “social life can only proceed if the meanings of symbols [Adinkra] are largely shared by members of society”.

Adinkra symbols have been with the Akans of Ghana and Cote d’Ivoire for a very long time. The term *Akan* describes the group of related peoples located in the southern half of Ghana and in Cote d’Ivoire, on the western border of Ghana. These groups include the Agona, Ahafo, Ahanta, Akwapim, Akyem, Akwamu, Anyi, Aowin, Asante, Assin, Brong, Denkyira, Fante, Kwahu, Nzima, Sefwi and Wassa. These tribal groups have their dialects understood by others because the dialects are mostly similar. These different tribal groups form the Akan ethnic group, the largest ethnic group in Ghana. Aside from language, the Akan ethnic group communally share cultural attributes, such as explicit family lineage and inheritance of property. All these groups observe matrilineal heritage (Forster, 2013; Oppong, 1980; Picton, 1999; Quarcoopome, 1997). Currently, the symbols are adopted nationally; hence they are no more the preserve of the Akans alone but of the entire country of Ghana. For example, the symbols are used in the design of the national currency notes; however, they are not as visible on the present notes compared to the old notes (see Figure 2.3).

Many writers on Adinkra symbols have attributed their origin to different sources. But the clear origin of the Adinkra symbols has not yet been established, although there has been

extensive debate but with little clear written documentation. Most African history was handed down orally from one generation to the other. Oppong (2013) buttresses this assertion by stating that oral narration has been the explicit method of presenting information in Ghanaian traditional set-ups. This method of presenting information can come with distorted versions of the data. This has been a major problem associated with the use of Adinkra symbols and other artefacts in Ghana.

In the 19th century, Thomas Edward Bowdich was employed as a writer in the African Company, a company established by the British to oversee the affairs of Africa. Records do not state the exact date he arrived in Ghana, but his appointment was approved in October 1814 and he returned to England in May 1816 on leave. He was the first European person to give a description of a cloth that seems to be Adinkra cloth. He stated:

The white cloths, which are principally manufactured in Inta and Dagwumba, they paint for mourning with a mixture of blood and red dye wood. The patterns are various, and not inelegant, and painted with much regularity, with a fowl's feather, that they have the appearance of a coarse print at a distance. I have seen a man paint as fast as I could write (Bowdich, 1966, p. 310).

Bowdich's book, which was originally published by John Murray in 1819, shows a drawing made by Bowdich himself that brought a new discussion of when Adinkra was introduced to the Akans. Although Bowdich (1966) did not document Adinkra symbols, a number of the symbols found their way into his drawing, shown in Figure 2.1. Serial numbers have been used by the researcher to locate the symbols in the drawing so as to indicate the names in the Akan language and the literal meanings of the Adinkra symbols.

1. *Dono ntoasuo*, 'double dono drums', No. 32 (Rattray, 1927, p. 266–267).
2. *Akam*, 'edible plant' (yam), No. 28 (Rattray, 1927, p. 266–267).
3. *Dwenini aben*, 'ram's horns', No. 31 (Rattray, 1927, p. 266–267).

4. *Nyame, biribi wo soro, ma no me ka me nsa*, ‘O God, everything which is above, permit my hand to touch it’, No. 38 (Rattray, 1927, p. 266–267).

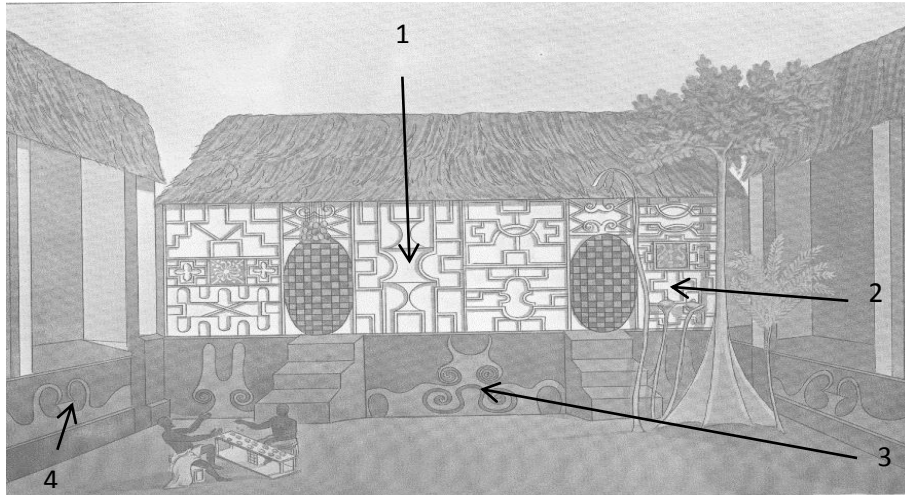


Figure 2.1: The King's sleeping room

Source: Bowdich (1819 [1966])

The first publication of Adinkra symbols and stamps was made by Rattray (1927), who documented 53 Adinkra symbols with their meanings and a description of the process of stamping cloth. Rattray (1927) discussed the origin of Adinkra as relating to a King of Gyaman called Adinkira who had angered the Ashanti King, Bonsu-Panyin. King Adinkira copied the golden stool of Ashanti and this resulted in a war between Asante and Gyaman in the year 1818. The oral source of this report added that King Adinkira was wearing a certain cloth when he was defeated, arrested and slain (Mato, 1986). There were symbols in the cloth which were copied by the Akans and named after the King, Adinkira.

The drawing made by Bowdich shown in Figure 2.1 proves that Adinkra symbols had been introduced earlier to the Akans, before the Asante–Gyaman war in 1818. This is consistent with the claims of Cole and Ross (1977), Willis (1998) and Picton (1999) that the origin of Adinkra cloth with the Akans was earlier than the Asante–Gyaman War.

Cole and Ross (1977) make mention of the earliest example of Adinkra cloth in the British Museum, collected in 1817, which shows that Adinkra cloth was known earlier than the war. Figure 2.2 is a photo of the cloth from the British Museum.



Figure 2.2: Adinkra mourning cloth

Source: British Museum, museum number Af1818, 1114.23. It was collected in 1817 and donated by Thomas Edward Bowdich

In addition to the source of the drawing, published in 1818 in London, because Bowdich drew a building that already existed, the age of the building adds to the argument that the symbols were in use earlier than 1818. This, therefore, gives further evidence of the use of the Adinkra symbols in Ashanti before the Asante–Gyaman war.

There are several other perspectives on the origin of Adinkra from different Adinkra scholars. One holds that Adinkra cloth was used to cover Asante’s golden stool when it came from the heavens. There is a belief in Akan history that the first chief priest was called Okomfo Anokye. He conjured and brought down the golden stool (*Sika Dwa Kofi*) from the heaven. This golden stool is believed as the soul and power of all the Ashantis (Arthur, G. F. K., 2001; Quarcoopome, 1997; Willis, 1998).

Rattray (1927) made a claim of Muslim influence on Adinkra symbols. Mato (1986) discusses the possibility that Akans took some Islamic writings and adopted them to suit

their own meanings. Mato (1986) proceeds to establish that some of the Akans' metalwork designs had Islamic origins. To make his stance explicit, he notes the heavy presence of Muslims in Kumasi (the capital of the Ashanti Region), which confirms there was a kind of partnership or bondage between Akans and Muslims. To the researcher, it is not only the presence and great number of Islamic people in Kumasi that are important, but it is where they live in Kumasi. The Ashanti royal palace is almost engulfed by Islamic suburbs in the heart of the city. Britwum (1974) affirms that it was a common practice for Muslim friends to sacrifice to their gods and made prayers for Asantehene (Asante's king) whenever he was going to war. Willis (1998) offers some proof of Islamic influence on Adinkra symbols by tracing a few Adinkra symbols. Examples of these symbols are, *Kramo bone amma yennhu kramo papa*, literally meaning 'a bad Muslim makes it difficult for a good one to be recognised', and *Aban*, which means 'a compound house'. He found that these "Islamic traced symbols" in Adinkra symbols are insignificant to justify the idea that the whole collection of Adinkra symbols comes from an Islamic background. Arthur, G. F. K. (2001) shares the same position as that of Willis. Quarcoopome (1997) concludes by saying that the Akan complex culture was shaped by other cultures.

The last and most important version of the origin of Adinkra for the purpose of this research has its source from the royal court, as a funeral cloth to bid farewell to the dead. Danquah (cited in Arthur, G. F. K., 2001) believes that the word 'Adinkra' comes from two Akan words: *di* and *nkra*; *di* literally means 'bid' and *nkra* is 'message'. These symbols were used to send messages to the dead, whom Akans believed were to continue life beyond this world. Likewise, Forster (2013) opines that traditional Adinkra symbolic cloth was worn by the bereaved and sympathisers to convey a farewell message to the dead.

2.3.2 Adinkra symbols and spirituality

Robertson (2003) describes spirituality as a process of maintaining a bond with the force of the universe. Brady et al. (1999) also describe spirituality as a context in which people can make sense of their lives, develop the mind to its utmost level and be at peace in every situation in life. The making of sense in one's life affects the quality of way of life that one leads on the planet. According to Quarcoopome (1997), in some societies, spirituality has been linked to art and cultural materials to serve as gauges and to guide one's way of living. Many African arts and material cultures have been associated with the possession of spiritual powers. Examples of these materials are dolls, stools, jewellery and cloths. Rovine (2004) highlights the use of Bogolan cloth for the tunics of Bamana ethnic group in Mali. Hunters wore Bogolan cloth for spiritual protection during hunting expeditions. In addition, during initiation to womanhood and childbirth, young women wore Bogolan cloth as spiritual protection. In this same vein, Quarcoopome (1997) states that, in the Akan society of Ghana, the Asante golden stool is believed to serve as a sacred symbol embedded with the spirit or soul which collectively binds the state. The Akan people have systems of belief about the existence of God the Creator, who is a spirit, and the spirits of the ancestors, whom God uses to mediate between the living and the dead. It is from this context that Adinkra cloth meaning farewell to the dead has been of great cultural and historical significance to the Akans. Forster (2013) points out that traditional Ghanaians believe in life after death. The dead are believed to transform into spirits which can harm or bless the living. This has been the reason why an appropriate burial and subsequent funeral ceremony are deemed necessary for a relative who passes away.

Adinkra symbols have been seen and used as possessing spiritual powers. In looking at these symbols, Rattray (1927) is the first to have reported the use of Adinkra symbols as spiritual symbols. Rattray stated that there were some Adinkra symbols on the pillowslip of

the Ashanti king. An Adinkra symbol called *Nyame biribi wo soro, ma no meka me nsa*, ‘O God, everything which is above, permit my hand to touch it’, was stamped on paper and hung above the door of his bedroom in the palace. The Ashanti king used to touch the symbol, then his forehead, then his chest, repeating the name and the meaning three times every morning (Rattray, 1927). This is clear evidence of a belief in the spirituality imbued in these symbols. Furthermore, Mato (1986) comments that Adinkra connects with other Akan traditional arts in the ability to express social, political and spiritual meanings among other cultural images. Moreover, Robertson (2003) indicates that life in the Akan world is full of religious and spiritual activities. Robertson looked at seven different Adinkra symbols and how these symbols can develop the spiritual capacity of individuals. He argues that spirituality does not only refer to the spirit of God and evil spirits, but also to the development of oneself to a different level whereby one can walk into nature with an emotional self rather than an intellectual self. This emotional self allows one to undergo great experience and to express deep understanding of rationalities. This is the role of the meanings of the traditional Adinkra symbols. It is in light of this that Willis (1998) concludes that the traditional Adinkra symbols represent instructions to live by for life. These meanings of the symbol keep individuals from moving away from the true meaning of life and the creative force of the universe.

2.3.3 Some other uses of Adinkra symbols

The word ‘Adinkra’ has become known because of its socio-cultural significance and extensive usage in the Ghanaian community. It can be seen in some products like building blocks, plastic chairs, carvings, pottery and most predominantly in traditional textile cloth. An examination of some old Ghanaian postal stamps showed: two of which had Adinkra symbols. The first one had a blue background with traditional Kente cloth dividing the stamp into four sections by forming a plus sign in the middle. This was dated 6 March 1959

with three Adinkra symbols: *fofoo* ‘envy’, *mmomudwan* ‘unity’ and *duafoe* ‘female beauty’. The other stamp had a green background with Kente cloth bordering the four edges with *Gye Nyame* ‘Except God’ in the middle section and was dated 29 April 1961 (Wilburn, 2012). Again, previous and current Ghanaian cedi currency notes have designs of Adinkra symbols, Figure 2.3. Unfortunately, the Adinkra symbols featured on the current cedi notes are not as visible as those that appeared on the previous currency.



Figure 2.3: Previous and current Ghanaian cedi currency notes

Source: Adapted by researcher from www.banknotenews.com/files/tag-ghana.php and www.bog.gov.gh

The previous Ghanaian 10,000 cedis note had three Adinkra symbols boldly printed: *Kronti ne akwamu*, *Nkonsonkonson* and *Akoma ntoaso*. From the photo the symbol labelled ‘A’ is *Kronti ne akwamu* in literal translation ‘Elders of the state or council of state’. The next symbol is *Nkonsonkonson*, labelled ‘B’ in the photo, in literal translation ‘Chain link’. The last symbol labelled ‘C’ is *Akoma ntoaso*, in literal translation ‘Linked or united hearts’. On the current 50-cedi note, Adinkra symbols are faintly printed and difficult to read. To make it worse, the symbols are printed beneath the highlighted figure (50). A blue oval shape has been used to show the position of the faint printed symbols. This provides valuable evidence which establishes the fact that Adinkra symbols have not only been used and valued by the Akan people from the Ashanti Region of Ghana, but by all Ghanaian citizens.

The Adinkra symbols are not used in Ghana only: they are internationally used. In the December 2004 issue of *Ebony Magazine*, an article entitled ‘Spirituality real?’ featured

Bishop Vashti Murpley McKenzie, the first woman bishop in the African Methodist Episcopal Church. She is wearing a clerical robe with an embroidered Adinkra symbol called *Ohene aniwa*, that is, ‘The eyes of the king’, a symbol of vigilance, protection and security. This symbol’s name and meaning have used to link spirituality and Christianity. This means that some of the Adinkra symbols and meanings are well studied, understood and used in some foreign countries. Therefore, how can the meanings of the Adinkra symbols be emphasised to reveal their value and usefulness in Ghanaian society?

2.3.4 The current trend of traditional symbols in Ghanaian society

Symbols are as old as culture. Through time their values begin to fade and if care is not taken, they can be lost forever. Most Ghanaian symbols are traditional symbols that are very old and have been passed down through generations, especially by crafts people. Significantly, Kquofi et al. (2013) caution that there has been a serious collapse in the use of traditional symbols that were once cherished by Ghanaians. This is the case because of the introduction and use of foreign cultures and symbols in Ghanaian communities. From the research by Amate (2011), she discusses heavy loss of interest among Ghanaian youth in the use of conventional symbols and signs. The excitement of learning and using exotic symbols and culture by Ghanaians is far higher than of gaining knowledge of their own culture.

Many parents of the current Ghanaian generation prefer to nurture their children in foreign cultures. This situation has existed for a long time, as condemned by Ogundipe-Leslie (1993, p. 109) who stresses that, “like her male counterparts, she [African woman] imitates everything European and despises her traditional culture and race while she fails to understand her own true needs”. Some of the reasons for this choice are that the local culture is considered outmoded and most Ghanaians cannot properly learn and understand

their culture. This is mainly attributable to the introduction of Christianity, which rejects Ghanaian culture and replaces it with Bible principles.

The culture barely survived, under the influence of both Islamic and Christian religions. Brain (1979, p. 12) reveals that, “the church and its missionaries could only see body art [and other aspects of culture] as the influence of the devil”. Moreover, the evolution of Ghanaian culture accelerated when the people had contact with Europeans in the late fifteenth century. During this period there was a fundamental shift in cultural attributes (Quarcoopome, 1997). Similarly, Mato (1986) recognises this by stating that there have been heavily acculturating influences on Ghanaian Adinkra symbols/cloth and culture. In this postmodern time, acculturation cannot be avoided but has to be channelled and controlled in line with both original culture and modernity to establish Ghanaian identity.

By contrast, Boateng (2004) recognises the use of Adinkra, Kente and Bogolan cloths in the United States of America to emphasise the composite identity of African American descendants. These distant Africans want to connect with their motherlands and cultures. So why do citizens living in Ghana consider their culture outmoded? There is, therefore, a high risk of losing these symbols with their associated educational meanings over time, if they are not utilised in different ways or from new perspectives to entice the participation of the populace, especially the youth. This will encourage a situation whereby the future generation will not fail to show off their indigenous artefacts and culture.

2.4 Approaches to documentation of Adinkra symbols

A number of scholars have written about and compiled the Adinkra symbols using various approaches, in an attempt to advance studies on Adinkra symbols. Glover (1971) documents the Adinkra symbols and meanings in seemingly random order. Quarcoo (1972), however, suggests a classification of the symbols partly based on religion. In view of this, Quarcoo

(1972) documents 60 symbols, using religion to document the first eight and randomly arranging and discussing the meanings of the remaining 52 symbols. Arthur, G. F. K. (2001) advances the literature by selecting some of the Adinkra symbols based on those that involve the names of God and relationships with people. Danzy (2009) studied the ideographic meaning of the Adinkra symbols and compiles them alphabetically using their names.

Since Danzy's study, the researcher has not noted any other cited documentary evidence from those discussed above. In this thesis, the focus of the researcher is to extend knowledge of the literature on Adinkra symbols by using the hierarchical needs theory of Maslow to propose a new arrangement of the Adinkra symbols with a sequential structure and meanings. In addition, to link the human needs theory of Maslow to the human responsibilities ascribed by Ghanaian society and embedded in the cultural Adinkra symbols. This has not been done by any of the Adinkra scholars and it is the first study to link the Adinkra symbols to a management theory to extend the documentation of the symbols for use in the postmodern era. This research seeks to explore the relationship between the meanings of traditional Adinkra symbols in the everyday life of Ghanaians (as an example) and Maslow's hierarchy of human needs theory to promote the symbols (see Chapter 7).

2.5 Summary

The culture of a particular society has a significant influence on its members because it guides the acceptable way of living. The importance of culture makes it possible to incorporate and reflect cultural images and meanings in the designs of clothing for the people. These cultural meanings are embedded in artefacts such as symbols that can be used to communicate and extend knowledge, to perpetuate cultural philosophy among the people.

Symbols are used as shorthand to send messages. However, the images and meanings of symbols have to be studied and understood for easy communication. Symbols are many and embedded with specific meanings for sending various messages, and Ghanaian Adinkra symbols are of no exception. There are no two Adinkra symbols bearing the same name and meaning. The meanings of Adinkra symbols range from love, wisdom and courtesy to hard work and many others. There has been discussion of the origin of the Adinkra symbols by many authors. However, the fact is that the symbols have been accepted as Ghanaian and have been used by Ghanaians for over a century.

The Adinkra symbols have been seen and used as possessing spiritual powers, as shown in various studies with examples of early use. The designs of the Adinkra symbols are used in the production of items like postal stamps and bank notes. Despite the prevalence of the Adinkra symbols in Ghanaian society, there has been a decrease in the use of the symbols by individuals.

This thesis focuses on the different approaches to involving individuals in the use of the symbols with their meanings. One of these approaches has been suggested through the use of management theory from Maslow to document the Adinkra symbols and so draw their symbolic meanings closer to everyday life activities. This approach is hoped to serve as a means for users to gain easy identification and recall of the symbols and their meanings.

Chapter 3 Development of traditional cloths and patterns

3.1 Introduction

In this thesis it is important to look at the development of some other traditional cloths and patterns. The research has examined trends and developments of some traditional cloths and patterns in other parts of the globe in order to develop ideas and inspirations from them. These cloths and patterns included Hawaii an aloha, Ethiopian net'ela and Scottish tartan in order to set the platform for the discussion of Adinkra symbolic cloth. The discussion of Adinkra symbolic cloth centres on the improvements made to the cloth and the general use of the symbols for posterity. Based on the gaps in usage, solutions are proposed in later chapters to ensure the conservation of the Adinkra symbols and the symbolic cloth.

3.2 Hawaii an aloha cloth

In 1778, a British naval Captain James Cook landed on the now Hawaii islands and named them the Sandwich Islands. The traditional cloth was called *tapa*. The men used tapa for the *malo* loincloth and the women used it for *pa'u* skirt. For normal wear, two or three yards of cloth was used, while for ceremonial occasions many more folds were wound around the body, requiring copious amount of cloth. The colours of the cloth were made from the juice of the *kukui* nut tree, bits of red or yellow ochre or charcoal. The finished cloth was impressed with stamps to create geometric designs, reliefs and traditional patterns on tapa cloths, shirts, robes and blankets. Figure 3.1 shows a piece of traditional cloth made in Hawaii.



Figure 3.1: Aloha cloth

Source: Arthur (2000)

In the 1940s plantation work became very popular in Hawaii and many people immigrated in search of work. Long-sleeved shirts became useful as plantation uniform and led to the settlement of tailors. With time the plantation uniform became the ‘aloha’ shirt, which means as ‘good’ or ‘love’ (Hope & Tozian, 2002).

The Hawaii natural environment is colourful and is depicted in their textiles on aloha shirts and other fashionable products. Early aloha fabrics were block-printed with Hawaiian images and traditional patterns. Plain cotton broadcloth, lightweight cotton, silk and fine wool fabrics were used in printing aloha fabrics. Aloha fabrics have names and some designs have text prints (see Figure 3.1). Hawaiians regard aloha textile fabrics as professional art, far from craft works with continual technological innovation and creativity (Arthur, 2006; Hope & Tozian, 2002). Adinkra hand-printed cloth could also be revolutionised through technological innovation to make it more modern and useful in order to spread the symbols and their related educational meanings.

3.3 Ethiopian *net’ela*

Mathiszig (2014) documents *net’ela*, a traditional cloth of the people of Dorze in Ethiopia (North Africa) that has symbolic representations. Figure 3.2 shows a piece of cloth that has

a colourful border and is used as a scarf. The border represents symbolic cultural meanings and the way it is worn indicates the occasion for the wearer. The border is placed over the right shoulder to symbolise formal dressing, while for casual wear the pattern is worn over the left.



Figure 3.2: Net'ela cloth

Source: Mathiszig (2014)

For church services, the net'ela is opened up and the pattern is worn over both shoulders. The same scarf can be worn for funerals with the pattern end up to the face. Mathiszig's research emphasises the symbolic cultural meaning of this fashion product and how it is used in communication. Net'ela cloth is able to send messages to the larger community. This stems from the fact that, depending on how the cloth is draped, members of the community are able to understand the wearer's motive for wearing the cloth. Thus, the cloth is able to send multiple messages at different times even though it is a single cloth.

3.4 Scottish tartan

The literature developed on Scottish tartan is a summary of the works of Cheape (2006), Faiers (2008) and Johnston and Smith (1999). Tartan, Scottish dress and Highland fashion has its roots in the late 1600s. The colours and patterns in their varied combinations are described as 'sett' and have been classified generally by the name of a family or clan. Tartan

is woven from wool of different colours in a checkered pattern (see Figure 3.3). It used to be a craft made by weavers or designers to exchange for money or to clothe individuals or family members. During the Victorian era some clans developed hunting and mourning tartans. Lately, some other new tartans have become popular and fashionable but mainly short lived.

Tartan has socio-cultural significance as a pattern. Some people believe that tartan has the ability to ward off evil spirit and the power to call up and gather other people. Through the introduction of computer designs, tartan continues as a living art, mass-produced for commercial purposes and widespread. Products made in tartan designs include all forms of garments and accessories, upholstery, wallpaper and ceramics. Tartan has become part of Scottish identity, a symbol of kinship and belonging (Cheape, 2006; Faiers, 2008; Johnston & Smith, 1999). Adinkra symbols can also be seen as a living art through the incorporation of the symbols in different clothing products and showcasing Ghanaian identity.



Figure 3.3: Tartan fabric

Source: Faiers (2008)

One specific group of people that has adopted tartan is the ‘Tartan army’, Scottish football supporters’ who have been recognised as a symbolic subculture because of their use of the kilt (Giulianotti, 2005). The kilts, made of tartan fabric, identify these spectators and help them behave responsibly during football matches. As a result, the symbolic culture of the

kilt communicates decency, tolerance, friendliness and unity among the spectators, as opposed to the hooliganism that often characterises such football groups.

Scottish tartan generally communicates a single idea because of the usage of single design aesthetics. The Adinkra symbolic cloth, however, although it also has the purpose of communicating messages to users and others, has many symbols in a single cloth, and hence it is not always able to send the right message.

3.5 Adinkra cloth

The Adinkra symbols are used for the production of the Adinkra symbolic cloth. Their main purpose is to send messages based on the communication power of the symbols adopted as designs for the cloth. As the focus of the thesis is on the meaning of Adinkra symbols/symbolic cloth, it is important to trace the development of Adinkra cloth, from early production until today, in order to examine the present state of the cloth and determine potential ways to improve it and spread the educational meanings of the symbols.

Similar cultures have influenced the development of Adinkra cloth because it emerged from the tradition of the people of Ghana. However, Adinkra cloth uses numerous symbols as the design in a single cloth. In view of this, it is not always able to send the intended message to the wider community. As a result, the names of the symbols and their educational meanings are dying out in the society. It is, therefore, another aim of this study to explore ways to adopt particular symbol as designs. This takes the approach of using a single symbol as a design for the production of Adinkra symbolic textile fabric products and clothing.

3.5.1 Traditional production processes of Adinkra symbolic cloth

Adinkra cloth is a traditional hand-stamp printed cloth. There are three major processes involved in Adinkra cloth production. These include preparation of the stamp, preparation

of the dye and stamping of the symbols on the cloth (Mato, 1986; Rattray, 1927). The first step is to prepare the stamp. The selected Adinkra symbol is drawn and carved onto the outer smooth side of a piece of gourd or calabash. The handle of the stamp is made of thin bamboo sticks ten to fifteen centimetres long, fixed to the fluffy inside edges of the carved gourd. These sticks are then held together in a cone-like form and tied up with a piece of fabric. A photograph of some stamps is shown in Figure 3.4.

The second stage involves the preparation of the dye or paste (*Adinkra aduro*). The cloth dye is made from the bark of a tree. This tree is locally called *badie*. Its botanical name is *Bridelia Micranta* of the natural order *Euphorbiacea* (Quarcoo, 1972). This is a savannah grown tree. The bark of the tree is cut into pieces and soaked in water overnight to soften it. The water is then drained and the bark is pounded with a large mortar and pestle to further break down and soften the tissues.



Figure 3.4: Stamps used for Adinkra printed cloth

Source: Purchased from artisans by researcher (fieldwork, 2014)

The pounded bark is mixed with the water and boiled to reduce the mixture by half. Again the mixture is drained, to remove the pulp. Stones and pieces of iron are put in to the solution and boiled until it becomes thick enough to adhere to fabric (Mato, 1986; Rattray, 1927; Willoughby, 2005).

These stones and pieces of iron change the colour of the solution and also make it colour fast (Mato, 1986; Quarcoo, 1972). This seems to be the most technical aspect of the Adinkra cloth production, which uses technology as a form of innovation. The traditional Adinkra dye has been described as water soluble, which makes the cloth unsuitable for laundering (Glover, 1971; Willoughby, 2005).

The third stage is the stamping of the cloth. The fabric used for printing or stamping can be of local or foreign make. Usually the fabrics are plain, thick, colourful and absorbent. The fabric is laid on a long, specially constructed table. The artisan's designed textile work on a specific piece of fabric will depend on his skills or choice and also the design requested by the customer. Generally, horizontal and vertical lines are made to divide the cloth into smaller sections. The selected Adinkra stamps for the work are dipped into the dye paste and carefully stamped onto the sections already created according to the planned design. The finished cloth is put out to dry under scorching sun (Mato, 1986; Willis, 1998).

To date, the Adinkra cloth has mostly been produced as funeral cloth in a black colour (Forster, 2013; Willoughby, 2005). This is because the natural dye used by the artisans comes only in black and black is one of the main colours for funerals in Ghana (Forster, 2013). Fabrics used for printing the cloth are of medium to heavy weight cotton and cotton polyester. The natural dye printed on Adinkra cloth tends to harden after printing (Mato, 1986).

3.5.2 Tracing the development of Adinkra cloth: Past to present

Traditional Adinkra cloth designs have not witnessed significant physical changes. For example, repetitive designs and textural patterns have not seen any major shifts to meet present-day needs of consumers, who are inundated with designs from different producers. From Figure 2.2, the first documented Adinkra cloth in the British Museum has a similar

design as that in Figure 3.5 in the form of numerous symbols and a similar textural pattern. The two cloth designs were made about a century apart without any major change or improvement.



Figure 3.5: Present-day Adinkra cloth
Source: Photo by researcher (fieldwork, 2014)

Adinkra cloth was originally used as mourning cloth for the royal families that was produced in a black colour. Black is the mourning colour for the death of a close relative in Ghana. Forster (2013) describes Adinkra cloth as a traditional symbolic printed dark cloth, worn to send farewell messages to the deceased by the bereaved and sympathisers. There has been a gradual change in the colours used for the production of Adinkra cloth. As culture is dynamic, so are its features. Lasimbang et al. (1997) point out that the changes in people's clothing reflect the changes in the environment as well as the society.

Cloth as a material culture always reflects culture as much as culture reflects cloth. People's attitudes, values, beliefs and their environment will continue to change; these changes have a mirror-image reflection in what people wear in that particular society. In view of this, Adinkra cloth has also seen minor changes as compared to earlier versions of the cloth. Generally, Adinkra cloth has been noted for two major fabrics (white or black coloured fabrics) and a single colour of dye paste (black). When the cloth is produced for funeral purposes, the black fabric is combined with the black paste to produce the cloth. On a white

background, the Adinkra cloth is used for other cultural occasions such as naming ceremonies and funeral receptions on the Sunday after a major funeral event on the Saturday. These designs are normally created with hand-printed stamps by the producers. From Figure 3.6, it is quite obvious that, although the symbols can be seen, it is very difficult to identify the symbols from a distance because of the colour (black dye on black fabric).



Figure 3.6: Adinkra cloth in black colours
Source: Photo by researcher (fieldwork, 2014)

Figure 3.7, however, shows a similar Adinkra cloth on a white blended cotton polyester background with black dye paste used for the production of the cloth. This is also a hand-stamped printed cloth which showed some defects in the printing. The right-hand side photography of Figure 3.7 is an enlargement of a portion of the left-hand side photography.

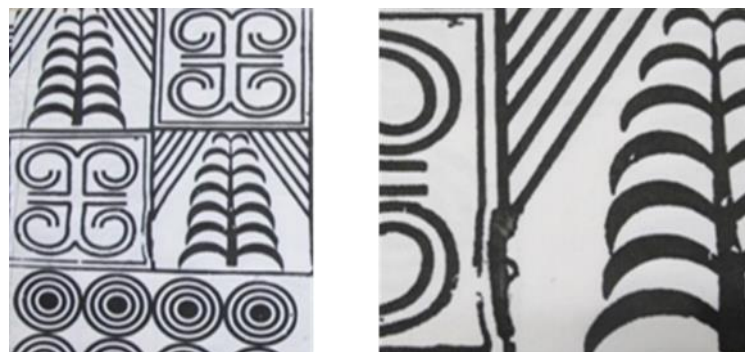


Figure 3.7: Adinkra cloth on white background with printing defects
Source: Photo by researcher (fieldwork, 2014)

As a result of these shortcomings in the old approach to the production of the cloth using stamping and hand-printing of the cloth, artisans adopted a new approach about a decade ago. The new approach uses the screen printing method to print the symbols on the fabrics. In Figure 3.8, an Adinkra cloth based on the screen-printing method of production is exhibited. It can be seen that the design and print quality are better than with the stamping approach.



Figure 3.8: Adinkra printed cloth made from black cotton fabric

Source: Photo by researcher (fieldwork, 2014)

Embroidery work has been introduced as part of the production method. This method adopts a hand-woven, embroidered approach to the hand-printing or screen-printing of the symbol on the chosen fabric (Figure 3.9).



Figure 3.9: Adinkra cloth joined with hand embroidery stitches

Source: Photo by researcher (fieldwork, 2014)

However, this method is costly and time-consuming. In effect, it is only those who can afford to pay the exorbitant prices purchase cloths that are made through embroidery. In Ghanaian society, the responsiveness of consumers to price rises is great and impacts on their purchasing decisions. Therefore, higher prices cannot be afforded by the larger section of the population. This also limits the marketing opportunities for the cloth, resulting in low business opportunity. Figure 3.9 shows an Adinkra cloth joined with hand-woven embroidery stitches. It has a red background, which symbolises a funeral cloth. To demonstrate that the embroidery style of the cloth is expensive and made for only the wealthy and prominent in society, Figure 3.10, is a photography of the present Ashanti King wearing a sample of the cloth with embroidery. This means it is limited to only those who can afford it and does not aid the diffusion of the meanings of the symbols or business growth.



Figure 3.10: The Ashanti King in an embroidered Adinkra cloth

Source: Adapted from www.gossipghana.org/site/wp-content/uploads/2015/06/Rattray-Park-Kumasi-City-JDMahama-Otumfour-1-GossipGhana.ORG_.jpg

The present approach to the production of the cloth adopts the method of inserting a traditional woven Kente cloth (see below) at two joints as a substitute for the hand-embroidery method. This is done to reduce the time for producing the cloths and the cost of production. Even though there seems to be an improvement in the design and aesthetics of

the cloth, the intended messages are not communicated via the symbols. In Figure 3.11 a sample of Adinkra cloth with the inserted hand-woven Kente strip is shown to demonstrate the new type of cloth. The cloth still has numerous symbols that do not provide a specific meaning for the cloth. Therefore, it does not convey the meanings of the symbols to the larger community.



Figure 3.11: Adinkra cloth with an inserted hand-woven Kente cloth

Source: Photo by researcher (fieldwork, 2014)

The introduction of additional fabric colours to Adinkra cloth may have been influenced by another widespread Akan traditional cloth called Kente. Kente traditional cloth is rich in colours with geometric designs. Quarcoopome (1997) states that Kente is a woven cloth in which warp yarns are taut in a horizontal manner on a traditional narrow hand-loom and weft yarns are fed from shuttles and pass through them. The cloth is made in individual strips, aligned and stitched together into a large wrapper with enough cloth to go around and cover the body. The photographs in Figure 3.12 are examples of Asante Kente cloth.

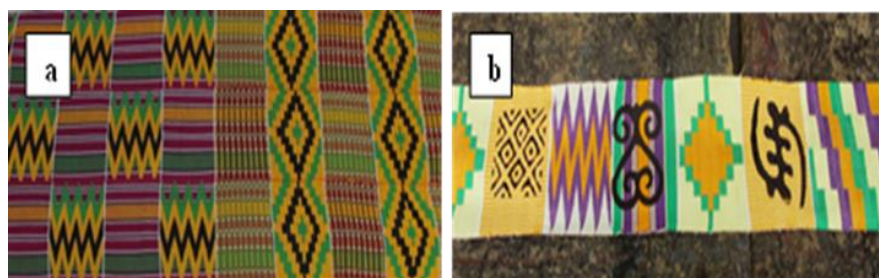


Figure 3.12: (a) Kente cloth (b) Kente cloth with Adinkra printed symbols in black

Source: Photo by researcher (fieldwork, 2014)

Many renowned African artists and fashion designers like Papa Essel, Yanka Shonibare, Chris Ofili, Joyce Ababio and Adzedu of Shapes have been working with rich and vibrant colours. The use of an array of colours in cloths and garments is not a new phenomenon in the Ghanaian clothing and textiles market. Picton (2004) states that after the European merchants had contact with Ghanaians, they researched and added suitable colours and motifs to their cloths. Colourful Dutch wax-cloths still have a fair share of the textile market in Ghana. The sustainable nature of the Dutch wax-cloth business may be attributed, among other things, to the skilful selection of colours in these cloths.

To sum up, Adinkra cloth has gone through stages of development and certain changes have been taken place as compared to the earlier versions of the cloth. As already discussed, the cloth has predominantly been used for specific activities such as funerals and other cultural occasions. The transformation of Adinkra cloth has not been rapid and at the same pace as the changes that have occurred in the consumption pattern of society in relation to the Ghanaian clothing and textile industry. The present state of Adinkra cloth, especially the usage of numerous symbols, does not ensure that the meaning of the cloth is explicit so that consumers can decipher the meaning of the symbols. Modern consumption has also changed dramatically to mimic the consumption patterns of the West; hence, Adinkra cloth is seen as belonging to the older generation. In view of this, the evolution of Adinkra cloth has been slow as compared to other forms of cloth in the Ghanaian community. As a result, Adinkra cloth has to be improved to meet the needs of modern consumers in order to ensure adoption and spread of the meanings of the symbols.

In the next section, there is discussion about the use of Western ideas blended with Ghanaian culture that can transform Adinkra cloth to meet the needs of modern Ghanaian clothing consumers. This discussion serves as a platform for improving Adinkra

cloth/clothing and developing new ideas for product design in order to maintain and spread the meanings of the symbols.

3.6 Framework for Western fashion and traditional costume

Within the context of fashion, the relationship between Western fashion and traditional dress is contentious. Roche (1994) describes fashion as dynamic change. Similarly, Wilson (2003) and Rovine (2013) indicate that fashion undergoes rapid and continual change in garment styles, reversing key features. According to these three scholars and many others, the common characteristic of fashionable clothing is change, that is, new looks at regular times. It can safely be inferred that any fashion product that does not change constantly to meet the needs of modern consumers' risks becoming extinct from the market. On the other hand, Brain (1979) discusses the perception of traditional clothes by early travellers and missionaries. From the perspective of missionaries and travellers as discussed by Brain (1979), clothes that differed from what was known by them at the time were considered primitive and barbarian.

Looking at these two facets of the argument, Allman (2004, p. 2) argues in relation to the division between fashion and traditional dress, "fashion is thus about status, mobility and rapid change in a Western, capitalist world. At the same time those outside of Europe (or Euro America) are relegated to the position of objects of ethnographic inquiry". In other words, all others have no fashion and their clothes are seen as cultural material that provides a description of human culture without being what is termed 'modern'. As a result, Craik (1994) establishes that (Western) fashion has been separated from non-Western culture because fashion is tagged as a marker of civilisation. Regrettably, many scholars have ignored the fact that civilisation was not initiated and developed only by those from the West, thus, Europe and America. Most of the raw materials used in fashionable clothes are

exported from non-Western countries. For example, India, in the East, produces chintz, calico and khaki for Western fashion to draw inspiration from (Loughran, 2009).

From this discussion it can be seen that there is no real distinction between traditional costume and modern fashion. The two are interrelated and one depends on the other. The view of the unchanging nature of traditional costume, as inferred from the definition of fashion by Roche (1994), Wilson (2003) and other fashion scholars and that Craik (1994) questions, is incorrect. There are changes in traditional costume but, because these may be insignificant, consumer society may not pay attention to such changes. An example of this is given by Turner (2012), who explains how the Kayapo native tribes of South America have added bottle tops to their native dress in order to enhance their body decoration for traditional dance competitions. Bottle tops are not an object from their own culture, but inspired, borrowed and added on for the enhancement of traditional dress and to express a new look. Simmel (1957, p. 546) states that,

Fashion ... is restricted to higher civilization, because novelty, which foreign origin guarantees in extreme form, is often regarded by primitive races as evil. This is certainly one of the reasons why primitive conditions of life favour a correspondingly infrequent change of fashions.

This again confirms that although there have been long-term changes in non-Western fashion, they are infrequent. Comprehensively, as Brain (1979, p. 15) points it out, “outside the West, the decoration of the body changes according to occasion or status”. This implies that culture is dynamic and all elements within it, such as language, food and costume, are liable to undergo continual change. Like all other cultural practices, Ghanaian culture has never been stagnant and is far from timeless.

Wilson (2003) observes clothing functions on social, aesthetic and psychological levels for both the modern and the ancient. One function that ancient clothing or traditional costume is considered to lack is the ability to innovate and reappear regularly or frequently in a

qualitatively new look. Nevertheless, Byfield (2004, p. 33) states that, “the importance of dress meant that people had to be aware of changing fashions, but new fashions reflected more than fickle trends”. The frequency of clothing production is not as important as the acceptance and frequency of use by the costumer. It is from this view that Taylor (2005) comments that fashion as a cyclical industry has become saturated and the introduction of culture theory seems to have brought significant changes of style in clothing.

It is the intention of this thesis to identify meaningful use of the Adinkra symbols in the construction of clothing for popular social activities and practices that will be acceptable and useful to the Ghanaian people by blurring the distinction between ‘modern’ and traditional costume/designs. Again, Wilson (2003) identifies that the ultimate aim of a fashionably dressed person is to stand out and be part of the crowd at the same time. Many people feel uncomfortable if they find their clothing deviates too far from the crowd. The Ghanaian community is to some extent familiar with Adinkra symbols and cloths. A new version of Adinkra textile fabrics and clothing would still be consistent with older uses because the same symbols would be explored for use in different designs, patterns and products.

Fashion, a field that constitutes various commercial activities, has made great distinctions between its users. Fashion was earlier used to differentiate between social classes (Simmel, 1957). Following the social class phenomenon, fashion was used to separate non-Western (traditional) from Western (modern) fashion (Craik, 1994). In the Ghanaian context, ‘fashion’ was used to distinguish royals from non-royals (servants) in all palaces in the country. For example, the quality of cloth, pattern and style of clothing identified one group from the other in the palaces. This situation has not been beneficial especially for clothing and textile manufacturers, who look out for economic gains on the products put on sale. Hansen (2013) argues that African forms of traditional dress have been changing through the merging of them with other garment styles. This thesis incorporates the use in popular

social activities and practices of clothing with traditional symbols to diffuse the meanings of the symbols.

The growth of societies has brought inevitable changes, for example, environmental, political, economic, social and cultural changes; these occur because of advancement or modernity. According to Sproles (1981, p. 121), “a modernism theory proposes fashion change with the times, or that new life-styles require complementary fashion”. This means that there is a need to constantly make changes to existing clothing and fashion products to meet the needs of the time.

On the contrary, Taylor (2005) states that there are opposing views of the fusing of cultural theory and costume in fashion. The criticism is that fashion can diminish the value of culture. This confirms the view of Rovine (2004), who discusses the lamentation of other people over the loss of African traditional art forms due to creative adaptation. In this thesis, however, the idea is not to change the symbols, which has the potential to debase the value of Ghanaian culture, but to adopt the symbols in their original state as designs for the development of new products that can maintain the true meanings of the symbols and spread them for development.

3.7 Summary

This chapter has examined the different forms of cloths that have adopted symbolic culture as designs. As the focus of this thesis is to improve the textile industry of Ghana through concentration on the Adinkra textile cottage industry and the adoption of Adinkra symbols as designs for the production of new and improved fashion products, it was necessary to explore some cultural symbolic cloths and patterns. Adinkra cloth has been examined from a historical perspective and the method of production also discussed. From history to the present day, the problems of the Adinkra textile cottage industry have been evaluated based

on which the various improvements that can be made have been discussed and suggested for industrial use. Also, Western fashion and traditional costume have been reviewed to frame the research in the convergence of these two concepts and to place the thesis in context.

Traditional symbols and costume are not timeless and the current situation and trends within a particular society can have an influence on them in order to increase usage. The Ghanaian Adinkra symbols can be adopted and used as designs for developing new products that meet modern consumption needs by reflecting the meanings of the symbols through the clothing. From this premise, the next chapter provides a situational analysis of the Adinkra textile cottage industry.

Chapter 4 Analysis of traditional Adinkra cottage industry

4.1 Introduction

It is important to examine the Adinkra textile cottage industry to determine the present state of the industry, the challenges and the existing opportunities based on which products can be developed to meet the desires and needs of potential consumers in the Ghanaian market. In evaluating the challenges and opportunities for the development of new products using Adinkra symbols, the Adinkra textile cottage industry is treated as a small and medium scale enterprise (SME). This serves as a theoretical base for examining the present state of the industry in order to explore ways of improving Adinkra cloth.

Due to the use of SME theory as platform for the evaluation of the Adinkra textile cottage industry, it is vital to discuss SMEs. This evaluation includes terms and definitions, and how the challenges have been examined by other researchers, which could aid in the examination of specific issues relating to the Adinkra textile cottage industry. After the definition, problems faced by various SMEs in different countries are discussed. This serves as a base for developing questions for interviews with the stakeholders in the clothing and textile industry in Ghana.

The barriers and facilitating factors to the diffusion of Adinkra symbols and cloth are also discussed. The concepts of innovation and the diffusion of innovation are reviewed in order to gain ground for innovative Adinkra symbolic clothing. Lastly, the theory of meaning from cultural products to consumers is discussed.

4.2 Definition of SMEs

Several definitions have been given in an attempt to define SMEs. One particular factor that is considered when defining SMEs is the number of employees. Even though the number of

employees serves as a benchmark, there is still considerable confusion regarding the exact number of employees that must be employed by a single firm in order to qualify as an SMEs. Some classifications are based on the turnover of firms before being considered as SMEs. In Ghana, the most commonly used criterion is the number of employees (Dalitso & Quartey, 2000). For example, the Ghana Statistical Service (GSS) classifies firms with fewer than ten employees as small-scale enterprises and firms with more than ten employees as medium and large-sized enterprises.

Another aspect to consider when defining SMEs is the value of the fixed assets under management. The National Board for Small Scale Industries (NBSSI) in Ghana combines both the value of fixed assets and the number of employees as the benchmark for defining SMEs. The board suggests that SMEs comprise of firms with fewer than nine employees and fixed assets not exceeding a value of 10 million Ghanaian cedis (1000 new Ghana cedis) (NBSSI, 2016).

Osei et al. (1993) on the contrary develop a classification for SMEs and suggest three categories: a) micro, employing fewer than six people; b) very small, employing six to nine people; and c) small, with between ten and 29 employees. The Regional Project on Enterprise Development Ghana Manufacturing survey paper reports a different classification, suggesting that SMEs must be categorised into: a) micro enterprise, fewer than five employees; b) small enterprise, five to 29 employees; c) medium enterprise, 30 to 99 employees; and d) large enterprise, with a hundred or more employees (Teal, 2002).

The Adinkra cloth makers can be categorised as SMEs in Ghana because the number of employees of a single artisan is between four and eight. Sometimes, the employees may also be family members of the head artisan (Dalitso & Quartey, 2000). Under such a circumstance, the employees rely only on the proceeds from the sale of a single cloth before

being paid. Thus, their employment is not a regular contract but as and when their services are needed. Besides, the assets under the management of these artisans are basic tables and other working tools because their shops are located mainly under trees. Therefore, it is important to consider the state of the industry in terms of the problems that are confronting it in order to determine the improvements that can be made to the existing products.

4.2.1 Textile industry in Ghana

In the 21st century, there is no doubt that SMEs play a significant role in the economic development of a country. Through the trade liberalisation of the 1980s, the Ghanaian textile manufacturing sector of which the Adinkra textile cottage industry is a sub-sector has been plagued with a number of challenges. This is compounded by the onset of the information and digital age, which has shaped the industry's processes and products. This has affected the Adinkra textile cloth production sub-sector tremendously; hence the sub-sector is now in a declining state.

By the mid-1970s there were over 16 textile companies in Ghana (Quartey, 2006). The garment industry also had about 138 medium and large-scale garment manufacturing companies (Quartey & Abor, 2011). However, by March 2005, a survey of the major companies still existing in the textile industry revealed the Ghana Textile Manufacturing Company Limited (GTMC), Akosombo Textile Limited (ATL), Ghana Textiles Printing Company Limited (GTP) and Printex (Quartey & Abor, 2011), showing a drastic reduction in the number of firms operating in the industry. Naturally, a reduction in the number of firms operating in the textile industry has an effect on the number of employees who are engaged in the industry. Table 4.1 shows a drastic decline in both the total number of employers and yards of fabric produced between 1977 and 2005 as a proxy for the decline

in the industry. For example, 25,000 people were employed in 1977 and this dropped to 2961 workers in 2005.

Table 4.1: Decline of the textile industry in Ghana

Year	Total number of employees	Percentage (%) change in employment	Yards of fabric produced
1977	25,000	↓	129 million
1995	7000	72	46 million
2000	5000	28	65 million
2005	2961	41	39 million

Source: Adapted from Quartey & Abor (2011)

4.2.2 Empirical review of SMEs

Adinkra cloth needs to be reinvigorated in order to promote the symbols, preserve the cultural material and sustain the clothing and textile industry for economic prosperity. It is believed that this can be achieved through innovation and well-crafted dynamic, competitive marketing strategies. However, crafting such a strategy requires a current market situational analysis to determine the challenges facing the industry and examine the existing opportunities. This can shape the development of products and offer better insight into opportunities for developing a marketing strategy intended for this particular sub-sector of the textile industry in Ghana.

Several factors affect SMEs worldwide and the Adinkra textile cottage industry is among the SMEs in Ghana. Some of the challenges and factors resulting in the decline of SMEs are lack of finance, low productivity, technological issues and managerial capability (Decker et al., 2006; Harvie, 2004; Ritchie & Brindley, 2000). Other factors that also affect the SMEs includes intensified globalisation that offers cheap products to international markets, and new and emerging technologies that render old technologies obsolete, cost-ineffective and inefficient in production processes (Zulkifli-Muhammad et al., 2009). These factors

negatively impact on SMEs and especially small businesses located in Africa that are competing with global giants.

Studies on SMEs in Africa have focused on country-specific issues. However, Abor and Quartey (2010) studied issues regarding the development of SMEs using a comparative analysis between Ghana and South Africa. It is argued that the development of SMEs is hampered by several factors including finance, lack of managerial skills, equipment and technology, regulatory issues and access to international markets (Anheier & Seibel, 1987; Aryeetey et al., 1994; Gockel & Akoena, 2002; Steel & Webster, 1991).

There are numerous problems facing SMEs in Ghana (Boakye, 2008). It has been argued that internal capacity problems such as inadequate capital and lack of raw materials are some of the problems of SMEs in Ghana. Other external forces include smuggling of manufactured textiles and garments from neighbouring countries like Togo, Benin and Nigeria, and advanced technologies in clothing and textile manufacturing in industrialised countries such as China and India.

A recent study that focused on one of the Ghanaian textile sub-sectors (traditional cloth dyers) has been conducted by Acquah and Oduro (2012). The study empirically evaluated the challenges faced by the cloth dyers' sub-sector with emphasis on the production of dyes needed for use by the industry. Among the challenges were poor quality of dyes, lack of drying facilities with an attendant effect on operations during the rainy season, difficulty in accessing firewood for boiling roots and barks to produce the dyes, and lack of financial support to expand businesses. The study focused on identifying the type of trees suitable for dye production, for example the *Kuntunkuni* tree.

However, this thesis focuses on using SME theory in the Adinkra textile cottage industry, a sub-sector of the textile manufacturing industry which is distinct from the cloth dyers in

respect of designs, production and target group. In addition, the thesis examines the challenges and business opportunities within the sub-sector for textile manufacturing companies to better serve the needs of the market. In view of this, potential new products that could be made from Adinkra symbols and symbolic cloth are examined to facilitate further development.

In the next section, the different factors that affect SMEs in general are used as a theoretical base to discuss the potential factors that may be hindering the progress of the Adinkra textile cottage industry. This approach offers the thesis a way to examine these factors holistically and use the problems to craft market-led solutions through product innovation for the industry at large.

4.2.3 Factors affecting SMEs

This section reviews factors that affect SMEs in general as identified by different authors in the literature. These factors later serve as the basis for examining the negative factors impeding the development of the Adinkra textile cottage industry through interviews with the artisans who are the main producers of the Adinkra cloth.

4.2.3.1 Lack of finance

One problem facing most SMEs is the lack of access to capital. Capital is among the factors of production which is invariably responsible for the size of businesses. Without capital, most businesses fail to expand and take advantage of economies of scale that accompanies a capital base such as low cost per unit of supplies. Earlier empirical research has focused on establishing sources of capital for SMEs and found that banks serve as the major source of external capital (Cole & Wolken, 1995). Even though banks are a major source of capital, SMEs generally find it difficult to access capital from banks (Orser et al., 1994; Petersen & Rajan, 1994) and this is due to varied reasons including a lack of collateral and lack of

information on the financial status of the firm with no track record due to poor record-keeping (Binks et al., 1992; Cole & Wolken, 1995). Due to the numerous risks associated with the provision of capital to SMEs, the risk-mitigation strategy adopted by major banks includes the use of high interest rates to offset the high risk (Berger & Udell, 1995). As a result, most SMEs suffer from high interest rates, which affect profitability and growth.

4.2.3.2 Technology

Generally, firms adopt technologies commensurate with their size in terms of space capacity, financial status and technical know-how. Because SMEs suffer from a lack of finance and technical know-how to operate in cottage industries, they are unable to adopt technologies that require large budgets. They also suffer from a lack of new and emerging technologies that render old technologies obsolete, cost-ineffective and inefficient in production processes (Zulkifli-Muhammad et al., 2009). Improvement of knowledge can lead to the establishment of technology that makes innovation possible (Ojiako & Aleke, 2011). Therefore, to meet the ever-growing market, the transfer of knowledge in creating useful technology in line with the needs of consumers has become important.

Technology is an important tool because it incorporates and interprets history, contemporary and shapes future practices (Barnard, 1996). Similarly, McOmber (2006) observes that new technologies forever replace old ones; what was once a new technology has been replaced and what is technological now will be displaced by future developments. This seems to describe technology as a continually changing arena which directs and redirects the world in a never-ending way. As Ojiako and Aleke (2011) point out, enterprises and organisations without technology as a form of innovation exist only temporarily. It is through advanced technologies that an industry can compete with other firms that are exporting low-cost but ‘quality’ products onto global markets.

4.2.3.3 Globalisation

Globalisation generally refers to the growing interdependence of national economies (Knight, 2000). This involves consumers, producers, suppliers and governments in different countries. As a result of globalisation, the existing boundaries between markets have become irrelevant because businesses are increasing their foothold abroad. In market environments where SMEs are witnessing immense proliferation, small businesses can be engines of growth (Knight, 2000).

Due to globalisation, multinationals are able to penetrate markets with superior products that are preferred on the market as compared to local goods. Multinationals adopt advanced technologies that increase the efficiency in production of their goods. This has the effect of reducing price per unit of output and allows multinationals to better respond to competition as compared to SMEs. SMEs suffer from intensified globalisation that offers low-cost products to international markets (Zulkifli-Muhammad et al., 2009). Globalisation has affected all industries to an extent, especially the superior products put on the market by multinationals leading to greater acceptance than the locally produced products (Ocloo et al., 2014). This has a negative effect on the business of SMEs because of the competitive edge of the superior products. Besides, the sizes of SMEs are generally too small to adopt and absorb modern industrial practices. Therefore, many of these enterprises lack managerial capabilities and the market power to fight intense competition from larger multinational firms.

4.2.3.4 Supply chain issues

The 21st century is characterised by networking. The most prevalent network systems are communication or social networks. Social media and networks facilitate the creation of new knowledge and relationships within and outside enterprises and organisations (Tsai, 2000).

Cordial relationships can remove barriers to communication and make knowledge accessible (Ritala et al., 2015; Tyagi & Misra, 2010). This is due to proper networking systems among different but related organisations. Relationships and networking within and outside enterprises, firms and organisations have proven to be more beneficial than harmful (Ritala et al., 2015). Hendriks (1999) indicates that motivation among workers within and outside an organisation to share knowledge of innovation can be critical. In Ghana for example, there are enterprises that expect their employees to keep trade secrets as highly confidential. Disclosing such information sometimes carries the greatest punishment in such an organisation.

Tsai (2001) believes that through network coordination, knowledge is transferred and resources are shared. Enterprises discover new opportunities that may promote performance and allow them to gain competitive advantage in the marketplace, resulting in profit-making for the organisation. Conversely, Ojiako and Aleke (2011) identify one of the factors that hinder the activities of SSEs as poor business supply networks. Technological advancement, which usually results from knowledge and willingness to innovate, can be properly diffused through cordial relationships, motivation and availability of information for individuals within and between organisations. Without relationships, interactions, sharing of knowledge and innovation, organisations cannot be sustained (Hendriks, 1999; Ojiako & Aleke, 2011; Ritala et al., 2015).

The supply chain is later examined to determine whether there is an existing supply chain or network based on which the stakeholders within the Adinkra textile cottage industry exchange ideas and share knowledge. There is also an examination of the different roles played by individuals within this network to determine the gaps in order to improve on the performance of the network. This solution is important because to the best knowledge of the

author, there is no known study of the development of a supply chain for the clothing and textile industry in Ghana.

The next section discusses the barriers and key facilitating factors for the diffusion of Adinkra symbols/cloth in Ghanaian society. The knowledge of the barriers and facilitating factors for diffusion is used in proposing improvements to Adinkra symbolic textile cloth and clothing.

4.3 The barriers and key facilitators for the diffusion of Adinkra symbols/cloth

Barriers to the diffusion of Adinkra symbols have been identified in the existing literature. The two main barriers identified are the lack of knowledge of Adinkra symbols among Ghanaians and the poor quality of dyes used for the production of Adinkra cloth by artisans.

Amate (2011) reports the low interest of many Ghanaians concerning the study of culture and cultural materials, such as symbols and artefacts. Williams (2011) and Delaquis (2013) support this assertion by revealing that most Adinkra symbols users do not know the figurative meaning of the symbols. This may mean that the symbols have been adopted and used based on their aesthetic appeal but not as a means of communication.

Adinkra cloth is one of the most significant Adinkra symbolic products, through which symbols and their meanings can be spread to the wider society. Clothes are generally to be worn and laundered as and when needed; however, this is not the case for traditional Adinkra cloth. The cloth has been identified as not meant to be washed (Glover, 1971). Willoughby (2005) confirms that the traditional dye for the printing of Adinkra cloth is water soluble. This type of dye runs off when it comes into contact with liquids, for example, perspiration, water or liquor. This characteristic of Adinkra cloth restricts its usage, which also has an adverse effect on the spread of the symbols and their related meanings.

In order to offer solutions to the identified barriers to the diffusion of Adinkra symbols, facilitating factors for the diffusion of technology in the textile industry have been studied and reviewed. The previous literature reveals four facilitators for the diffusion of technology in the textile printing industry: knowledge, technology, absorptive capacity and relationships (Burgess et al., 2006). This research has identified yet another facilitator, consumer culture, for the diffusion of Adinkra symbols and their meanings. These factors provide the conceptual distinctions and organise the ideas for the analysis. All five facilitators that can enhance the diffusion of the meaning of Adinkra symbols in the Ghanaian clothing and textile industry and market have been discussed in this section. However, the facilitators are adapted to fit the purpose of this thesis in the form of stakeholders' knowledge of the Adinkra symbols, their views of the Adinkra technological practices, their relationships with other stakeholders, the absorptive capacity of the artisans in the field of innovation and their understanding of consumer culture.

Consumer culture serves as a concept to induce adoption of the products in order to complete the innovation process. It is believed that the communicative power of the symbols can send their intended message by diffusing their meanings through the adoption of the products, as argued by McCracken (1986). In the following section, a discussion of the five facilitating factors is provided in order to set up a platform for the development of the conceptual framework in later chapters of the thesis.

4.3.1 The knowledge of the stakeholders

For the artisans whose business is the production of the current Adinkra cloth to perform successfully, their knowledge must be recognised as a sustainable skill. Knowledge creates, develops and sustains the skills and capabilities that are necessary to compete with others. According to Anatan (2007), knowledge is a source of competitive advantage in an

economy where the only certainty is uncertainty. When there is a shift in the market, technologies develop and spread, competitors multiply and products become obsolete. Successful organisations are those that can always create new and useful knowledge to satisfy the requirements of the market. However, the knowledge used by the Adinkra craft artisans has recorded insignificant innovation since the beginning of production (Mato, 1986). Acquah and Oduro (2012)'s findings on the products and businesses of traditional textile cloth reveal that the artisans have recognised low patronage in their cloth sales due to challenges with the quality of the dye and print, and they recommended a revival of the industry. The artisans lack the knowledge of what is required in the current textile industry. Furthermore, they do not have the knowledge in advance of current textile technologies, which prevents opportunity for innovation.

4.3.2 Views on technology characteristics

Technology has been identified as a tool to apply the discovery of knowledge that usually exhibits innovation (Ojiako & Aleke, 2011). McOmber (2006) asserts that a broad definition of technology incorporates all human attempts to transform the natural world, for example, word and work to meet human needs. This implies that growing human needs have to be satisfied by fast-growing technological means. Technology can be described as a descriptor of knowledge and an evolving phenomenon which continues to influence human ideas, actions and social set-ups.

As technology is ever-changing, it is therefore important to examine the sort of technology being used in the cottage industry at the moment and determine whether it is fit for purpose in today's competitive environment. The evaluation of existing technology has the potential to offer insight into how technology affects the production of Adinkra cloth by artisans. Again, it is through the evaluation of the existing technologies that the thesis can determine

the sort of improvement needed in the industry in terms of the introduction of advanced technologies for the production of the products. Without the use of new and emerging technologies that impact positively on the cost of production, many SMEs may collapse, including the Adinkra textile cottage industry. As the main producers of Adinkra traditional cloth are artisans, it is envisaged that the existing technology may be either outmoded or inferior to the technologies existing in the advanced economies of the world. This calls for the introduction of new technologies for the production of Adinkra textile cloth and clothing that meet the existing Ghanaian market trends.

4.3.3 Relationships with stakeholders

Relationships, interdependence and joint partnerships among firms and organisations are prevalent in the 21st century. This management method has been adopted by many organisations in order to promote knowledge, share technologies, meet deadlines and increase profitability. Acquisition of new knowledge and growth within and outside enterprises and organisations has been attributed to friendly relationships (Mu et al., 2008; Pérez-Luño et al., 2011). Mutually beneficial relationships can remove barriers to communication and knowledge accessible. Proper networking systems among different but related organisations have provided enormous benefits. Ritala et al. (2015) state that relationships and networking within and outside enterprises, firms and organisations have proven to be more beneficial than harmful.

Hendriks (1999) indicates that motivation among workers within and outside an organisation to share knowledge of innovation can be critical. Without relationships, interactions, sharing of knowledge and innovation, organisations cannot be sustained (Hendriks, 1999; Ojiako & Aleke, 2011). Even though relationships are important in the

innovation process, Ojiako and Aleke (2011) identify poor business supply networks as one of the factors that hinder the activities of the SSEs.

4.3.4 Absorptive capacity of artisans

Absorptive capacity is the ability to successfully replicate newly acquired knowledge (Tsai, 2001). Therefore, there is a need for interaction between absorptive capacity and networking for effective business performance (Tsai, 2001; Volberda et al., 2010). Similarly, absorptive capacity is described as one of the significant organisational key learning processes which involves identification, assimilation and manipulation of knowledge within and outside the environment of the organisation (Brettel et al., 2011). Although knowledge may be identified or available, the organisation including artisans, may not have the capacity to absorb and apply it for its own use. This is because firms, enterprises and organisations differ in accessing knowledge learning capabilities and applying replicating of new knowledge. These have a significant impact on their innovation and performance (Cohen & Levinthal, 1990; Tsai, 2001). This may mean that every enterprise or organisation including the Adinkra textile cottage industry has a different level of absorptive capacity. The level of absorptive capacity has a link with innovative performance which depends on whether the artisans have high or low absorptive capacity.

4.3.5 Understanding of consumer culture

Consumer culture has been identified as a sub-discipline of consumer behaviour (Joy & Li, 2012). Arnould and Thompson (2005) point out that the theory of consumer culture generally examines the theoretical perspectives of the relationship between cultural meanings, the dynamics of the marketplace and consumer actions. The different interrelated domains or fields of consumer culture lead to differences in definition.

Baudrillard (1998) describes consumer culture as the consumption code, the system of cultural meanings that the market gives to commodities. Featherstone (1991) states that consumer culture focuses on aspects of cultural practice in the construction of consumer society, rather than just on consumption. Holt (2002, p. 80) defines consumer culture as the ideological infrastructure that influences what and how people consume, and sets the ground rules for marketers' branding activities. Arnould and Thompson (2005, p. 869) comprehensively define consumer culture as "a social arrangement in which the relations between lived culture and social resources, and between meaningful ways of life and the symbolic and material resources on which they depend, are mediated through market". This may infer that the personalities of the consumers are interwoven with their consumptions, perceptions and practices.

According to McCracken (1990), consumer culture is the interpretation of cultural ideas, activities and objects in the construction of goods and services for the consumer market. In this stance, Mick (1986) points out that semiotics, the doctrine of signs which is part of culture, positions meaning at the centre of consumer behaviour. Similarly, Granot et al. (2014) stress that consumption of goods and services, which is driven in a specific culture through the use of marketing symbols, underpins consumer culture. It can be deduced that culture plays a significant role in the consumption patterns of individuals.

Consumer culture impacts on the adoption and usage of an idea, practice, service or product. For example, an innovative idea is crucial because consumers tend to associate with it when the idea is easily identifiable among the traditions and practices of the target population. Inferentially, this could be true in reality because individuals are products of their culture and their social groupings; therefore, they are conditioned by their socio-cultural environment to act in a certain manner (De Mooij, 2011, p. 26). Consumer culture has been

identified as one of the applicable mechanisms that can sustain a service or product in a market (Daramola et al., 2014; Picton, 2004).

To sum up, consumer culture consists of interrelated concepts that pervade in a consumer society. It is understood that the term ‘consumer culture’ involves a network of commercially produced images and objects that identify groups and depict practices, individualities and meanings that define the collection and orients them to shared experiences (Kozinets, 2001). All these meanings contribute to and construct consumer understanding in relation to consumer society in a certain culture.

4.3.5.1 Consumer culture domains

The relationships between culture and other resources and the construction of consumer identity are moderated by the market. These relationships have resulted in the categorisation of certain domains in consumer culture theory. Arnould and Thompson (2005) group consumer culture theory under four interrelated domains or research programmes: consumer identity projects, socio-historic patterning of consumption, mass-mediated marketplace ideologies and consumers’ interpretive strategies and marketplace cultures.

1. Consumer identity projects

Consumer identity projects are the cooperative manner in which consumers work together with marketers to create materials (Arnould et al., 2006). The consumer develops an identity at the centre of the marketplace and symbols emanating from the market (Schau & Gilly, 2003; Thompson & Hirschman, 1995). Consumers accept and customise cultural attributes that are similar to their identities and conform to the structural dictates of the globally consumer-driven economy (Arnould & Thompson, 2005).

2. Socio-historic patterning of consumption

This domain addresses the institutional and social structures that impact on consumption, such as class, ethnicity, gender and community (Arnould et al., 2006). Consumers are seen as enforcers of social roles and positions. This area of consumer culture looks into what consumer society is and how it can be sustained (Arnould & Thompson, 2005). Through this domain, consumption choices and behaviours are shaped by social classes and relationships among consumers (Holt, 1998; Weber, 1978).

3. Mass-mediated marketplace ideologies and consumers' interpretive strategies

This domain addresses the systems and meanings that direct the actions of consumers in society and dominates the interests of society (Arnould et al., 2006). It focuses on understanding how consumers process information regarding product offerings and react based on such information (McCracken, 1986). Consumers are thought of as agents in the marketplace that interpret information from advertising (Kozinets, 2002). This interpretation is based on information that relates to the identity and lifestyle of consumers as well as those information that are different from the dominant cultural identity of consumers (Arnould & Thompson, 2005).

4. Marketplace cultures

Marketplace cultures tackle the unique structures and dynamics of the relationship between market and culture (Arnould & Thompson, 2005). Generally, consumers engage in practices and interact with products to gain emotional and social pleasures (Goulding et al., 2013; Kozinets, 2002). These practices and behaviours can transform into culture; hence consumers are seen as culture producers and active marketplace participants (Arnould & Thompson, 2005; Schouten & McAlexander, 1995). Consumers' practices restructure

culture representation for action and interpretation based on market dynamics (Arnould et al., 2006). Marketplace cultures establish feelings of unity as well as distinction and so tribal sentiments, which are part of culture and affect consumption (Goulding et al., 2013; Schouten & McAlexander, 1995).

This research is positioned within the marketplace cultures domain of consumer culture. Jaworski and Kohli (1996) suggest that market orientation is a precursor to innovation processes. This thesis focuses on understanding the marketplace cultures of consumption for the development of new, innovative products. It also explores how to articulate and relate the meanings of Adinkra symbols to the objective or focus of the different subculture groups and markets in modern Ghana. Articulating the contemporary meanings of the traditional Adinkra symbols is achieved through the matching of specific symbols to specific popular social activities and practices within the Ghanaian society.

4.4 Innovation

Innovation is a broad concept that applies to all disciplines. As a result, researchers have given different definitions of innovation. There are marked differences relating to the definitions and understandings of the innovation concept because of the different fields of specialisations of researchers, for example, physiology, psychology, poetry, economics, management and marketing (Shavinina, 2003). As innovation is applied to many disciplines, the methods of approach also vary from one discipline to the other.

Innovation is described as the implementation of new ideas, products/material artefacts or processes that can enhance competitive advantage (Hurley & Hult, 1998). This can also be in the form of services, systems or technology. Innovation is also defined as any thought, behaviour or product that is new because it is qualitatively different from the existing forms (Barnett, 1953). Similarly, Rogers' (1983) definition suggests that innovation refers to

anything that is perceived as new by an individual. In view of this, the key to defining innovation is the perception of a product among potential adopters (Robertson & Gatignon, 1986, p. 3) as to whether they will consider it something new or not. Even though innovation generally refers to anything new, the focus of this research is on product innovation through the adoption of existing forms of technology utilised for innovation of Adinkra cloth.

Technology is the driving force of the market, as it is impossible for an industry to be sustainable in business without constant technological advancement. Many innovations use technology to ensure that there is a new outcome from an innovative practice (Robertson & Gatignon, 1986). It has been acknowledged that high-technology products have the potential to create markets and demand (Shanklin & Ryans, 1984). According to Robertson and Gatignon (1986) the provision of these technologies is expected to provide cost reduction in the production, distribution or marketing processes. Technologies may provide a means for producing higher quality products that offer new benefits for the stakeholders.

This research focuses and adopts four modern clothing and textile technologies: 3D printing, 3D knitting, digitised printing and Jacquard weaving. These technologies are discussed in detail in Chapter 9 of the thesis.

4.5 Diffusion of innovation

Innovation intends to be complete when proliferation is achieved by reaching the potential adopters. According to Fichman (2000), diffusion is the process by which a technology spreads across a population of an organisation. The process of diffusion is applicable to a variety of services, products and processes. As such, the process of diffusion of innovation refers to the spread of a new technology or anything new within a universe of potential adopters (Talaysum, 1985). Rogers (1995) amplifies the diffusion process as human

interactions; where ideas are communicated between participating individuals. These human interactions are the social connections formed within and across organisations. These individuals spread the innovation to one another. The theory by Rogers (1995) on interpersonal networks on adoption and rejection of an innovation is essential to this discussion. According to Rogers (1995, p. 10) diffusion of innovation is “a process by which an innovation is communicated through certain channels over time among the members of a social system”. For the Adinkra symbolic clothing to be designed, manufactured and spread to the ultimate users, all the stakeholders within the clothing and textile industry of Ghana have to be involved. All the innovative ideas, technological practices and material artefacts of the Adinkra symbols (clothing) have to be communicated among all the participating members over a period of time in order to reach ‘maximum’ diffusion. A high scale of diffusion will achieve the spread of the educational meanings of the symbols.

4.6 Consumer culture perspective on product innovation and diffusion

It is widely accepted that culture and its entity is a dynamic institution (De Mooij, 2011; Turner, 2012). Culture in this context is a group of people with social systems, for example, families, clans, churches and schools. These groups form the consumer society with frequent changes and demands that have to be aligned with new product innovation.

A new product with cultural meaning can be adopted and used by these groups to enhance and perpetuate cultural attributes. In some cases, however, culture-based products are developed for a particular group of people and are ephemeral. Shin et al. (2011, p. 214) point out that “overall, cultural textile products indicate artefacts made by a culture which have a symbolic meaning related to a specific time and distinct members of a specific society”. Nevertheless, Adinkra symbols and the symbolic cloth of Ghana are unique and

timeless because they have a specific meaning applicable throughout all ages (Arthur, 1994; Ofori, 2011).

The symbolic culture of a given society can be promoted through product innovation. Product innovation in a consumer product reflects the cultural orientation at each particular period within a society because the interpretation of cultural ideas, activities and objects is constructed into goods that permeate the consumer market (McCracken, 1990). In this stance, individual firm decisions to adopt product innovation are influenced by the compatibility between the innovation's characteristics and those of the potential adopting unit (Robertson & Gatignon, 1986).

4.7 Transfer of meaning of culture from products to consumers

The Adinkra symbols of Ghana have rich and deep educational meanings. These meanings can contribute to the knowledge of Ghanaian society when known, understood and sensitised for use. Clothing has been identified for its everyday function, which can be used to propagate the symbols and their rich meanings. McCracken's (1986) theoretical movement of meaning from the cultural world to the individual consumer has been adopted and adapted for this research.

Consumer goods are not only important for their aesthetic, functional and commercial values, but also their ability to contain and exchange information of cultural meanings (Douglas & Isherwood, 1996). The meanings of consumer goods have mobile qualities that transfer from culture to a particular consumer good and finally to individuals (McCracken, 1986). These meanings derive from cultural attributes such as ideas, activities, practices and objects and then apply to the construction of goods for the consumer society. Through the efforts of individuals, for example, fashion designers, product manufacturers and consumers, cultural meaning moves ceaselessly in a particular society. This is the case

because individuals are a subset of their culture and are influenced by cultural principles in their actions (De Mooij, 2011; McCracken, 1986). Individuals experience an everyday life of meanings within cultural confines because cultural principles are expressed in every aspect of social life and consciously or unconsciously affect behavioural patterns.

McCracken (1986) sums up that culture supplies the world with meaning. Therefore, it can be inferred that any message for society to be meaningful, it should emerge from the culture. Mick (1986, p. 196) points out that the “consumer world is a web of meanings among consumers and marketers woven from signs and symbols ensconced in their cultural space and time”. In relation to these concepts, it can be inferred that symbolic culture, thus the meanings embodied in Ghanaian Adinkra symbols, are significant and can be appropriated for the creation of consumer goods (fabrics/clothing) that can spread their symbolic meanings. Fashion can be used as a psycho-social mechanism which allows for the spread of concepts that have significant meanings. Acceptance of fashion objects is critically motivated on the social characteristics of the objects (Sproles, 1974). Fashion frames the minds of the wearers and positions them in a society (Simmel, 1957).

The meaning of culture is transferred via exchange and possession rituals, which seems appropriate for this thesis (Figure 4.1). The ritual exchange of gifts has the potential to increase the meaning of the gifted goods. In most cases, the gift-givers select a particular gift because it possesses the meaning they wish to see transferred to the gift-receivers (McCracken, 1986). Ghanaian Adinkra clothing for popular social activities and practices, for example, a scarf embedded with *Bese saka* symbol, symbol of friendship – can be a gift with the meaning bonding.

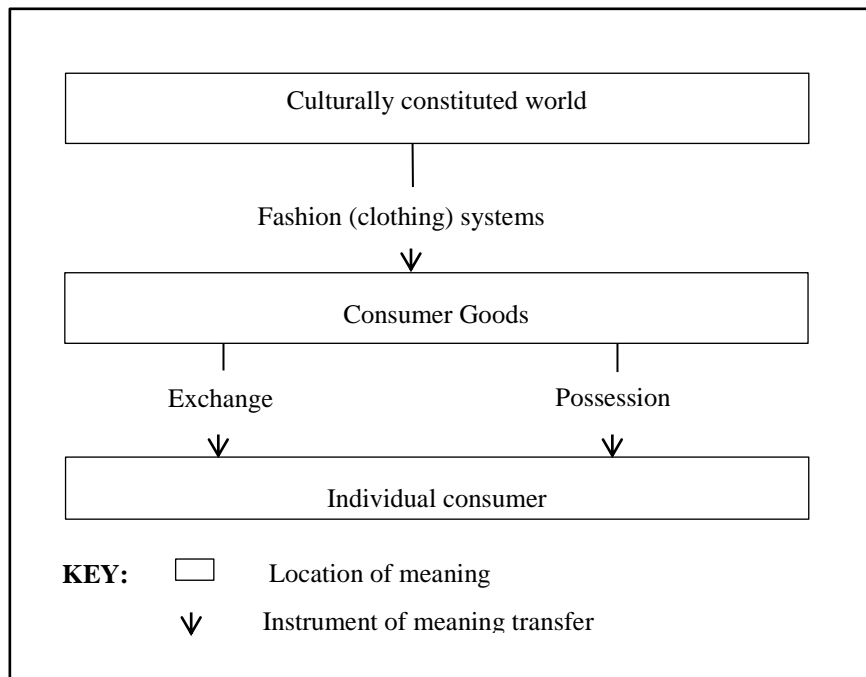


Figure 4.1: Movement of meaning

Source: Adapted from McCracken (1986, p. 72)

Consumers can acquire a product through purchase and possess it for use rather than receiving it as a gift. The possession ritual becomes a claiming process, whereby the consumer attempts to draw from the product the quality that it has been given by the marketing forces. The individual makes use of the possession ritual and manages to extract the properties invested in the consumer goods. If the cultural meaning has been transferred, the consumer is able to use the goods as identity markers of time, space and occasion. This is possible because the possession ritual allows the consumer to also take possession of the meaning of the goods (McCracken, 1986). In this sense, clothing embedded with cultural meaning, for example, Adinkra symbolic clothing for sport activities, can be possessed and its meaning developed over time and transferred to the individual consumer. When this happens, the meaning gained can contribute to existing knowledge for the individuals and the society at large.

4.8 Summary

In summary, the Adinkra symbols and symbolic cloth are losing their importance in modern Ghana. In view of this, there is a need to adopt pragmatic steps that can aid in the use of the symbols in different ways to perpetuate them for posterity. Also, the technology used for the production of Adinkra cloth is outmoded and does not ensure efficiency in production. It is believed that, through technological innovation, the symbols can be adopted as designs for the production of modern fashion products to meet current consumer needs in Ghana. After the development of innovative products, there is the need to diffuse both the products in the market and the associated meanings of the symbols. This is achievable through the use of the five facilitating factors (knowledge, technology, relationship, absorptive capacity and consumer culture) channelled through the textile supply chain. The next chapter discusses the research methodology in detail by explaining selected actions and activities of the thesis.

Chapter 5 Research methodology

5.1 Introduction

The aim of this chapter is to examine the philosophical worldviews connected to this research work, the methodology and the research methods that have been used to complete the thesis. This chapter justifies and describes the selected research strategy based on the research questions and the conceptualisation of the diffusion of Adinkra symbols in the clothing and textile industry in Ghana. The conceptual framework has been developed from a review of the related literature with the intention to investigate the barriers to the diffusion of Adinkra symbols within the Ghanaian clothing and textile industry.

The methodology used in the research adopts a mixed-model design approach. The stages in the methodology involve a qualitative method of collecting data, a quantitative approach to analysis and a qualitative method of interpreting the outcome that leads to understanding of the needs of consumers for new product development. Also, the chapter reviews the research questions based on which the thesis objectives were chosen. The objectives are detailed in Table 5.1.

The chapter is divided into three main phases based on the grouping of the objectives: phase 1 adopts a literature review approach to answering the question on the history and categorisation of Adinkra symbols. In phase 2, the approach is both a literature review and interviews with industrial stakeholders. The idea is first to review literature on the Adinkra symbolic cloth cottage industry and the problems facing the industry. The result of analysing the cottage industry is to place the thesis in a position to propose something new for industrial development. This takes the shape of identifying the existing products on the market that are related to the Adinkra cloth and others. This establishes the needs of potential consumers in order to propose products that can satisfy their needs. In order to

penetrate the market with a new product, it is worth examining the barriers to the diffusion of the meanings of the symbols and the potential new products in order to develop solutions for these barriers as well.

Table 5.1: The objectives of the thesis and approaches

Research objectives	Approaches
1. To construct a culturally sensitive categorisation of all the symbols in an attempt to further conserve them from extinction.	Phase 1: Literature review
2. To adopt specific Adinkra symbols as designs to reflect popular social activities by developing an association between the meanings of the symbols and the selected popular social activities in the Ghanaian context.	Phase 2: Literature review, interviews and quantitative analysis of data
3. To identify the barriers to the diffusion of the meanings of Adinkra symbols and propose solutions through the clothing and textile industry in Ghana.	
4. To identify and adopt consumer culture theory to guide the design and production of symbolic clothing that meets consumer needs and acceptance.	
5. To formulate a conceptual framework to understand industrial requirements in the production of enhanced Adinkra symbolic clothing through the development of a supply chain model.	
6. To identify available clothing and textile technologies capable of embedding specific Adinkra symbols as designs in clothing.	Phase 3: Product development
7. To use the identified clothing and textile technologies as a means of developing enhanced Adinkra symbolic clothing as a solution to the problems associated with the existing Adinkra cloth	

The last objective considered under phase 2 is the identification of advanced technologies that has the capability to change the industry regarding products for the needs of modern consumers. In Chapter 2, the production process of Adinkra symbolic cloth has been described and suggested to be outmoded. Therefore, in phase 3, the thesis develops new products based on the needs of modern consumers, to improve the industry. In the last phase, ten Adinkra symbols are identified and selected based on their meanings and ability to send clear messages through the use of clothing. Four modern clothing and textile

technologies are identified and adopted for the production of the clothing: 3D printing, 3D knitting, digital printing and Jacquard weaving, which could position the Adinkra symbols in line with the current designs prevailing within the clothing and textile industry. These choices have been made in order to produce varieties of modern techniques in clothing to enhance usage and the spread of the Adinkra symbols and their related meanings (see Chapter 9).

5.2 Definition of research

In this section, it is important to give a working definition of research in order to proceed with the information connected to research as far as the thesis is concerned. According to Burns (2000), research is a systematic investigation into finding answers to a problem by a researcher. In view of this, research must proceed through a step-by-step approach to fulfil its objectives. Research is generally undertaken within a framework that incorporates a set of philosophical worldviews which dictate methods and techniques for completing the particular research work. These philosophical worldviews and their associated methods have been tested and validated to be true and reliable, as well as free from all biases that have the potential to skew research results.

The philosophical worldview (orientation) of researchers affects their choice of research questions and their theoretical perspective on how their research should be approached in practical terms. This shapes the research design, methods and techniques needed to complete a particular piece of research. Figure 5.1 illustrates how the philosophical worldview affects the research strategy and the research method that are needed for a different set of research questions.

There are differences in opinion regarding research work, especially relating to how knowledge is developed. These differences in opinion among scholars have generally

resulted in the development of different paradigms such as positivist, postpositivist, interpretive, phenomenologist, constructivist, feminist and participatory (Creswell, 2014).

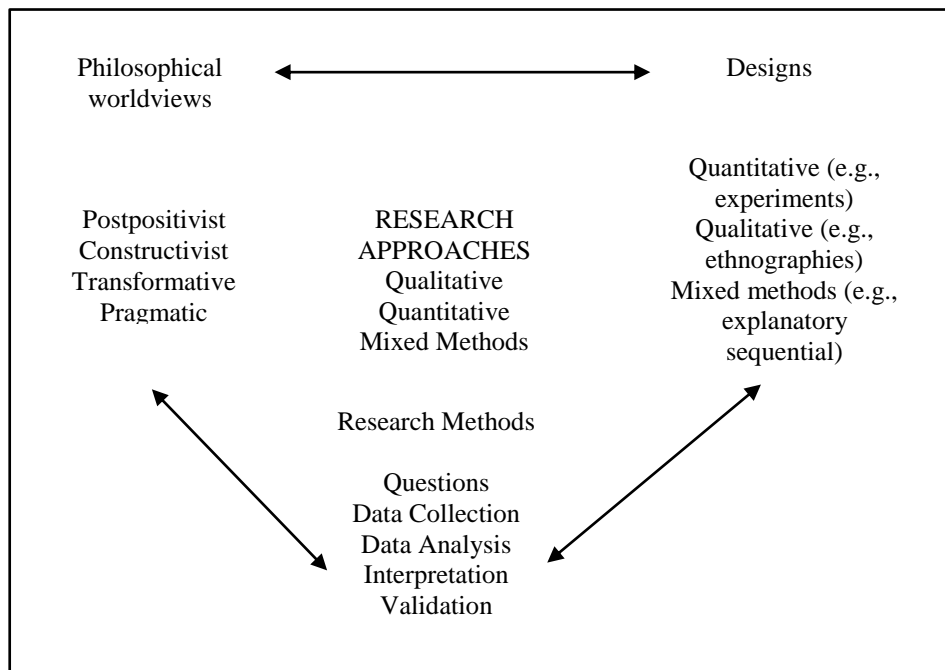


Figure 5.1: Framework for research. The interaction to worldviews, design and research methods

Source: Creswell (2014)

Creswell (2014) clarifies that the positivists hold the assumption that causes determine outcomes and effects. The constructivists, on the other hand, hold the assumption that researchers construct understanding and knowledge of the world through their experiences and reflecting on those experiences. Those who believe in advocacy and participatory research suggest that there is a need to enquire based on political elements of issues. Finally, the pragmatists suggest that worldviews arise out of actions, situations and consequences, rather than antecedent conditions, such as in postpositivism.

In view of these philosophical differences, there are also methodological procedures and differences. Thus, certain philosophical worldviews are associated with particular methodologies of enquiry into research problems. There are three main methodological movements: quantitative, qualitative and mixed methods.

The quantitative methodology is associated with the postpositivist paradigm because they are generally interested in numerical data and analysis to develop knowledge. The quantitative method also seeks to verify the reliability of theories. As such, Creswell (2014) defines it as an approach for testing objective theories by establishing and examining the relationships among variables in a study. It typically uses the process of forming a hypothesis and testing it to determine causality and its effects as a social enquiry. In view of this, quantitative studies are numerically driven and involve large data sets to establish the relationships between variables and to be able to generalise results. This is also a requirement for the validation of research results in quantitative research. In summary, quantitative research is normally underpinned by the positivist worldview.

The qualitative methodology, on the other hand, generally uses narrative, descriptive and participatory approaches to developing new knowledge. As a result, most qualitative researchers are constructivists. According to Creswell (2014), qualitative research is an approach to exploring and understanding the meaning that individuals give to a particular social or human problem. Qualitative studies generally describe a situation or problem and attempt to understand it from the perspectives of individuals who have experience regarding the issue. It builds knowledge inductively through the analysis of data from particular themes to general themes. In this approach, the researcher does the interpretation of the data to form the themes and develop understanding of a phenomenon. Qualitative approaches generally fall into either constructivist or participatory worldviews.

The mixed methodology is primarily associated with the pragmatist paradigm because they are interested in using a combination of both qualitative and quantitative methods. Thus, they are primarily interested in both numerical and narrative data and their analysis to produce new knowledge (Teddle & Tashakkori, 2009). Mixed research methodology uses both quantitative and qualitative aspects in a single study. In a single study, different types

of questions may require two different approaches. As a result, researchers can use both qualitative and quantitative data and analysis at different stages in a single study (Creswell & Clark, 2011). The mixed method is associated with the pragmatist paradigm because it does not take a purist position but looks at what works in practice and is problem centred. It draws on the strengths of both the quantitative and qualitative approaches while at the same time avoiding some of the weaknesses of each.

Teddlie and Tashakkori (2009) define epistemology to be the relationship between the knower and the known (the researcher and the respondent in research). Positivists and post-positivists (quantitative researchers) perceive this relationship as being objective, with a separateness existing between the researcher and the participant. This is supported by Rist (1975), who explains that quantitative design epistemology is underpinned fundamentally by the assumption that there is the existence of definable and quantifiable social facts. This is in sharp contrast to the proposition given by those who believe in the qualitative approach, that reality cannot be considered via numerical classification. Constructivists (qualitative researchers) understand research as subjective, with the researcher and respondents functioning together to co-construct social realities.

Pragmatists (mixed-methods researchers) believe that epistemological issues exist on a continuum, rather than being situated in two opposing fields. As such, pragmatists draw on both the quantitative and qualitative approaches. Tashakkori and Teddlie (2003, p. 713) define pragmatism as:

a deconstructive paradigm that debunks concepts such as 'truth' and 'reality' and focuses instead on 'what works' as the truth regarding the research questions under investigation. Pragmatism rejects the either/or choices and advocates for the use of mixed methods in research, and acknowledges that values of the researcher play a large role in interpretation of results.

In view of the above assertion, Teddlie and Tashakkori (2009) explain that pragmatists adopt both objective and subjective points of view in a single study which can apply within

or across particular stages. For instance, a particular stage of a research project could require that researcher and respondent collaborate to collect qualitative data. This is generally the qualitative approach to conducting research. However, when quantitative data is being tested for a causal relationship, the researcher may not need the respondent. As a result, pragmatists do not focus on the method but examine all possible approaches to answering the research questions within a single study.

In this thesis, such a mixed-method pragmatist paradigm is adopted as the philosophical worldview underpinning the investigation. The fundamental reason for the choice of this philosophical worldview is its pluralistic characteristic in answering research questions. Also, it looks at ‘what’ and ‘how’ to research based on the research purpose and objectives, rather than taking a purist approach to answering the research questions.

In Table 5.1, the phases of the research are outlined as phases 1–3. Phase 1 adopts a literature review approach to categorising the Adinkra symbols through a theoretical approach. This is followed by interviews with industrial stakeholders to determine the barriers to diffusion of the meanings of the symbols and problems existing in the Adinkra textile cottage industry within the larger textile industry of Ghana. The determination of the problems and the barriers uses a qualitative approach to collating the data, but adopts a quantitative approach to analysing the data to achieve the results. The outcome of the interviews is followed by the development of solutions to the problems found in the industry and the development of new products that have the potential to also diffuse the meanings of the symbols in Ghana. In a broader context, the aim is to improve the Adinkra cottage industry in order to achieve product adoption across the industry, which will further diffuse the meanings of the Adinkra symbols. Therefore, the thesis uses a qualitative method of data collection and a quantitative approach to data analysis. Thus, the thesis uses multi-method

which is referred to as mixed-methods, across stages of data collection and data analysis, and can be classified within the pragmatist worldview.

5.3 Methodology

In any research, it is important to explain the concepts of research methodology and research methods (Greene, 2008). Methodology refers to the procedural framework which guides the conduct of the research. Methods, on the other hand, refer to specific strategies for conducting the research. Consequently, the methodology serves as the theoretical connection that links the research problem with the research method (Hesse-Biber, 2010). This research uses a mixed-methods approach to examining the research problem. Even though there are several names that are used to refer to mixed research methods, including integrated research, multi-method and mixed methodologies (Creswell, 1994; Greene, 2008), at present, the most widely used and accepted name is mixed methods. Figure 5.2 shows a diagram of comprehensive approaches to mixed-methods research.

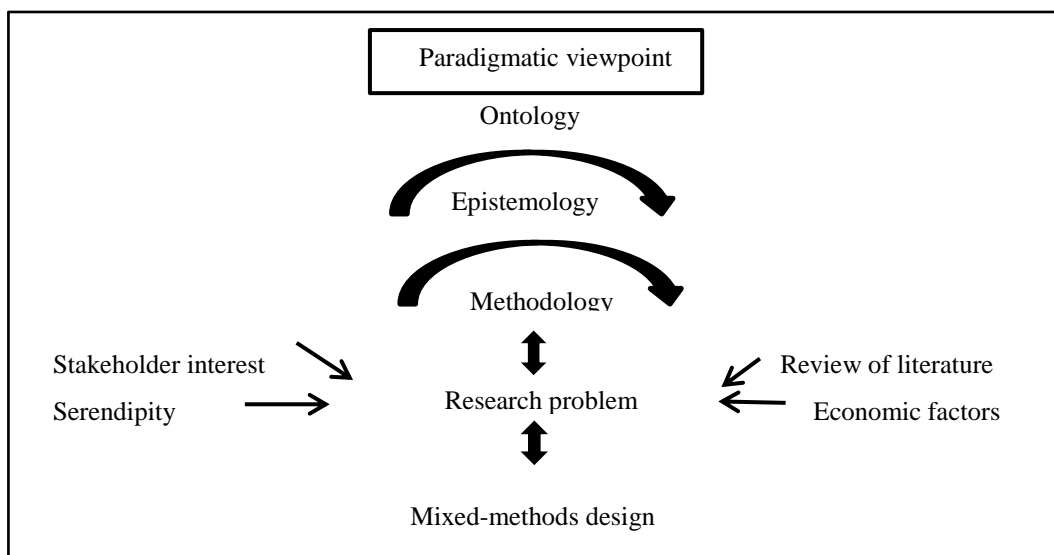


Figure 5.2: Comprehensive approaches to mixed-methods research

Source: Hesse-Biber (2010, p. 12)

Mixed methodologies are derived from a researcher's assumptions about the nature of existence (ontology) (Hesse-Biber, 2010). Such assumptions principally lead to the

researcher's philosophy regarding the nature of knowledge development (epistemology) on essential questions, including: Who can know? What can be known? When formulating research questions, researchers must strive to consider the interests and stakeholders in the research.

In using mixed-methods for conducting research, researchers must determine the reasons for adopting the mixed-methods approach. In view of this need to explain the reasons for the choice of mixed-methods, Greene et al. (1989) identify five main reasons for considering a mixed-methods design, outlined in Table 5.2.

Table 5.2: Reasons for mixed methods and their explanation

Reason	Explanation
Triangulation	Triangulation means using more than one method while studying the same research questions. The researcher looks for a convergence of the data collected by all methods to enhance the credibility of the research findings. It also seeks to validate quantitative statistical data with qualitative data.
Complementarity	Complementarity seeks elaboration, enhancement, illustration and clarification of the results of one method with the results of the other method.
Development	Development seeks to create a synergistic effect. The result from one method is used to help develop or inform the other method.
Initiation	The findings of a study sometimes raise questions or contradictions that will necessitate explanation, thus originating a new study. The aim of the new study is to add new insight to existing theories on the phenomenon under investigation.
Expansion	Expansion is intended to extend the breadth and range of enquiry of a theory.

Source: Greene et al. (1989)

The purpose of mixed methods in this study is not to achieve triangulation or complementarity. Thus, the mixing of the methods occurs across stages where there is no need for either validation or corroboration. Again, the research does not invoke the development or initiation reason to support the use of mixed methods. However, the research depends on the expansion reason, to expand the documentation of the Adinkra symbols to keep them from extinction. Also, it leverages the expansion theory to further use

the theory of innovation to develop new products that are based on the use of the Adinkra symbols as designs. In order to also sustain the use of Adinkra symbolic cloth/clothing, solutions are proposed to solve the problems determined from the interviews conducted with the stakeholders. In a broader context, the study seeks to diffuse the meanings of the Adinkra symbols in order to expand knowledge of the symbols within the Ghanaian consumer society. Fundamentally, this research uses a single type of data (qualitative) and quantises the data for further descriptive statistical analysis. In this sense, this reduced the time needed to collect two data sets for analysis as seen in many mixed-methods research projects. In the following section, the mixed-model typologies are discussed and the one used for the study explained in detail.

5.4 Methods

5.4.1 Mixed-model design

The process of research differs from study to study. Johnson and Onwuegbuzie (2004) discuss eight distinct steps as the process for mixed-methods research: (1) determine the research question; (2) determine whether a mixed design is appropriate; (3) select the mixed-method or mixed-model research design; (4) collect the data; (5) analyse the data; (6) interpret the data; (7) legitimate the data; and (8) draw conclusions (if warranted) and write the final report.

To develop their different mixed-methods and mixed-model typologies (in step 3), Johnson and Onwuegbuzie (2004) studied many other typologies (Creswell, 1994; Morse, 1991; Tashakkori & Teddlie, 1998). They suggest that one can create mixed-model designs by mixing qualitative and quantitative approaches within and across the stages of research. This can be done by creating a simplified phased approach where there are three phases, including stating the research objective, collecting the data and analysing/interpreting the

data; these mixed-model designs are supported by Tashakkori and Teddlie (1998) and Johnson and Christensen (2004).

There are two main types of mixed method research; mixed-model (thus mixing qualitative and quantitative approaches within or across the stages of the research process) and mixed-methods (the inclusion of a quantitative phase and a qualitative phase in an overall research study) (Johnson & Onwuegbuzie, 2004). Therefore, in mixed-methods research, researchers have the choice to adopt either a mixed-method or a mixed-model in fulfilling the objectives of the study.

Tashakkori and Teddlie (2003) discussed nearly forty types of mixed-method designs. Clark and Creswell (2008) amalgamate this information into four major mixed-methods typologies: triangulation, embedded, explanatory and exploratory designs. On the other hand, Johnson and Onwuegbuzie (2004) document six main typologies of mixed-model designs (see Figure 5.3).

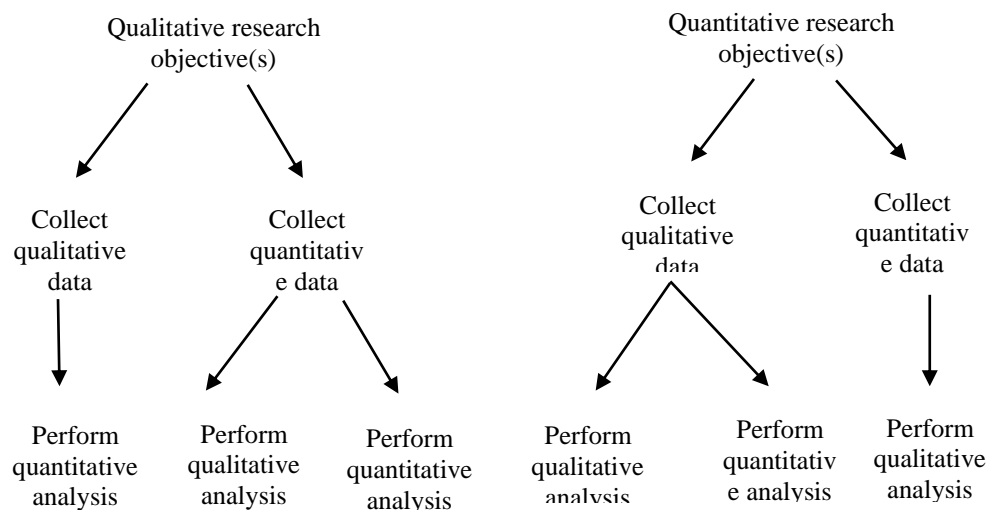


Figure 5.3: Six mixed-model typologies

Source: Adapted from Johnson & Onwuegbuzie (2004)

In Figure 5.3, it can be seen that there are six main mixed-model designs that can be adopted in a mixed research design based on the data collected and the approach used in analysing the data. These mixed-models do not consider the timing of data collection to be important in research because there is use of a single data set. Due to this, there is no integration of the results from analysing data collected for the research because the mixing occurs either within a stage or across a stage. The models are also simplified in a three-phased approach, such as setting research questions (qualitative or quantitative), collecting the required form of data (quantitative/qualitative) and analysing the data (quantitative or qualitative techniques) to derive the results.

The six designs captured in Figure 5.3 are referred to as across-stage mixed-model designs, because the mixing takes place across the stages of the research process. There can also be within-stage mixed-model designs. For example, a within-stage mixed-model design would be the use of a questionnaire that includes a summated rating scale (quantitative data collection) and one or more open-ended questions (qualitative data collection).

In conclusion, it is important to note that researchers can create complex and user-specific models of mixed research designs to suit various studies. Johnson and Onwuegbuzie (2004) suggest that researchers may decide to create other models from those explained in Figure 5.3 in such a way that the stages can be extended. Similarly, a single study can combine both the features of mixed-model and mixed-method designs. Again, the mixed-method researcher must be creative and not limited by designs which strictly follow either qualitative or quantitative approaches. This characteristic of the mixed-method research is in sharp contrast to the purists of quantitative and qualitative assumptions about research which is rigid and non-flexible.

In this thesis, the researcher develops a mixed-model based on a phased approach to the research because it is believed that such design effectively answers the research questions. The mixing occurs across stages. The research questions are qualitative, the data is collected as qualitative, but during the analysis transformed (quantised from qualitative using NVivo 10 software) from qualitative to quantitative. The results of the analysis are used to develop new products for the market in order to diffuse the meanings of the symbols. See Figure 5.4 for a pictorial view of the mixed-model for the thesis. As stated and shown in Figure 5.4, the qualitative data has been transformed into quantitative data for analysis. This has been done to determine the needs of consumers so as to enhance product development for the market in order to achieve adoption and diffusion of the meanings of the symbols.

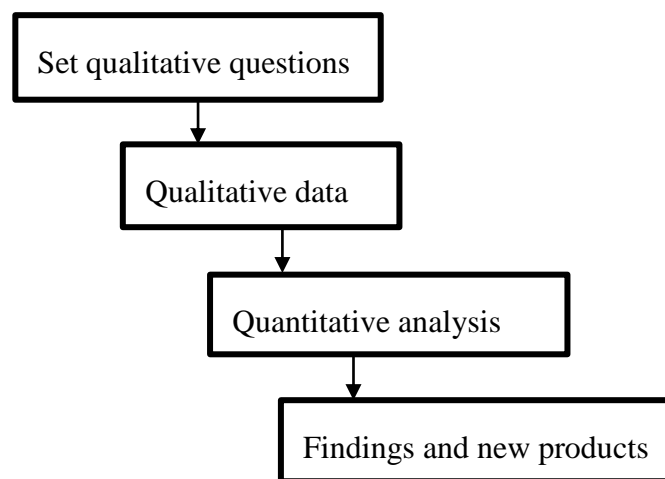


Figure 5.4: Mixed model design for the thesis

Source: By researcher (2015)

5.5 Research process

A research process is not only about getting answers to research questions (O’Leary, 2014). The research process involves a series of activities starting from conceiving a doable research project idea to the release of the research results. The choice of research process is highly dependent on the aims and objectives, and the goals of analysis for that particular

research project. Figure 5.5 shows the research process for the thesis. Based on its aims and objectives, qualitative research questions have been developed. This set of questions has been administered to respondents through semi-structured interviews for the collection of qualitative data. The data has been grouped under specific themes and a mixed-model design approach applied in quantising the responses into numbers and percentages for the findings. Converting the findings into percentages has made it easier and more straightforward to identify sequentially what issues are most prevalent from the respondents. Those findings with higher percentages have been placed on a priority list and tackled in the development of the thesis. Through these findings, documentation of the Adinkra symbols has become necessary and led to the selection of ten specific symbols as designs for the new products. Furthermore, identification, adoption and utilisation of current technologies of the clothing and textile industry have become possible. Finally, innovative new Adinkra symbolic products are exhibited.

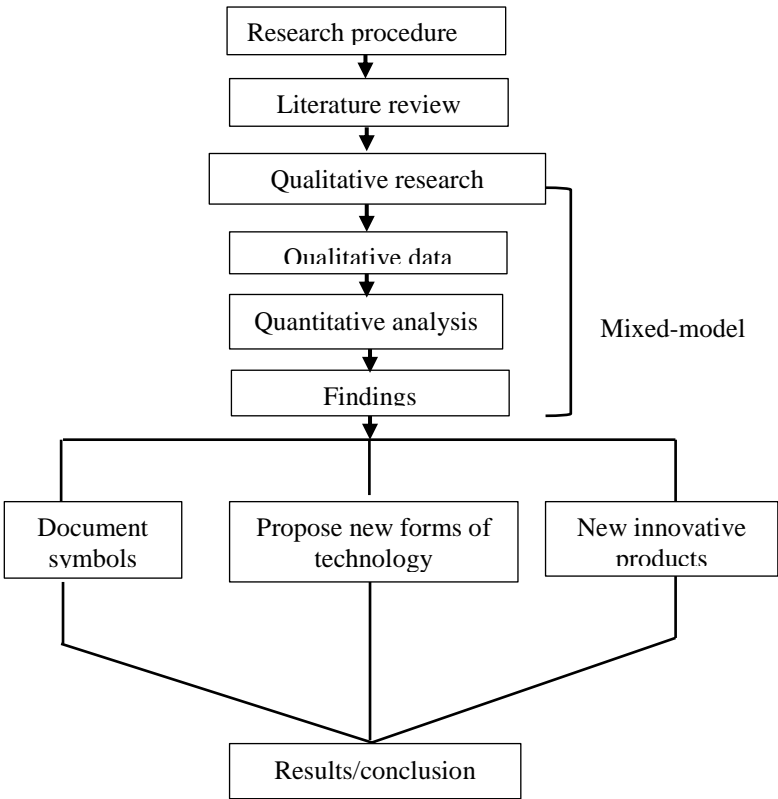


Figure 5.5: Research process for the thesis

5.6 Data collection strategy

According to Tashakkori and Teddlie (2010), the research questions determine the specific methods of data collection (quantitative, qualitative or both) used within a study. The importance of research questions in a study has also been examined by other researchers including Balkin (2010) , Bergman (2008) and Leech and Onwuegbuzie (2010). In view of this, researchers normally examine their research questions before deciding on the appropriate methodology and the required data.

There are three main types of data that may be collected by researchers in a single study: quantitative, qualitative and sometimes both datasets. In general, qualitative research includes broad, open-ended questions that answer the ‘how’ and ‘what’ about a particular phenomenon under study. It is a design that shapes the research as data is collected. There is generally no restriction as to the information to collect but it may lead to several areas of consideration. However, quantitative data types are restricted to a certain direction because of the use of variables and determination of causal relationships. Mixed-methods research operates in a continuum and sits between the two major strands of quantitative and qualitative, and generally addresses both facets of the research strategy enquiry: qualitative and quantitative (Creswell, 2013; Sheperis et al., 2011).

5.7 Population

The population of a research simply refers to the total potential participants who possess relevant knowledge on the research problem under investigation. In view of this, the population of this thesis comprised all the stakeholders identified within the clothing and textile industry of Ghana. This included the Adinkra textile cottage industry, trade associations, users of the products, designer schools, dye suppliers, government agencies,

and textile printing companies. It is out of these groups that individuals have been selected (sampled) to participate in the study.

5.7.1 Sampling techniques

Sampling is the process of selecting elements of a population to be included in a research study (O’Leary, 2014). Choosing a study sample is an essential stage in any research project because it is impossible to study the whole population (Marshall, 1996). Research can be manageable through the use of a sample that represents the entire population. O’Leary (2014) stresses that sampling can serve as a window for exploring an unwieldy population. The aim, research question, population and modes of analysis of the study determine the appropriate sampling process to choose (Higginbottom, 2004; O’Leary, 2014).

There are two main categories of sampling techniques: random and non-random sampling. Random sampling has been identified as the most frequently used approach. According to Marshall (1996) and O’Leary (2014), the nature of the population is defined in random sampling and all members have an equal chance of selection. O’Leary (2014) documents four types of random sampling. These are simple random sampling, systematic sampling, stratified sampling and cluster sampling. In simple random sampling, all elements have an equal chance of inclusion and are randomly selected from a list. A weakness of this technique is that not enough elements may be captured in particular groups of interest of the research. Systematic sampling involves the selection of every particular number within a defined population. An example of systematic sampling is the selection of every fourth student on a register of a class. This has the negative effect of neglecting some important interests in the population. Stratified sampling divides the population into various subgroups and selects at random from within each group. Systematic as well as simple random sampling can be used in conjunction with stratified sampling. Stratified sampling has the

advantage of ensuring that all interests in a population are selected. The last type of sampling is the cluster, whereby the survey is administered within whole clusters of the population. For example, clusters can include regions, schools and clinics. Cluster sampling often comprises multiple stages and uses a different sampling strategy for each stage.

Non-random sampling, on the other hand, can be categorised into three main types: hand-picked or purposive sampling, snowball sampling and volunteer sampling. In purposive sampling, the selection of the sample is made with a specific purpose in mind. Particular criteria from the researcher reflect on the representation of the participants. For example, key stakeholders in the clothing and textile supply chain could include managers and their expertise in the field. Learning can be enhanced through purposive sampling by exploring the boundaries of a phenomenon or situation. In snowball sampling, a sample is built through referrals. One identified respondent can link the researcher to other people who meet the study criteria. This can go on to form a chain of samples. In volunteer sampling, researchers ask for volunteers through advertisement as well as word of mouth.

In this thesis, the population of the study comprises all the people involved in the clothing and textile industry of Ghana. Four regions have been selected based on their high involvement in the industry. Further, two sampling strategies, purposive and stratified sampling, have been selected and combined to achieve the purpose of the study. Stratified sampling has been used to categorise the different respondents into 10 respective groups based on their functions and roles in the industry: Adinkra textile cottage industry, clothing industries, design institutions, dye suppliers, fabric suppliers, government support agencies, textile manufacturing companies, trade associations and users of the Adinkra textile and products. Subsequently, purposive sampling strategy has been used to select participants to represent these various groups within the industry. Purposive sampling has been chosen because there was a need to select those who could give relevant information based on their

level of experience, expertise and involvement in the industry in general. For details of the categorisation and the participants, see Table 5.3.

5.7.1.1 Sample size

The sample size chosen for this research comprised 35 participants who represented various entities operating within the textiles and clothing industry of Ghana. In research that adopts the qualitative approach, the number of participants does not play a significant role in the determination of results and validity because this research relies on powerful text and rich meaning from few participants rather than numbers to make justifications (O’Leary, 2014). In view of this, the 35 participants were sufficient to make meaning from the data analysed. The selection of participants was not guided by a specific number but an open approach to reaching as many participants in the population as possible. Each group of participants was limited to a particular number on reaching the saturation point during the interview. As a result, the number of participants from different groups also differed markedly depending on the point of saturation of information received from the interviews.

Table 5.3: Stakeholder types and number included in the sample

Stakeholder group	Number in sample
Adinkra textile cottage industry	5
Clothing industries	4
Design institutions	3
Dye suppliers	3
Fabric suppliers	2
Government support agencies	3
Retail companies	3
Textile printing companies	4
Trade associations	2
Users of Adinkra cloth	6
Total	35

Table 5.3 shows a breakdown of the company, institutional and individual participants. These were: 5 from the Adinkra textile cottage industry, 4 clothing industries, 3 design institutions, 3 dye suppliers, 2 fabric suppliers, 3 government support agencies, 3 retail companies, 4 textiles printing companies, 2 trade associations and 6 users of Adinkra cloth.

5.7.1.2 Sample characteristics

The research sample has been chosen from the stakeholders that constitute the supply chain of the clothing and textile industry in Ghana (Table 5.3). The characteristics of the research sample have been individually discussed.

1. Adinkra textile cottage industry (Adinkra artisans)

The Adinkra textile artisans are the focal point of the clothing and textile supply chain for the study. Artisans have been printing Adinkra cloth through traditional methods for centuries and the artisan participants were conversant with the names and meanings of the symbols. Five artisans agreed to participate in this research.

2. Clothing industries

The clothing industries (CI) are companies that produce high volumes of fashion items and clothing. All these companies are owned and managed by individuals or small groups of people. They design clothes, source fabrics, produce patterns and construct clothes for their various targeted markets.

CI 1 specialises in bespoke men's clothing. It makes use of foreign suiting fabrics as well as local materials. CI 1 sells its products in both local and international markets. The interviewee at CI 1 was a procurement manager who orders fabrics and sewing accessories for the company.

CI 2 manufactures high-quality sportswear, including team jersey, hosiery and lanyards. CI 2 embeds various logos, writing and symbols on its products. The interviewee at CI 2 was a fashion designer and supervisor for the design section.

CI 3 is a medium-sized company that designs clothing and accessories. It uses digitally printed fabrics to produce T-shirts, handkerchiefs, scarfs, ties and other accessories. The interviewee at CI 3 was a technical manager for design and printing.

CI 4 produces a wide range of clothing products from underwear to outer clothing. It works in collaboration with other retailers and manufacturers, producing both contemporary and classic garment styles. The interviewee at CI 4 was the managing director of the company.

3. Design institutions

Three stakeholders were selected in this group of design institutions (DI) to participate in the interviews. All of the three were from tertiary institutions in the country.

DI 1 is one of the premier higher institutions and has a reputation as a leading textile design institute. It has a whole college within the institution that deals with textile design and production. The interviewee at DI 1 was a senior research fellow who was well-experienced in textile design and printing.

DI 2 is a school of design and technology also part of a large university like DI 1. The focus of DI 2 is more on fashion design than textiles. The interviewee at DI 2 was the head of the fashion and textiles design department.

DI 3 is a clothing and textile design academy. It claims to perform fashion shows and exhibitions every year to the public on the products produced by the graduates.

The interviewee at DI 3 was a lecturer who claimed to have worked with the clothing industry for 15 years.

4. Dye Suppliers

The dye suppliers (DS) selected for the interviews were three in number and none manufactured dyes. All their dyes were manufactured and supplied from outside the country.

DS 1 generally supplies different types of dye to the large textile printing companies. DS 1 does not manufacture the dyes but orders them from abroad, specifically China and India, and distributes them to the textile companies. The interviewee at DS 1 was the managing director, who specialised in dye chemistry.

DS 2 supplies dyes to individuals and groups of people. DS 2 generally purchases primary and neutral coloured dyes and mixes them to obtain a variety of dye colours. The interviewee at DS 2 was a salesperson and technician responsible for mixing of dyes.

DS 3 purchases dyes from neighbouring countries and retails them to small textile companies, design institutions and individuals. The interviewee at DS 3 was the manager of the enterprise.

5. Fabric Suppliers

The fabric suppliers (FS) chosen for this study were two companies that supply high volumes of fashion fabrics for different clothing purposes.

FS 1 is a textile manufacturing company that manufactures different types of textiles. FS 1 produces plain fabrics for printing within the company and supplies the rest to other small textile printing companies. The interviewee at FS 1 was the sales manager and chairman of the design and printers' association.

FS 2 orders high-quality of assorted fabrics from overseas, specifically India, Hong Kong and Bangladesh. FS 2 supplies fabrics to both large and small textile printing companies, as well as retailing to individuals and groups. The interviewee of FS 2 was a technical director who specialised in textile chemistry and colours.

6. Government support agencies

Three stakeholders were chosen from government support agencies (GSA) to participate in the interviews. The mission and focus among these groups are, for example, to advise, assist, protect, enforce rules and enhance networking among the various stakeholders. The interviewee at GSA 1 was a public relations officer, at GSA 2 was a regional manager, and the last interviewee for the group at GSA 3 was a planning and assessment officer.

7. Retail companies

Three retail companies (RC) who deal with various fashion and textile products and their marketing processes participated in the interview.

RC 1 retails in home products and clothes services. It has 15 stores 6 regions across the country. The interviewee at RC 1 was the sales manager in one of the stores and claimed to be well-versed in textile designs and garment styles.

RC 2 retails in a wide range of textile fabrics, particularly locally made cotton cloth mainly used for traditional dress. The interviewee at RC 2 was the executive director of the company.

RC 3 specialises in children's wear, men's wear and women's wear. It also merchandises in all kinds of fabrics including printed, woven, embroidered and knitted. The interviewee at RC 3 was the marketing manager of the company who claimed to have extensive knowledge of modern fabric construction with different innovations.

8. Textile printing companies

The textile printing companies (TPC) are companies that produce high volumes of printed clothing and other textile products. This group comprised large and medium companies whose overall volumes of production are regarded as high in their market.

TPC 1 produces textile products including uniform fabrics, shirting materials, dress fabrics and soft furnishings for the public. TPC 1 incorporates traditional ideas and designs into its production. The interviewee at TPC 1 was a sales director who also had in-depth knowledge of cultural designs.

TPC 2 claimed to be the oldest textile printing company in the country and began operation a few years after Ghana's independence. TPC 2 is currently owned by different groups and bodies, and prides itself on producing the best-quality textiles with contemporary designs. The interviewee at TPC 2 was a design and information technology (IT) manager.

TPC 3 was established over forty years ago. It is a textile weaving, bleaching, mercerising, dyeing and printing company. TPC 3 produces both dyed and printed fabrics for various end-uses, particularly shirting and home furnishings. The interviewee at TPC 3 was a technical manager who specialised in printing and weaving.

TPC 4 specialises in clothing and decorative items, and has skilful craftsmen and technicians in different areas in the fashion and clothing field. TPI 4 generally produces for niche markets and involves customers in both design and production stages. The interviewee from TPC 4 was a production manager of quality control department.

9. Trade Associations

Two stakeholders were selected from trade associations (TA) to participate in the interviews. TA 1 is an association for textile manufacturers with a focus on enhancing textile manufacturing activities and the welfare of the workers. The interviewee at TA 1 was the president of the association. TA 2 is also a union for clothing manufacturers. TA 2 seeks among other objectives to promote the clothing business by highlighting the use of 'made in Ghana' clothing. The interviewee at TA 2 was the deputy president of the trade association.

10. Users

The users or (consumers) chosen for this study were all Ghanaian citizens. A total of six participants were selected, three royals and the other three 3 ordinary people. The selection of the three royals was based on the fact that Adinkra symbols are said to have originated from the royal home. The other three citizens represent a neutral background so that their views can be compared with those of the royals. A large sample size was chosen as compared to the rest of the stakeholder groups because the users have the purchasing power to buy both textile fabrics and clothing products.

5.8 Data collection technique

The sources of information that can be used in research are several and of different forms. According to Lethbridge et al. (2005), techniques for data collection can be grouped into three main sections. First is direct contact with the subjects and collection of data in real time. Examples of this are interviews, focus groups and Delphi surveys (a structured communication technique that relies on a panel of experts who answer questionnaires in two or more rounds to reach a consensus). The next are the indirect methods, where the

researcher directly collects raw data without interacting with the subjects during the data collection. The last is the independent analysis of artefacts and archives. In view of this, data collection techniques can be take the form of interviews, surveys, observations, archival analysis, focus groups or document review. In this thesis, the main technique for data collection is interviews.

5.8.1 Interviews

Data collection through interviews is important because the researcher asks a series of questions to a set of subjects on the areas of interest (Runeson & Höst, 2009). Interviews are usually conducted individually with every single subject, although it is possible to conduct group interviews. A set of questions is used to guide the researcher and subject/s during the interviews. Interview questions are constructed from the research topic and can be open to invite a wide range of answers from the interviewees. The questions can also be closed in order to restrict alternative answers. According to Robson (2002), interviews can be divided into unstructured, semi-structured and fully structured types. General concerns and the researcher's interest are expressed in unstructured interview questions. In fully structured interviews, all questions are planned in advance and are asked in the same order, similar to a questionnaire-based survey. In semi-structured interviews, questions are planned but they can be asked randomly or out of order. The answers from the subject can determine which question is asked next to ensure smooth conversation. Here the researcher makes sure that all questions have been administered.

The data collection technique used for this thesis was semi-structured interviews to assess the knowledge and understanding of the meanings of Adinkra symbols by Ghanaians, to gather in-depth information on the uses of Adinkra cloth and to identify the current situation of the Adinkra textile cottage industry and the market. This approach to data collection was

the choice because it provides first-hand information via a reporting method and explains issues that contribute to deeper understanding (Nixon & Blakley, 2012; Osuala, 2001).

The semi-structured interviews were conducted in the workplaces and residences of the participants. Each session lasted from fifty minutes to one and a half hours. In each interview, the researcher sought to elicit knowledge of Ghanaian culture, Adinkra symbols and their meanings, and grounded discussions of consumption, from which the researcher could interpret patterns of consumer practice and envisage subsequent trends in development and consumption. Through the interviews, the views of the participants were used to generate the qualitative data needed for analysis. The use of semi-structured interviews allowed the researcher to gain deeper insight into specific issues and ensured that the elicitation of views from participants took the form of conversation. This enabled participants to freely give information in detail to aid in deeper analysis of the study.

A total of 25 questions were used to guide the interviews, consisting of both open and closed questions. The last question is general of the thesis topic (see Appendix B for interview questions). Runeson and Höst (2009) affirm that a semi-structured interview guide is best constructed with a mix of open and closed questions. The interview questions were based on the research questions set in Chapter 1.

5.9 Data analysis techniques

As already indicated, the main data for the study is in a qualitative format. However, the analysis of the data adopts a quantitative technique. This has been achieved by transforming the qualitative data into quantitative data using NVivo 10 software. After the quantisation, the quantitative data has been analysed using simple descriptive statistics including percentages. These percentages have been used to determine the magnitude of particular problems existing in the industry and its impact on the work of the stakeholders in general.

In particular, the problems relating to Adinkra cloth were examined in detail in order to determine the type of solutions that need to be developed for the industry. The analysis was also used to form general opinions about the current tastes and preferences of modern consumers, in order to determine ways of adopting some of the symbols for use as designs for modern fashion and clothing products to meet the needs of the market. In meeting the needs of the market could lead to the spread of the symbols and their related meanings.

5.9.1 New product development

The final section of the thesis presents examples of the application of Adinkra symbols as designs for textile prints and garments, as well as fashion accessories that meet the needs of modern consumers in the Ghanaian market. This new product development has adopted the approach of correlating the meaning of the symbol and that of the activity clothing in order to make it appear familiar within the Ghanaian market, because most fashion and clothing products are purchased based on their names. The textiles and clothing construction laboratories in the Brunswick campus of RMIT University have been used for the production of these clothing. Four modern technologies, 3D knitting, 3D printing, Jacquard weaving and Digital printing have been identified and utilised in the development of the new products. The compilation and documentation of the final collection have been produced with the aid of photographs into a catalogue, illustrated in Chapter 9 of this thesis.

5.10 Research sites

The republic of Ghana is made up of ten different regions. Four regions have been selected for this research: Ashanti, Eastern, Volta and Greater Accra. The reasons for selecting these four regions were that the Ashanti region is the home of Adinkra symbols/cloth and Adinkra artisans, and is where Adinkra cloth is mostly patronised for funerals; there are two large textile printing industries situated in the Eastern and Volta regions; and capital city of

Ghana, Accra, is located in the Great Accra region, where most clothing and textile industries are found (see map, Figure 5.6). The total duration of the fieldwork was a maximum of four months.

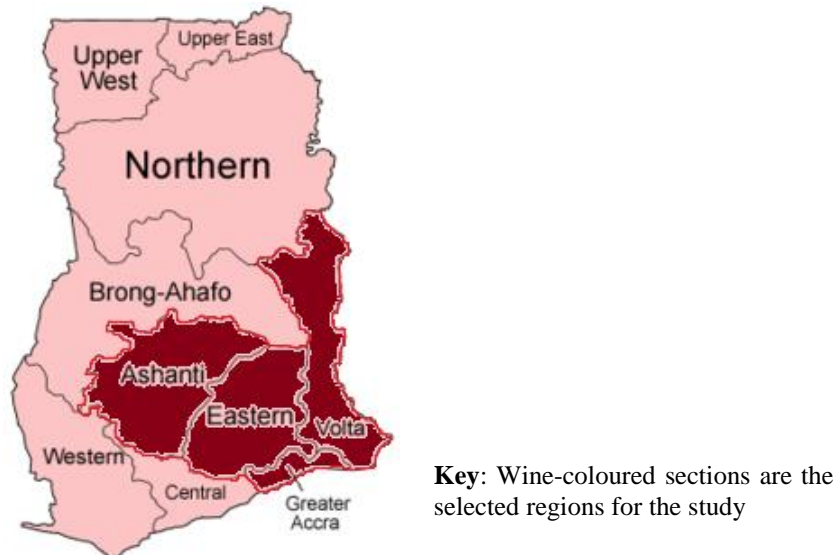


Figure 5.6: Ghana map showing the selected regions for fieldwork

Source: Adapted from www.en.wikipedia.org/wiki/Ghana

5.11 Summary

In relation to the research questions of the thesis, it has been argued that these questions are qualitative in nature. However, because the emphasis is on examining the existing situation and problems pertaining to the Adinkra textile cottage industry by way of measuring the magnitude of the problems, it has been deemed appropriate to use a quantitative approach to analysing the data. As a result, it has been argued that the thesis focuses on the practicality of issues, rather than on stringent methodologies. In view of this, the research paradigm adopted for this thesis is the pragmatist paradigm.

In line with the pragmatist paradigm, a mixed-models approach has been selected whereby qualitative data was collected through semi-structured interviews and analysed using simple

statistical analysis, such as percentages and bar graphs. In collecting the data, a sample size of 35 participants were selected out of the population through the use of both purposive and stratified sampling techniques. The sample size was deemed sufficient because individual participants for specific groups were freely allowed to give answers until saturation point was reached.

In analysing the data, the data reduction software NVivo 10 was used to transform the qualitative data into quantitative data for simple statistical description and analysis of the findings. The quantitative analysis of the data had the advantage of aiding in the determination of the magnitude of the problem. In effect, the methods selected for the thesis are highly relevant in the fulfilment of its objectives of the thesis.

Chapter 6 Data presentation, results and discussion

6.1 Introduction

It has been suggested that the Adinkra symbols could be adopted as designs for the production of modern fashion products with meanings that are culturally based in order to penetrate a culturally sensitive market like the Ghanaian market (Chapter 1). This suggestion is premised on the fact that the Adinkra symbols have so far been limited to the design and production of occasional Adinkra cloth. Adopting the symbols as designs for the production of modern fashion products and accessories warrants the evaluation of the needs of the consumers in the potential market. These products could enhance the spread of the meanings of the symbols, as the products are to be varied for different activities and occasions.

In view of this, it is essential to perform a situational analysis to determine the true state of the Adinkra symbols, symbolic cloth and symbolic culture in Ghanaian society. Within the situational analysis, the symbols that can be adopted and used for the production of modern fashion products are examined from the perspectives of stakeholders. This means that the needs of potential consumers have been assessed in order to design and produce products to meet the needs of the market. Through interviews held with stakeholders in the clothing and textile industry of Ghana, the state of affairs in the clothing and textile industry has been determined (interview question form is attached in Appendix B).

This discussion section presents of the findings from the analysis of the data collected from the field study. The discussion is grouped under the respective headings that were used for the interview questions, based on the factors identified as problems facing the industry, as a thematic form of analysis. Due to the semi-structured approach of the interviews, other

factors have emerged and are also discussed in this chapter based on the information received from the participants. The results provide insights into the true state of problems in the Adinkra textile cloth sub-sector and how they can be addressed. Information on products that could be designed for the market using the Adinkra traditional symbols is also part of the results from the interviews based on responses received.

6.2 Key themes of the study

The research sample was chosen from stakeholders that constitute the supply chain of the clothing and textile industry in Ghana (Table 5.3). The unit of analysis for this study is the key stakeholders, which include Adinkra textile cottage industry, clothing industries, design institutions, textile printing companies, government support agencies, fabric suppliers and trade associations. The characteristics of the research sample have been individually discussed in Chapter 5 section 5.7.1.2. These stakeholders have been interviewed based on the themes of the study.

Five themes used for the construction of an instrument for the interviews and these themes have been used as the headings for the results. These themes are based on the factors identified in the literature review as the five main facilitating factors that can aid in the diffusion of innovation (for Adinkra symbolic products). It is important to note that the absence of these factors can greatly hinder the diffusion of potential products, thereby stifling the spread of the meanings of the symbols. These themes are: knowledge of Adinkra symbols/cloth, relationships among stakeholders, absorptive capacity in selected industries, views on clothing and textile technologies and consumer culture prevailing in the Ghanaian clothing and textile market.

A six-model chart has been constructed with the diffusion strategy at the centre connecting all the five themes, while the themes link to each other in a cyclical manner (see Figure 6.1).

The flow of knowledge and the relationships between stakeholders are recognised as essential aspects of this network interaction. Knowledge of a specific group of people and their culture, including cultural materials and their meanings to stakeholders' can promote competitive advantage.

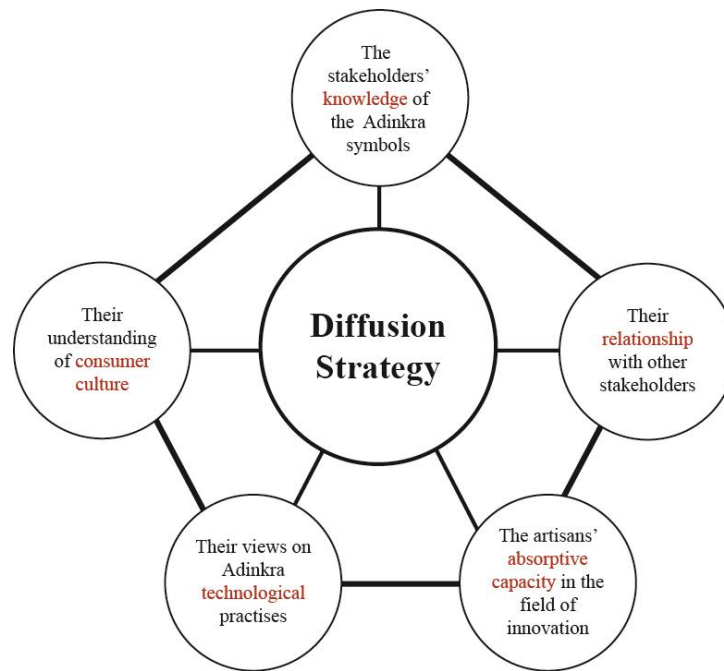


Figure 6.1: Model for diffusion strategy

This achievement can be made possible through positive relationships among the members of the stakeholder groups. The views of stakeholders on technology can vary greatly dependent on their individual products and processes, and hence their views on technology characteristics can differ accordingly. The absorptive capacity for innovation is also crucial for product manufacturers. Consumer culture, the acceptance of a product by consumers, dictates how a product should be designed and manufactured. The input from the consumers has been identified as extremely important to the study. The acceptance and continuous usage of Adinkra symbolic textile fabrics and clothing by consumers are the main channels for the diffusion of the symbols and their related meanings.

In Table 6.1, the selected key themes for the study (the five facilitating factors) and the number of interview questions based on the themes are detailed. It can be seen that the views on technology take up a large proportion of the questions, because technology is constantly changing to meet the changing needs of society. As a result, the questions have sought to elicit information on the existing technologies and the potential for adoption of new forms of technology.

Table 6.1: Selected key areas for the research framework

Areas	No of interview questions
Knowledge of Adinkra symbols/cloth	5
Relationships among stakeholders	4
Absorptive capacity in selected industries	1
Views on clothing and textile technologies	9
Consumer culture	5
Total	24

6.3 Quantising the data

The data collected for this study was primarily qualitative and addresses the fundamental research question: What are the barriers to the diffusion of Adinkra symbols and their related meanings, and how can these barriers be overcome? A combination of 24 open-ended questions (see Table 6.1) was designed for the interviews, based on the five key areas, plus one last general question. The researcher initially reduced the data by finding key words and phrases across each participant's response to every question. As part of the quantisation process, data reduction software (NVivo 10) was used. Rating scheme categories and guidelines were followed to aid in quantising the data. The reduced data was then converted to a scale (for example, high, medium and low). This aided in the calculation of figures and percentages according to the number of participants and how they responded to each question. The quantised data was then statistically interpreted and qualitatively

analysed in the following sections. The aims and focuses of the ten groups from the key stakeholders of the clothing and textile industry have been identified as variants. These aims generally shape the roles and functions within the larger clothing and textile industry. Therefore, the ten key stakeholder groups have been further sub-divided into four categories according to their roles. These categories are: market participants, technology users, materials suppliers and regulators (see Figure 6.2). In Figure 6.2, it can be seen that the market participants comprise retail companies and users, because they are primarily focused on market activities. Secondly, the technology users are dye suppliers, fabric suppliers, design institutions and Adinkra textile cottage industry; these stakeholders focus on the use of technology for their activities within the supply chain of the textile industry. Material suppliers are dye suppliers and textile printing companies, due to their role in supplying the needed raw materials for the production of Adinkra cloths.

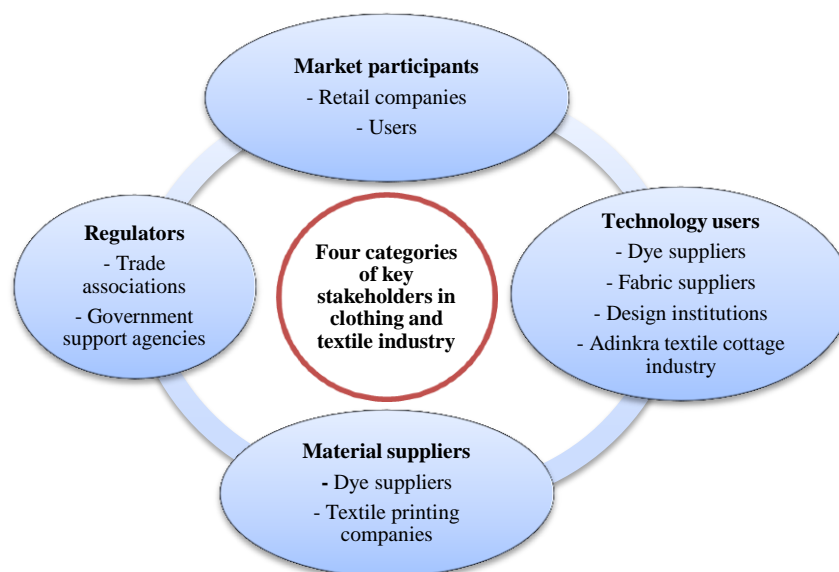


Figure 6.2: Four categories of key stakeholders

The last category is the regulators, which comprise trade associations and government support agencies, because they serve as checks on the activities of the other participants

within the clothing and textile industry. These four categories are used for the purpose of discussion of the data.

6.4 Results and discussion

In this section, data analysis of similarities and differences in stakeholders' categories are presented and discussed. These discussions provide insight into the prioritised needs of the industry that require immediate attention. The results are shown in bar charts. The bar charts have been plotted based on the aggregate responses from the four stakeholders' categories on each of the study themes.

6.4.1 Knowledge of names of the symbols

In evaluating the level of knowledge of the stakeholders within the supply chain regarding the symbols, the author first focused on the views of the participants by asking questions about the names of the symbols. From the data, technology users had the highest knowledge of the names of the Adinkra symbols among the four groups: 8 participants out of 16, representing 50%, had full knowledge of the names of the symbols. The presence of artisans (from Adinkra textile cottage industry) in this category is responsible for the high level of knowledge on the names of the symbols of this group, as they often use the symbols in their production.

The market participants' category was also asked about their knowledge of the names of Adinkra symbols. From the data, all market participants had knowledge of the names of the symbols: 44% had full knowledge while 56% had average knowledge of the symbols. The market participants' category consists of retail companies and users who directly deal with the symbolic cloth and as a result have become familiar with a number of the names of the symbols. Within the users who were chosen for the study, the royal members, who are

deemed to be the original owners of the symbols, are also part of this category. It can therefore be inferred that the owners are expected to have knowledge of the names of the symbols. In general, it is noted that many stakeholders know the names of the Adinkra symbols (see Figure 6.3).

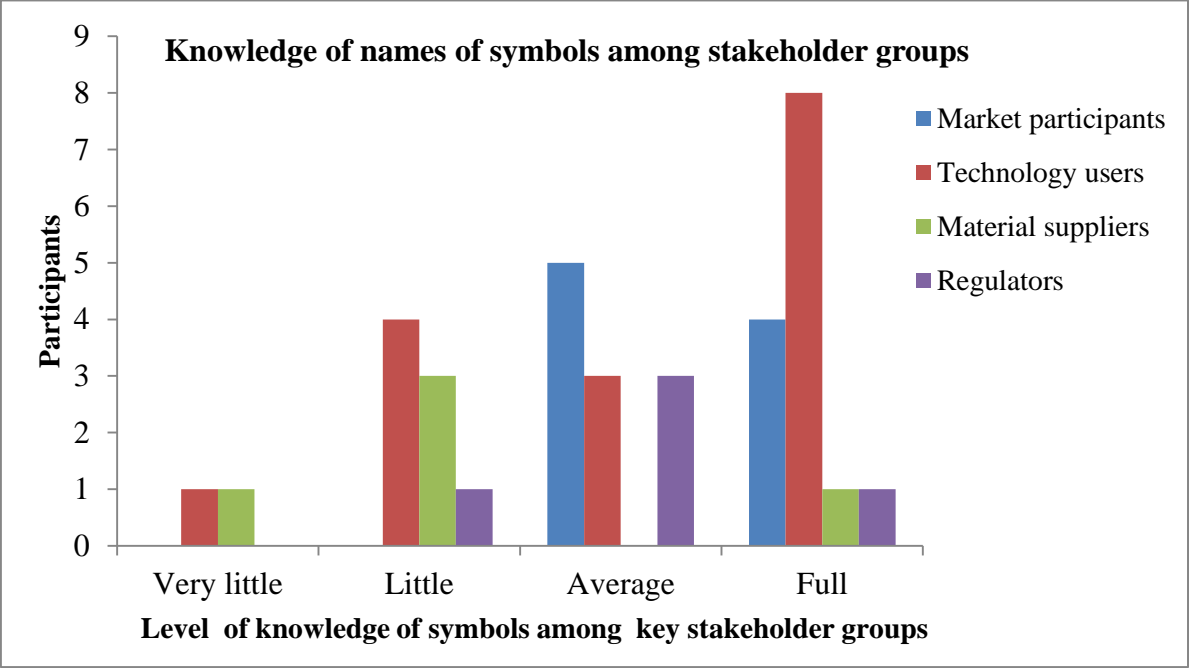


Figure 6.3: Knowledge of names of symbols among stakeholder groups

6.4.2 Knowledge of meanings of the symbols

From the data, the majority of participants had little knowledge of the meanings of the Adinkra symbols. This is evidenced by a majority of 17 stakeholders out of 35, representing approximately 50%, having a little knowledge on the meanings of the symbols. Eight participants out of 35, representing approximately 30%, had full knowledge of the meanings of the Adinkra symbols (see Figure 6.4). This finding is in sharp contrast to the knowledge of the names of the Adinkra symbols, where the majority of stakeholders had full knowledge. This confirms to the existing literature reporting that many Ghanaians do not have much knowledge of the Adinkra symbols (Delaquis, 2013; Williams, 2011). Generally,

symbols can be powerful and the power comes from their meanings and intended messages. If the power of symbols is based on their meanings, then this thesis is important especially in the area of developing a link between the meanings of the Adinkra symbols and activity clothing.

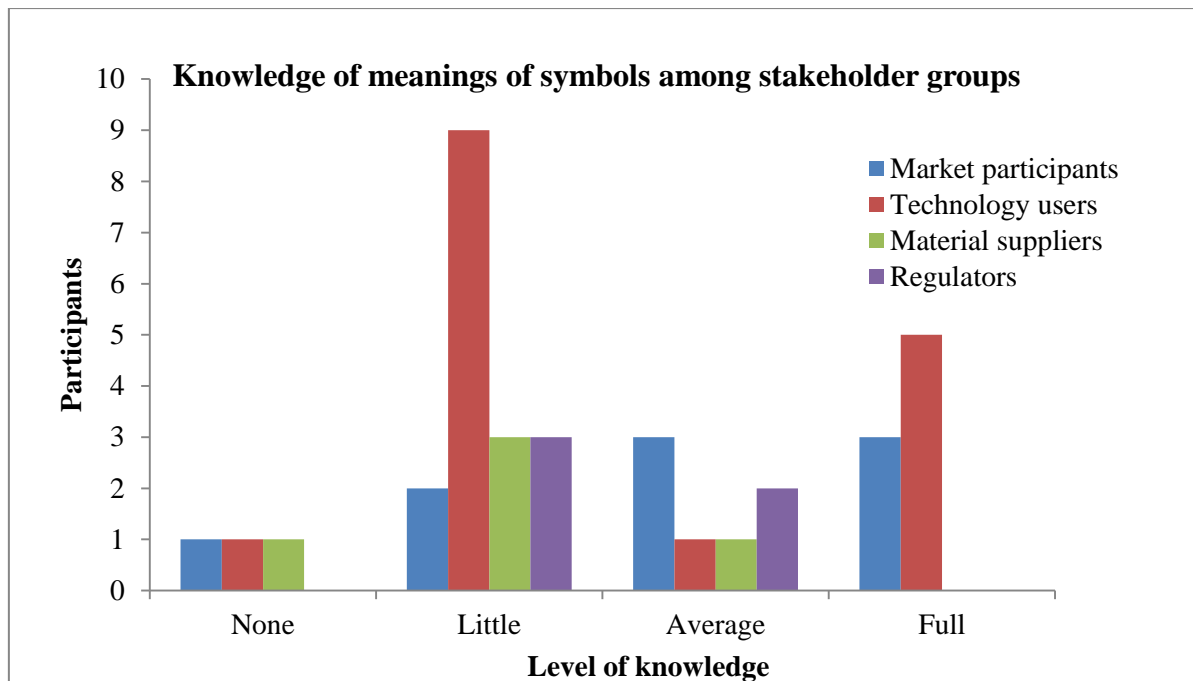


Figure 6.4: Knowledge of meanings of symbols among stakeholder groups

6.4.3 Choice of technology among stakeholder groups

The majority of the participants in the technology users' category, with a total number of 12 representing 75%, opted for modern technology and 4 participants representing 25%, preferred the existing technology used by the artisans (see Figure 6.5). The 25% of participants who opted for the existing technology were all artisans. One reason that can be attributed to this response from the artisans is that they may have been uncomfortable and afraid of losing their jobs if the Adinkra cloth production were to be taken into the modern technological textile industry. Similarly, 2 stakeholders from the market participants'

category who were retailers agreed with the artisans: they wanted a variation in textile products for their stock in order to meet the different tastes and preferences of individuals.

McOmber (2006) observes that new technologies forever replace old ones; what was once a new technology has been replaced and what is technological now will be displaced by future developments. Also, Ojiako and Aleke (2011) points out that enterprises and organisations that do not upgrade of technology as a form of innovation exist only temporarily. As already discussed, SMEs are hampered by several factors including lack of finance, lack of managerial skills, regulatory issues, access to international markets and equipment, and outdated technology (Aryeetey et al., 1994; Gockel & Akoena, 2002; Okpara, 2011). Moreover, they also suffer from the emergence of new technologies that render old technologies obsolete, cost-ineffective and inefficient in production processes (Zulkifli-Muhammad et al., 2009). This calls for technological advancement in the production of Adinkra symbolic textiles to meet modern trends in order to preserve the educational symbols from extinction. The effect as envisaged now could be an improvement in the production practices of Adinkra cloth, but the artisans risk losing their business to the large textile companies and other organisations that have the capacity to implement the new technology. It is therefore imperative for the artisans to restructure their business activities in order to meet the needs of modern technology.

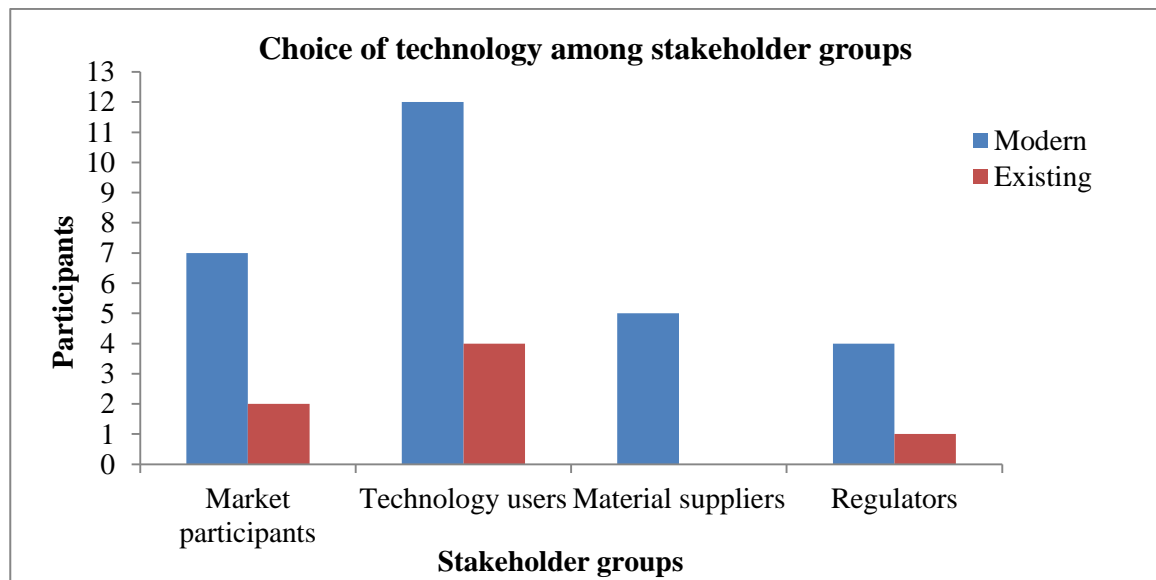


Figure 6.5: Choice of technology among stakeholder groups

6.4.4 Relationships among stakeholders

The relationships among the stakeholders are not encouraging. Analysis of the views of 20 participants, representing 57% of the 35 stakeholders (see Figure 6.6), reveals a lack of collaboration between individuals, as well as groups and organisations. Enterprises and organisations focus mainly on their own work in order to preserve their trade secrets, especially among the same group of competitors. Also, 12 of the stakeholders, representing 34%, consider their relationships with others as medium but not very strong. This is primarily because some stakeholders from different categories sourced their materials from others. In view of this, participants who agreed that there is some level of collaboration based their argument on the transactional relationships in the network. Only 3 participants representing approximately 9%, suggested a high level of collaboration. This view was shared by the regulators, because they normally visit the other stakeholders and as a result deem this collaboration.

Relationships within and outside enterprises, firms and organisations have been identified to be more beneficial than harmful. Hendriks (1999) and Ritala et al. (2015) indicate that

relationships and motivation among workers from different organisations, to share knowledge of innovation can be critical because of linking of essential information that can cause loss. On the contrary, sharing of knowledge and resources can enhance profitability for organisations. Tsai (2000) and Ritala et al. (2015) stress that the existence of relationships within and outside organisations facilitates the creation of new knowledge that can enhance the market value of products. Based on the non-existence of strong stakeholder collaboration in the Ghanaian clothing and textile industry, there is a negative effect on productivity because of challenges with the supply of raw materials and delivery of finished products to the market.

The supply chain is essential for the distribution of products to reach the final consumer and a way of receiving feedback from clients and users of a product. In this vein, Acquah and Oduro (2012) highlight the supply chain as a platform for collaboration in determining productive activities among all members of SMEs. The levels of existing supply chain or communication strategies within and across industries determine their products and services, improvement in production, economic prosperity and development of new business platforms (Hitt et al., 2012; Tsai, 2001).

At an aggregate level from the data collection, it is also determined that there is a lack of collaboration among the key stakeholders in the clothing and textile industry. These stakeholders should collaborate and deliver products that satisfy the needs of consumers. In practice, however, they operate in a disjointed manner and the artisans produce textile cloths based on their intuition without any rigorous marketing research about how to satisfy the needs of clients. Nor are the other stakeholders who could serve as sources of valuable information contacted in the production of the cloth. This hampers the marketing activities of the artisans, leading to a lack of patronage for the final products. This lack of an effective supply chain is evident in the data that 20 participants, representing 57% suggested a low

level of collaboration among the stakeholders; 12 participants, representing 34%, proposed a medium level of collaboration; whereas the remaining insignificant number of 3 participants, denoting approximately 9%, reported a high level of collaboration. Clearly, this demonstrates a lack of collaboration among artisans and other stakeholders. Even though these stakeholders exist, knowledge sharing is weak among them; hence, consumer needs are not assessed before production.

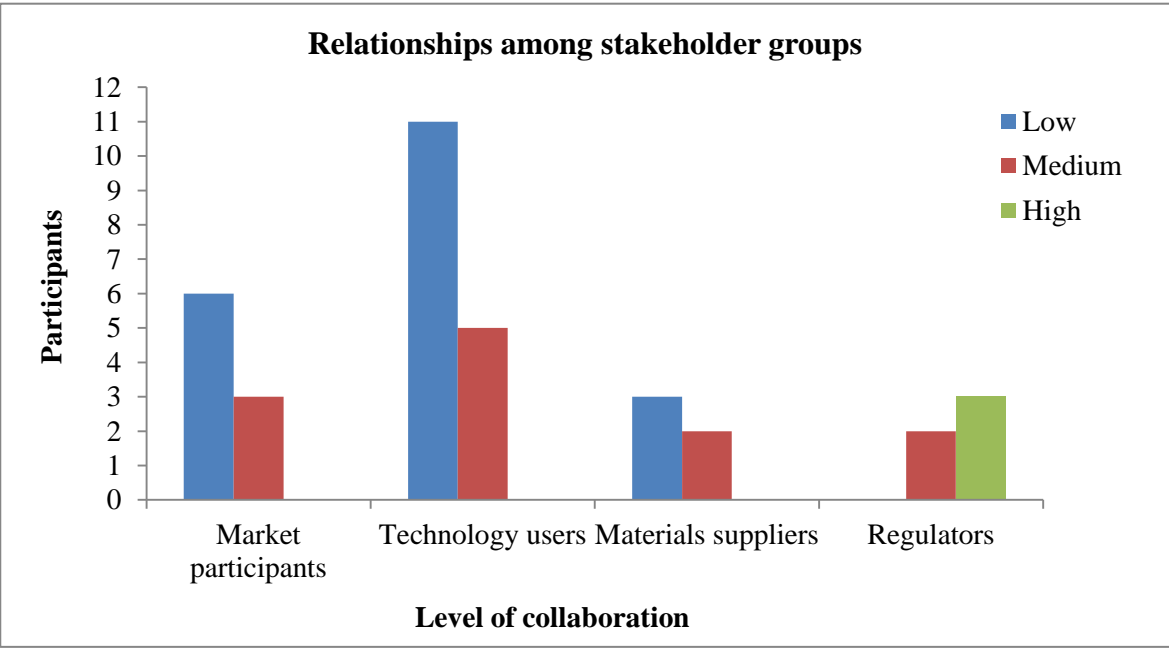


Figure 6.6: Relationships among stakeholder groups

6.4.5 Absorptive Capacity of Artisans

In relation to the absorptive capacity of artisans, the thesis focuses on examining the human resource base of the artisans in terms of their capacity to absorb new forms of knowledge through the application of technology. Secondly, the investigation of absorptive capacity has also examined the existing physical infrastructure, particularly at the operational sites of the artisans, to determine their capacity to use specialised tools and equipment for their work. Results from the data analysis show that 28 stakeholders, representing 80%, agreed that

artisans have low absorptive capacity (see Figure 6.7) in terms of both their capacity and the physical infrastructure. This is supported by Dalitso and Quartey (2000) who observed that the employees of SMEs which include the Adinkra textile sub-sector may be family members who work under trees and kiosks. These working environments are not fit for modern machinery for the industry. Also, the lack of modern technological skills and the level of formal education of the SMEs are setbacks for their developments (Okpara, 2011). As a result, it is challenging to propose a new form of technology for such a working environment.

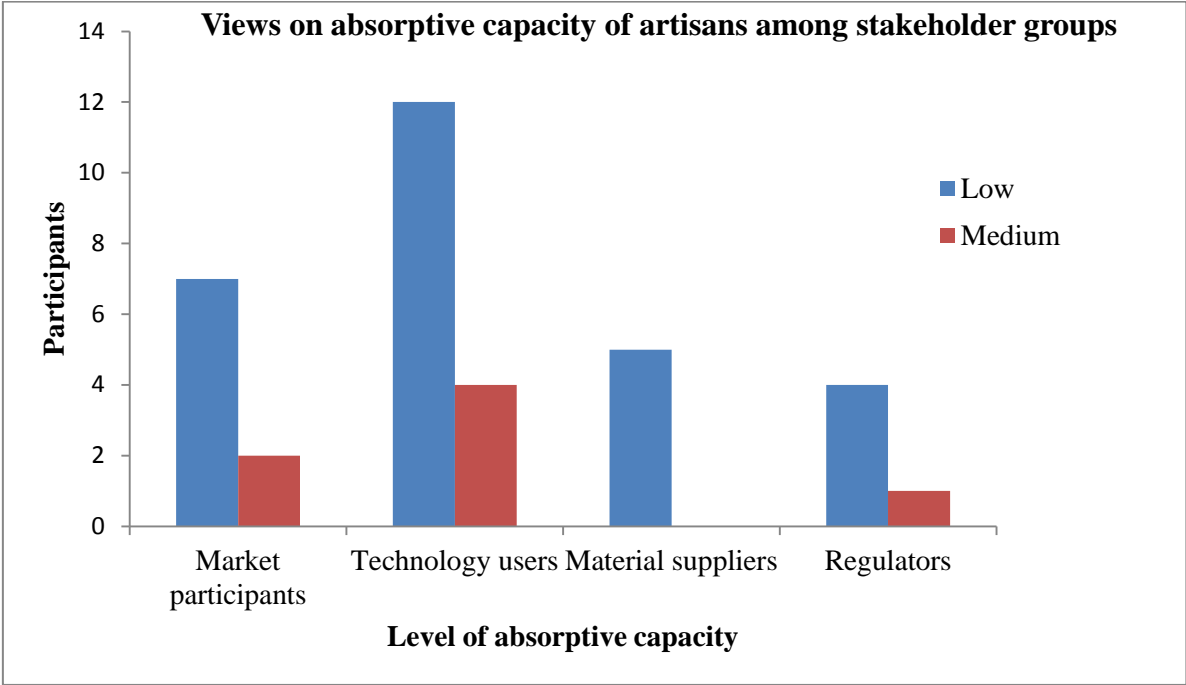


Figure 6.7: Views on absorptive capacity of artisans among stakeholder groups

6.4.6 Consumer requirements

Due to lack of patronage for the existing Adinkra cloth, this study has solicited views from participants on the requirements that are needed for the enhancement of the cloth. In view of this, the existing Adinkra cloth has been examined based on the user requirements; the types

of dyes and dye colours that are used for production and lastly the types of fibre or fabric used for the cloth. From the analysis of the data, 13 participants from the technology users' category, representing 81% of the participants in the category, expressed a low level of meeting consumer requirements in the current Adinkra cloth (see Figure 6.8). The remaining 19%, who had the view that a medium level of consumer requirements is being met in the current Adinkra cloth, were all artisans. This can be attributed to their fear of losing their jobs to other participants in the industry such as the large textile manufacturing companies. On an aggregate level, a total of 31 stakeholders, representing approximately 90%, agreed that current Adinkra cloth has limited consumer requirements and that these contribute to the decline in the usage of the cloth.

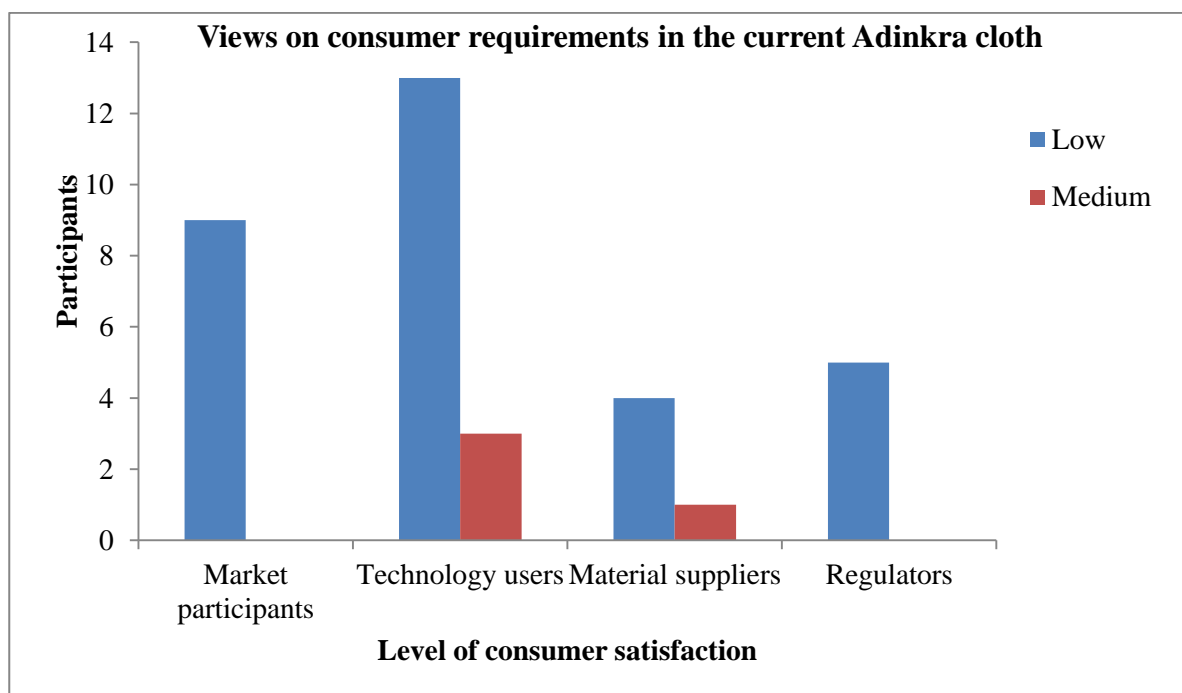


Figure 6.8: Views on consumer requirements in the current Adinkra cloth

6.4.6.1 Colour of dyes, and nature of dyes

The dyes traditionally made by the artisans are black in colour, as found from the existing literature. A look at the Adinkra symbolic cloths at the production centres during the field

data collection also suggested the use of mainly black dye. As a result of the black colour of the dyes on dark coloured fabrics, especially black and red, the impression created is that the cloth is mainly for funerals, because of the symbolism of black and red for funeral-related activities in Ghanaian society (Forster, 2013). Since colour serves as an attracting feature for products (Bae & May-Plumlee, 2005), the effect of ascribing such colours to funeral activities in the Ghanaian society could explain the lack of patronage for the products. Therefore, newly proposed products must be of variant colours to overshadow the red and black effects in order to enhance product adoption.

On the issue of the nature of the dyes used for the printing of the cloth, it was identified from the field study that most dyes used in Adinkra textile cloth production are self-made by the artisans. During the interviews, 33 responses, representing approximately 94% of the total participants, stated that as part of caring for the cloth, information given to users by retailers requires them not to wash them. This is in line with Glover's (1971) assertion that Adinkra cloth is not meant to be laundered; the reason for such a requirement being the fact that the dye has been found to be water soluble and hence, bleeds out during washing. This is confirmed in earlier research on Adinkra cloths (Mato, 1986; Willoughby, 2005). Also, the colour of the print fades after some time even without washing during use.

6.4.6.2 Weight of cloth

On the weight of the Adinkra symbolic cloth, the responses received from the artisans, who are the main producers of the cloth, state that the cloth is of medium to heavy weight, usually in cotton and cotton blend fibres. As evidence, 5 artisans responded in the affirmative that the cloth is quite heavy. The main reason given for the usage of these fabrics is that lightweight fabrics absorb the dye and can result in unwanted leakage in the design of the cloth, especially when printing and manually stamping on the cloths. This

characteristic of Adinkra cloth has a negative impact on general and casual usage, because responses suggest that the weight makes it awkward to use in daily activities. Also, it prevents the user from constructing the cloth into particular garment styles, especially draped designs. This reason affects its appeal to a larger population and results in lack of patronage for more widespread activities.

At an aggregate level of data analysis for all participants, approximately 89% of users are unsatisfied with the end product from the artisans. This represents a total 31 participants, with the remaining 4 participants suggesting that the level of satisfaction is at a medium level. In this instance, it must be stated that all the stakeholders are also users of the products, as part of their marketing strategies. Hence, they served as users in the sample size for the thesis. As a result, an effective supply chain that can enhance collaboration among stakeholders must be developed to ensure that the needs of clients are factored into the production of the cloth, to enhance consumer satisfaction. Due to the non-existence of an effective supply chain for the distribution of the products, the producers cannot determine the standard final price of Adinkra cloth.

6.5 Implications

From the analysis, it is evident that there are numerous challenges facing the Adinkra textile sub-sector of the clothing and textile industry of Ghana. Prominent among these are the five key factors that were used for the construction of the interviews: knowledge of the symbols, relationships among clothing and textile stakeholders, absorptive capacity of the artisans, technological skills existing in the Adinkra textile sub-sector, and the prevailing consumer culture.

Firstly, it has been established from the analysis that, even though most participants were conversant with the symbols themselves and to some extent the names of the symbols, their

meanings were not known by a majority of the participants. By implication, knowledge of the meanings of the symbols is lacking and a vital source of culture is gradually facing extinction. Therefore, the documentation of the symbols in this thesis is relevant to ensure that such an important source of design and culture is perpetuated in Ghanaian society.

It has also been determined that the production techniques of the artisans are outmoded and inefficient. The laborious nature of the process makes it difficult to produce any meaningful number of Adinkra cloths in a specific time, to make it economically viable. In view of this, there is a need for introduction of modern technology into the industry to make it more efficient and economically viable.

One challenge with the introduction of modern technology is the absorptive capacity of the artisans. Their absorptive capacity is weak in relation to assimilating the new forms of knowledge available for better production and delivery of services through technology. These artisans also do not have high formal education to warrant the proposal of modern technology for their use should they be at the centre of production. In view of this, a new supply chain is proposed in Chapter 8 whereby the artisans will be replaced by different bodies among the stakeholders believed to have the capacity to adopt new forms of technology. Moreover, the end-user requirements evaluation in the current Adinkra cloth reveals two main things; firstly, the cloth is of heavy weight and hence does not lend itself to multiple uses in terms of everyday functions of cloth. This is among the prominent reasons that the sector has seen severe decline in terms of patronage. Also, the heavy fabrics used for the production of the current cloth come in only two main colours, white and black, combined with a black-coloured dye. However, the needs of the end users highlight the possible use of variant colours for the production of Adinkra cloths. This thesis therefore in a subsequent chapter adopts different fabrics and dyes in different colours for the production of Adinkra cloths, to meet the needs of the end users as determined from the data analysis.

6.6 Summary

Due to the numerous challenges facing the Adinkra textile cloth sub-sector, analysis has also revealed several untapped business opportunities that could be harnessed to develop this sub-sector to improve upon the general textiles industry. Firstly, due to the absence of an effective supply chain, the distribution activities of the industry are ineffective. In this sense, a very effective supply chain model could be developed to enhance production and distribution. At this stage it is important to note that, due to the proposed new technologies for the development of modern fashion products, the artisans cannot be the producers because of their lack of knowledge in relation to modern technological skills and physical infrastructure. The model would, therefore, have potentially new producers that could use the newly proposed technologies to produce fashion products to reach the final consumers. This will ultimately create a closed system where the producers can receive feedback on their products in order to factor these into customer needs when producing the cloths. There would also be an improvement in customer satisfaction, leading to greater adoption of the cloths.

Moreover, if price can be used as a competitive tool in order to break into the established markets, such as the broader local and international textiles industries, there is a need for the producers to be able to take control of their supply chain. Development of the supply chain could also enhance the competitive advantage of the products, in order to determine new ways to make the products meet the needs of the marketplace and serve the target clients.

Lastly, it has been discussed that the technology for the production of Adinkra textile cloth is outmoded. In view of this, it is proposed that firms in the industry with the technical know-how should adapt to modern technologies for the production of new Adinkra symbolic textile fabrics and clothing. This has the potential to open up a new line of

business for expansion of the Adinkra textile market. This would drastically reduce the total work and time involved in production, as well as enhancing the quality of Adinkra fabrics. Also, the symbols must be adopted individually as designs for the development of new products to meet current consumption needs in the form of modern fashion products. The opportunity for the development of the new products has received encouraging feedback from the stakeholders, as they responded that such a revolution would be new and create demand for culturally based products.

In the next chapter, a comprehensive categorisation of the Adinkra symbols has been documented to establish clear meanings for each symbol and their respective roles in Ghanaian society in particular. Categorisation of Adinkra symbols using the Maslow hierarchy of needs theory has the effect of linking the meanings of the symbols to societal values, to inspire individuals towards the attainment of specific objectives at different levels of their life trajectory. Moreover, a justification of the Adinkra symbols as national symbols has been given to establish the current status of the symbols in Ghanaian society at large. Lastly, the chapter also discusses the choice of the ten symbols selected for the design and production of fabrics, clothing and fashion accessories in order to enhance the diffusion of the meanings of the Adinkra symbols.

Chapter 7 Categorisation of Adinkra symbols

7.1 Introduction

The research aims have been established to include the development of another documentation of the Adinkra symbols to further knowledge of the symbols (Chapter 1). It has also been discussed in Chapter 1 that several scholars have documented the symbols in different ways. In this thesis, the researcher adopts the Maslow expanded hierarchy of needs theory to document the symbols because there is a relationship between the explanation given by Maslow for the different levels of needs and the meanings of the Adinkra symbols. It is this relationship that underpins the categorisation of the symbols into eight groups for use by society for different purposes. This can be achieved through the power of symbols as a communicative tool for individuals in Ghanaian society.

The categorisation based on the hierarchical arrangement developed by Maslow in his extended theory of the needs has eight stages. The three levels that were added to the original needs theory are the aesthetic, cognitive and transcendence needs. The explanations of the needs that fall into the different levels of the eight-stage hierarchy have been used to develop an association with the meanings of the various symbols to result in the categorisation. It is a claim of this categorisation that the symbols may serve as a source of motivation for individuals who are at different stages in their life journey and may be motivated by different things in life. In view of this, a person can adopt a symbol based on the hierarchy and its meaning as a source of motivation.

7.2 Maslow's expanded hierarchy of human needs theory and Adinkra symbols

In this thesis, the categorisation of Adinkra symbols is not by alphabetical order or according to flora, fauna, geometry, the nature of God and so forth, but has been devised

according to the role of each symbol in Maslow's expanded hierarchy of human needs theory. The psychologist Abraham Maslow discussed human sickness and human health in conjunction with our biological inner nature. This led him to the discussion of human needs (for life, for safety and security, for belongingness and affection, for respect and self-respect, and for self-actualisation). He stated,

since this inner nature is good or neutral rather than bad, it is best to bring it out and to encourage it rather than to suppress it. If it is permitted to guide our life, we grow healthy, fruitful, and happy. This inner nature is not strong and overpowering and unmistakable like the instincts of animals. It is weak and delicate and subtle and easily overcome by habit, cultural pressure, and wrong attitudes (Maslow, 1968, p. 4).

A connection can be made between the Adinkra symbols which highlight human responsibilities, and Maslow's theory of human needs, leading to consideration of human needs versus human responsibilities and how to use the Adinkra symbols to direct our inner nature in the mist of suppressing conditions in the world. The Adinkra symbols have been carefully selected depending on their meanings and arranged under the appropriate human needs level in Maslow's expanded hierarchy of human needs, which consists of eight defined levels (see Figure 7.1).

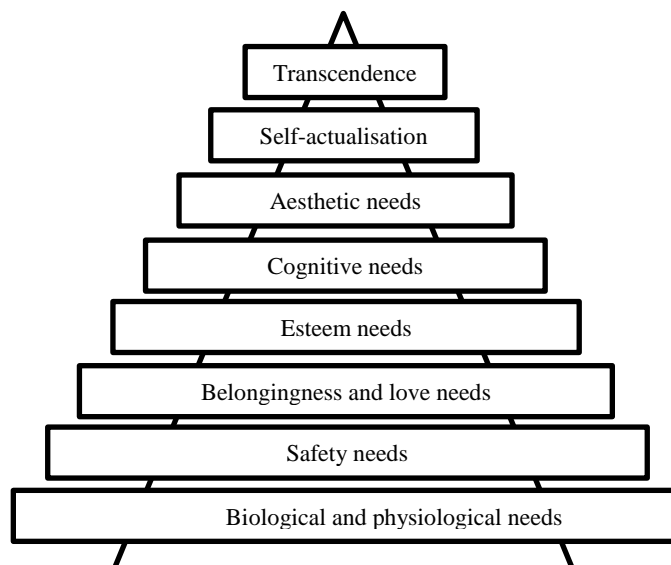








Figure 7.1: Maslow's hierarchy of needs

Source: Diagram based on Clark (2012)

The eight-level hierarchy of needs theory has been adopted in this discussion because of the number of symbols that fit each level of the expanded hierarchy. In this sense, the five-level needs theory could not capture all the symbols identified in the literature. As a result of use of the eight-level Maslow hierarchy of needs, 60 different Adinkra symbols have been documented as part of this thesis. The symbols are grouped into eight tables with their original names and translations. The roles that the symbols can play in society in order to influence and motivate individuals to perform their responsibilities are also delineated. The symbols have been named and presented in each table. The categorisation proceeds from Table 7.1 to Table 7.8.

Table 7.1: Biological and physiological needs
















Air, food, drink, shelter, warmth, sex, sleep etc.

Symbol	Name of symbol	Literal meaning	Role
	<i>Gye nyame</i>	‘Only/Except God’	The omnipotence and immortality of God
	<i>Asase ye duru</i>	‘Earth has weight’	Divinity of the Earth
	<i>Biribi wo soro</i>	‘There is something in the heavens’	Hope and reliance on God
	<i>Nyame ye ohene</i>	‘God is King’	Majesty and supremacy of God
	<i>Onyankopon adom nti biribiara beye yie</i>	‘By God’s grace, all will be well’	Hope, providence and faith
	<i>Nyame nti</i>	‘By God’s grace’	Faith and trust in God

The first level of needs described by Maslow under physiological needs include the needs for food, sex, clothing, shelter and sleep (Table 7.1). They are the strongest and most basic needs necessary to sustain the lives of individuals. Without achieving physiological needs, individuals cannot seek to achieve any other need. According to most Ghanaians, these basic needs come from God. Generally, God is referred to as *Nyame*, *Onyankopon*, *Oboadie*

and *Twerediampon* in Ghana, although other minority tribes may have different names for God. Human beings, artefacts, plants and other objects are named after God as a demonstration of belief in God, his presence and his power to provide basic needs. This illustrates that Ghanaians knew and worshipped God in their own ways before the arrival of European missionaries and subsequent introduction of Christianity during the colonial era. They have a belief that God is the creator, supreme, omnipotent and omnipresent. Also, life is a gift bestowed on humanity by God and their very existence depends on God. In an extreme form of the expression of this belief, Ghanaians think that without God, life is meaningless. In view of this, people have faith that acceptance of God is accompanied by responsibility to serve God. By doing so, they hope God will reciprocate by continuing to provide basic and other needs such as air, food, drink and shelter through their hard work. There is therefore a need to create a link between the physiological needs espoused by Maslow and some symbols of Adinkra that portray God as provider of these physiological needs.













Table 7.2: Safety needs

Protection from elements, security, order, law, limit, stability, etc.			
Symbol	Name of symbol	Literal meaning	Role
	<i>Akoben</i>	‘War horn’	Readiness and preparedness
	<i>Akofena</i>	‘Ceremonial/ royal Sword’	Bravery and heroism
	<i>Eban</i>	‘Fence’	Protection, security and safety
	<i>Epa</i>	‘Handcuff’	Slavery, captivity, law and justice
	<i>Fihankra</i>	‘House’	Security and safety
	<i>Funtunfunefu denkyemfunefu</i>	‘Siamese crocodiles’	Democracy and Oneness
	<i>Kwatakye atiko</i>	‘Hairstyle of an Asante war captain – Kwatakye’	Bravery and valour
	<i>Mframadan</i>	‘Wind-resistant house’	Fortitude
	<i>Mmusuyidee</i>	‘That which removes bad luck or evil’	Fortune, spirituality and sanctity
	<i>Nyame dua</i>	‘Altar of god/tree of god’	God’s presence and protection
	<i>Nyame nnwu na mawu</i>	‘God never dies, therefore I shall not die’	Life after death
	<i>Okodee mmowere</i>	‘The eagle’s talons’	Strength and unity
	<i>Owuo atwedee</i>	‘The ladder of death’	Mortality
	<i>Pempamsie</i>	‘Readiness’	Readiness and preparedness
	<i>Dwennimmen</i>	‘Ram’s horn’	Concealment, humility and strength

On the second level of Maslow’s hierarchy of needs, safety needs include security and stability of individuals in society, Table 7.2. Safety needs also include protection, freedom from fear, anxiety and chaos, and the need for structure, law and order. In this table, several of the Adinkra symbols that depict these needs can be found. For example, a symbol such as ‘Fence’ (*Eban*) symbolises protection and safety. Other symbols such as ‘The eagle’s talons’ (*Okodee mmowere*) also represent strength, which gives protection from harm.

Individuals have to protect themselves by being watchful, courageous and farsighted. Law and order in society ensure safety; punishment is applied when laws are broken. Ghanaians believe that to be safe in this world, one has to lead and maintain an upright life. This behaviour has been identified and expressed in a speech by James Swanzy in 1816 (see section 2.3.1). This can be attributed to be the knowledge and use of Adinkra symbols which have power to communicate to individuals. All the symbols in Table 7.2 symbolise the safety needs propounded by Maslow in his needs theory.

Table 7.3: Social needs
Belongingness and love, work group, family, affection, relationships etc.

Symbol	Name of symbol	Literal meaning	Role
	<i>Akoko nan</i>	‘The hen’s feet’	Parental care
	<i>Akoma</i>	‘The heart’	Patience and endurance
	<i>Bese saka</i>	‘Sack of cola nuts’	Power, abundance, affluence, unity and togetherness
	<i>Bi nka bi</i>	‘Bite not one another’	Peace and harmony
	<i>Ese ne tekrema</i>	‘The teeth and the tongue’	Friendship and interdependence
	<i>Me ware wo</i>	‘I shall marry you’	Commitment
	<i>Mpatapo</i>	‘Reconciliation Knot’	Reconciliation and peace-making
	<i>Nkonsonkonson</i>	‘Chain link’	Unity and human relations
	<i>Nsoromma</i>	‘The star’	Reflection of god, guardianship
	<i>Odo nnyew fie kwan</i>	‘Love never loses its way home’	Power of love
	<i>Osram ne nsoromma</i>	‘The Moon and the stars’	Love and faithfulness
	<i>Woforo dua pa a</i>	‘When you climb a good tree’	Support, cooperation and encouragement









The hierarchy of needs theory proposed by Maslow suggests that social needs including to love, to be loved and to have a sense of belonging become the preoccupation of individuals

after satisfying their safety needs at level two. The sense of belongingness is where individuals feel attached to particular groups in order to feel loved (Table 7.3). For example, in this table a symbol named ‘Love never loses its way home’ (*Odo nnyew fie kwan*) symbolises the need for love and creates an association between the meaning of the symbol and the description of level three of the theory of needs proposed by Maslow. The remaining symbols in Table 7.3 all symbolise social needs in society and therefore have a link with level three of the hierarchy of needs.

The practical significance of these social needs is seen in Ghanaian society in the form of the parental care given to children in order to build a bond of love with their parents. This care by Ghanaian parents has the effect of further developing the gregarious nature of the people. To make something work the way one wishes, there is a need for commitment, patience, love, perseverance and understanding. This is also reflected in the daily lives of Ghanaians, where individuals are made to observe in order to have and maintain their life partners. There are other symbols that may not explicitly state the word ‘love’, but a critical look at their meanings portrays love. For example, ‘When you climb a good tree’ (*Woforo dua pa a*), which is a symbol of support, cooperation and encouragement. It literally means the support offered to people in society who embark on good courses of action. Although, it does not state ‘love’, it is generally agreed in the Ghanaian society that love supports.

Table 7.4: Esteem needs









Self-esteem, achievement, mastery, independence, status, dominance, prestige, managerial responsibility, etc.

Symbol	Name of symbol	Literal meaning	Role
	<i>Adinkrahene</i>	‘King of Adinkra symbols’	Greatness and royalty
	<i>Fawohodie</i>	‘Independence’	Freedom, emancipation and liberty
	<i>Fofo</i>	‘Yellow flowered plant’	Jealousy and envy
	<i>Kintinkantan</i>	‘Do not boast’	Arrogance
	<i>Mpuannum</i>	‘Five tufts of hair’	Priestly office, loyalty and adroitness
	<i>Owo foro adobe</i>	‘Snake climbing the raffia tree’	Performing the impossible, steadfastness and excellence
	<i>Tabon</i>	‘Paddle or oars’	Strength, confidence and persistence
	<i>Wawa aba</i>	‘Seed of the wawa tree’	Hardiness, toughness and perseverance

Following on from the social needs are the self-esteem needs, which have achievements, recognition and respect at the core of the individual’s needs, as postulated by Maslow (Table 7.4). The esteem needs include self-esteem, achievement, mastery, independence, status, dominance, prestige and managerial responsibility. The esteem needs represent high achievement in a particular society. Generally, when someone achieves the esteem needs, his/her self-confidence rises. In this table, the symbols that represent greatness, excellence, independence and perseverance are grouped. For example, ‘King of Adinkra symbols’ (*Adinkrahene*), which is a symbol of greatness and royalty, can be said to represent achievement because it is the head of all the symbols. Ghanaian society accords great respect to its members who are high achievers. For example, titles are very important in Ghanaian society, to the extent that, if neglecting to mention the title of a person, one risks being reprimanded by superiors. For others to appreciate and honour their deeds brings satisfaction to people’s self-esteem needs. The connection between Maslow’s needs at level

four and the Adinkra symbols is that the meanings of the symbols denote the explanations given by Maslow.


Table 7.5: Cognitive needs
Knowledge, meaning, understanding etc.

Symbol	Name of symbol	Literal meaning	Role
	<i>Akoma ntoaso</i>	‘Extension of the hearts’	Understanding and agreement
	<i>Dame-dame</i>	‘A board game’	Intelligence and ingenuity
	<i>Hwe mu dua</i>	‘Measuring stick’	Quality, control and excellence
	<i>Mate masie</i>	‘I have heard and kept it’	Knowledge and wisdom
	<i>Nea onnim no sua a, ohu</i>	‘He who does not know can know from learning’	Knowledge, lifelong education and continued quest for knowledge
	<i>Nkyimu</i>	‘The divisions made on Adinkra cloth before stamping’	Skilfulness and precision
	<i>Nyansapo</i>	‘Wisdom knot’	Wisdom, ingenuity and patience
	<i>Sankofa</i>	‘Return and get it’	Learning from the past

The cognitive needs generally refer to the need to know and understand. They denote a thirst for knowledge (Table 7.5). Thus, the symbols with meanings of knowledge have been grouped under the cognitive needs. For example, ‘He who does not know can know from learning’ (*Nea onnim no sua a, ohu*), a symbol of knowledge, lifelong education and continued quest for knowledge, is part of this table because it symbolises knowledge. In Ghanaian society, it is expected that knowledgeable people make their impact felt to change the social ways of perceiving issues. It is believed that culture is dynamic and continuously evolving, so individuals must constantly learn and adapt to new forms of knowledge. Adoption of new ideas is highly encouraged.

Table 7.6: Aesthetic needs









Appreciation and search for beauty, balance, form, etc.

Symbol	Name of symbol	Literal meaning	Role
	<i>Duafe</i>	‘Wooden comb’	Beauty, cleanliness and feminine qualities

As the name implies, the aesthetic needs refer to beauty and the quality of being creatively or artistically pleasing in balance and form. Beauty as a need is quite important to the Ghanaian people to the extent that it forms part of a number of proverbs in the society. For example, one proverb literally translates as ‘One should never meet an in-law when not well dressed’. Another consideration of beauty in Ghanaian culture is the character (inner beauty) of a person. There is an old adage that goes ‘Your beauty might offer you a husband, but your character will bid you farewell from marriage’. This implies that beauty has two facets and both must be possessed by individuals in society. In Table 7.6, the wooden comb symbolises beauty and hence is well connected in meaning to the explanation given by Maslow.



Table 7.7: Self-actualisation needs

Realising personal potential, self-fulfilment, seeking personal growth and peak experiences

Symbol	Name of symbol	Literal meaning	Role
	<i>Ananse ntontan</i>	‘Spider's web’	Wisdom and creativity
	<i>Aya</i>	‘Fern’	Endurance and resourcefulness
	<i>Hye wonnhye</i>	‘That which cannot be burnt’	Imperishability and endlessness
	<i>Mmere dane</i>	‘Time changes’	Dynamism in life
	<i>Nkyinkyim</i>	‘Twisting’	Dynamism, versatility and resoluteness
	<i>Odenkyem</i>	‘Crocodile’	Prudence and adaptability
	<i>Sesa wo suban</i>	‘Change your character’	Life transformation
	<i>Tamfo bebre</i>	‘The enemy shall suffer’	Jealousy

Maslow also postulated that at the peak of human needs is self-actualisation, which refers to the fulfilment of one's potential and aspirations in life (Table 7.7). It includes realising personal potential, self-fulfilment and seeking personal growth and peak experiences. At this stage of a person's life, his/her potential in a particular field of endeavour is reached. Therefore individuals at this stage seek recognition in society. The meanings of the various symbols in this table are linked to the self-actualisation needs proposed by Maslow. For example, 'Change your character' (*Sesa wo suban*), a symbol of life transformation, suggests that individuals can change their lives and it is at this stage of the Maslow hierarchy that one feels transformed and becomes resourceful in the society.

Table 7.8: Transcendence needs
Helping others to achieve self-actualisation

Symbol	Name of symbol	Literal meaning	Role
	<i>Nea ope se obedi hene</i>	'He who wants to be king'	Leadership and service
	<i>Nsaa</i>	'Type of hand-woven cloth'	Excellence, authenticity and genuineness

Maslow also documented the transcendence needs, which represent a person seeking to further a cause beyond the self (Table 7.8). Maslow suggests that, there is transcendence of the ego, self, and selfishness. In this sense, individuals respond to the needs of others in society who are external to the self. Generally, this is in the form of service to others, a person devoting himself/herself to an ideal or a cause to help others in society. In this table, for example, a symbol of leadership, 'He who wants to be king' (*Nea ope se obedi hene*), is documented under the transcendence needs because leaders give back to society in the form of guiding others to reach their self-potential. In Ghanaian society, it is believed that leaders can teach people about mistakes, shortcomings and the proper direction in which to develop one's life.

7.3 Selected Adinkra symbols

After the documentation of the cultural Adinkra symbols into the Maslow hierarchical needs model, it was imperative for the researcher to choose some of the symbols to use for the design of the social activities and practices clothing, as discussed in Chapter 1. Determining an association between all 60 of the symbols and daily activities and practices in the Ghanaian society was practically not possible. Therefore, ten Adinkra symbols were selected and used as designs for the construction of fabrics and other clothing items based on their association with relevant daily activities in Ghanaian society.

7.3.1 Justification for selection of original Adinkra symbols

At present, some artists in Ghana are designing and adding to the number of cultural symbols. They achieve this by combining some of the traditional Adinkra symbols with other symbols. The researcher was interested only in the original Adinkra symbols documented by Glover (1971), Quarcoo (1972), Willis (1998), and other Adinkra scholars, of which there are over 60 (Ghana Tourism, 2008). The decision to choose original Adinkra symbols was made because they are encoded with educational meanings and these meanings can be used to send messages to the people. From the large number of original Adinkra symbols, ten have been carefully selected from their names and meanings, which relate to the meanings of the selected products for the thesis.











7.3.2 Justification of ten selected Adinkra symbols

The Ghanaian traditional Adinkra symbols come in a set. Each symbol has a name and meaning that relate to an aspect of social life, for example, wisdom, love, strength and human training, as shown in section 7.2. The traditional Adinkra cloth manufacturers (artisans) seem incautious during the selection of Adinkra stamps. The intended use of the

cloth should guide the selection of a particular symbol. Not all the symbols can be used as designs on a single cloth because the message would not be clear; there would be no meaning for such a cloth. Adinkra symbols have meanings; therefore if there are no meanings in the cloths or they are not intended to send messages, then those cloths cannot be regarded as Adinkra symbolic cloth.

Based on the above guidelines, ten Adinkra symbols for this research have been carefully selected in pairs to describe the intended meanings and messages of modern social activities and practices of Ghanaians, especially the youth (Table 7.9). The ten Adinkra symbols have been selected based on names and meanings that can be linked to some identified popular social activities and practices in Ghana. These activities and practices are democracy, education, friendship, religion and sport. The meanings of the selected symbols have been linked to the meanings of the social activities and practices for easy identification of the symbols. Although these symbols can be used as designs for clothing for all age groups, the researcher has generally chosen youth clothing intended to send messages to educate the youth. The names of the ten selected Adinkra symbols are: *Akoma ntoaso* – ‘Extension of the hearts’ and *Nkonsonkonson* – ‘Chain link’ (democracy); *Mate masie* – ‘I have heard and kept it’ and *Nyansapo* – ‘Wisdom knot’ (education); *Ese ne tekrema* – ‘The teeth and the tongue’ and *Bese saka* – ‘Sack of cola nuts’ (friendship); *Biribi wo soro* – ‘There is something in the heavens’ and *Nyame ye ohene* – ‘God is King’ (religion); and *Dwennimmen* – ‘Ram’s horn’ and *Okodee mmowere* – ‘The eagle’s talons’ (sport).

Table 7.9: Ten selected Adinkra symbols

Symbol	Name of symbol	Literal meaning	Role	Activity
	<i>Akoma ntoaso</i>	‘Extension of the hearts’	Understanding and agreement	Democracy
	<i>Nkonsonkonson</i>	‘Chain link’	Unity and human relations	
	<i>Mate masie</i>	‘I have heard and kept it’	Knowledge and wisdom	Education
	<i>Nyansapo</i>	‘Wisdom knot’	Wisdom, ingenuity and patience	
	<i>Ese ne tekrema</i>	‘The teeth and the tongue’	Friendship and interdependence	Friendship
	<i>Bese saka</i>	‘Sack of cola nuts’	Power, togetherness and unity	
	<i>Biribi wo soro</i>	‘There is something in the heavens’	Hope and reliance on God	Religion
	<i>Nyame ye ohene</i>	‘God is King’	Majesty and supremacy of God	
	<i>Dwennimmen</i>	‘Ram’s horn’	Humility and strength	Sport
	<i>Okodee mmowere</i>	‘The eagle’s talons’	Strength and unity	

7.3.3 Significance of documenting Adinkra symbols

The Adinkra symbols were originally Akan traditional symbols, but currently have been adopted by the republic of Ghana. This raises the issue of finding ways of promoting the Adinkra symbols, which are diminishing in value, to gain recognition once more, as the symbols have both educational meanings and cultural significance. Below are examples of research work that provide evidence that the Adinkra symbols have been accepted and used as state symbols of Ghana and must be perpetuated for the benefit of generations yet unborn. The double-bladed state sword or ceremonial sword of Ghanaian society symbolises the authority of the ruler. During a presidential swearing-in ceremony, the state sword,

Akofena – ‘Sword of war’ – an Adinkra symbol, is held when taking the oath of office (Essel & Opoku-Mensah, 2014; Obeng, 1998). Other Adinkra symbols are embossed on the state sword: *Pempamsie* – ‘Readiness’ and *Nea ope se obedi hene* – ‘He who wants to be king’ (see Table 7.2 and Table 7.8 respectively). Each symbol is embossed on one side of the sword below the star at the top. This emphasises the use of the Adinkra symbols by the Ghanaian state. Figure 7.2 shows two presidents of Ghana, the late Professor John Evans Atta-Mills (right-hand side) and Mr John Dramani Mahama (left-hand side), taking their oaths of office with the Ghanaian state sword.



Figure 7.2: Ghanaian presidents holding state swords at swearing-in ceremony

Source: Adapted from www.bbc.com/news/world-africa-20929592 and www.exploringafrica.matrix.msu.edu/module-twenty-four-activity-two

Furthermore, Quarcoo discusses that, whatever might be the exact history and association of the Adinkra art, this does not subtract from the fact that the cloth is now truly national in the Ghanaian context. Adinkra cloth is very popular everywhere in Ghana. Not only are the patterns regarded as aesthetically and idiomatically traditional, but more importantly they carry, preserve and present aspects of the history, social values, cultural norms and philosophy of the people of Ghana (Quarcoo, 1972, p. 8). Moreover, Essel and Opoku-Mensah (2014, p. 38) describe the Memorial Park of the first president of Ghana, Dr Kwame Nkrumah and made a comparison that, “pyramids are historically Egyptian relics whereas adinkralization of art could be associated with Ghana”.

Lastly, this research work has identified some Adinkra symbols in the logos of both public and private universities in Ghana. The premier public university, University of Ghana, Legon, was established in 1948 and has two Adinkra symbols at the centre of its logo: *Aya* and *Dwennimmen* ('Fern' and 'Ram's horn'). Legon in Accra, the capital city of Ghana, is situated 255 kilometres south-east of the Ashanti region where the symbols are believed to have originated. The University of Cape Coast, which was established in 1962, has the *Gye Nyame* ('Except God') symbol in its logo. Cape Coast is also 214 kilometres south-west of Ashanti region. There are other private universities around the country that have Adinkra symbols in their logos including Central University, African University College of Communication and Regent University College of Science and Technology.

7.4 Summary

In summary, the various symbols, numbering sixty, have been documented using Maslow's hierarchy of needs theory. The meanings of the symbols and their close connection to the explanations given by Maslow under the various levels in his model have been used for the categorisation. As a result, knowledge of these symbols has been expanded to perpetuate them in Ghanaian society. Individuals in the society and beyond can adopt any of the symbols and its meaning to further an aim of their choice.

The justification for the selection of original Adinkra symbols was based on the educational and timeless meanings of these symbols. The promotion of the symbols with their related meanings has become necessary, due to significant messages they could communicate. Ten Adinkra symbols have been selected out of the sixty documented symbols for utilisation in designs for fabrics, clothing and fashion accessories for this thesis. Furthermore, a number of examples have been cited to substantiate that Adinkra symbols are now Ghanaian national symbols, rather than symbols only for the Akans, with whom the symbols are

believed to have originated. Consequently, the use of these symbols for designing fabrics, clothing and fashion accessories has the potential to reach the entire Ghanaian population as a consumer society and to send the intended messages from the Adinkra symbols.

Chapter 8 Conceptual framework for diffusion of Adinkra symbols

8.1 Introduction

In Chapter 1 of this thesis, the introduction, background, objectives, significance and contribution of this research have been outlined. Chapter 2 to 4 are dedicated to discussion of the existing literature that has been used to locate the study within the field of culture, fashion and textiles. In Chapter 5, the methodology through which the study has been undertaken is discussed extensively. Chapter 6 has been used to highlight the results of the data analysis. The findings from the results have exposed the needs of consumers in the marketplace. These needs have served as the basis for the development of designs for the production of innovative Adinkra symbolic fashion clothing. Chapter 7 has been used to develop a categorisation of the Adinkra symbols and their meanings, presents the selected Adinkra symbols for the study and provides a justification of the selected symbols for use as designs for the proposed activities/practices clothing and accessories. One of the problems identified during the field study is the lack of a supply chain that links the producers of the cloth and the end users. Therefore, this chapter is dedicated to the development of a supply chain and combining this with the facilitating factors in a conceptual framework in order to achieve the diffusion of the meanings of the Adinkra symbols.

8.2 Proposed supply chain model

The interaction of key stakeholders in the clothing and textile industry has been identified as one of the most effective mechanisms to propagate the use of Adinkra symbolic fabrics and clothing in the industry. As Rogers (1995) affirms, that the interpersonal networks are crucial in both the acceptance and rejection of innovation. Similarly, Acquah and Oduro (2012) highlight networking as a platform for collaboration in determining productive activities among the players in small, medium and large-scale enterprises.

The new Adinkra textile sub-sector is at the centre of the proposed supply chain in Figure 8.1, and is surrounded by the other key stakeholders in the clothing and textile industry. The reason for the Adinkra textile sub-sector being at the centre is the fact that the product being improved has to be initiated by this sub-sector of the larger textile industry. Therefore, all other activities associated with Adinkra prints come from the producers. Also, this demonstrates the inter-linkages in the industry on the basis of using cultural symbols for production with modern technologies. The arrows in the different directions show the communication flow between the stakeholders in the supply chain model in Figure 8.1. All the stakeholders in the model have a double-headed arrow, demonstrating a sort of feedback relationship among the stakeholders, which are written in italics. This is a win-win situation for the stakeholders because information sharing leads to stronger performance in the industry regarding product outcomes.

The interpretation of the supply chain model has been done in a clockwise manner, with the retailers at the top of the model and the new Adinkra textile sub-sector at the centre to serve as the focal point for the key stakeholders in the industry. The retailers in the supply chain are responsible for acting as agents of innovation and diffusing the textile prints and clothing products. They are responsible for supplying the finished Adinkra symbolic fabrics and garments to the users. They act as critics, sales agents and ambassadors for the design and production of Adinkra textiles based on feedback from the users. They tend to have sub-outlets for the fabrics and sell to individual users as well as fashion designers who make custom-made clothes for clients.

In the supply chain model, the end-users of the Adinkra symbolic fabrics and clothing are envisaged to provide feedback to the retailers, who in turn exchange it among themselves before passing it onto the designers and producers. Also, the clothing industry is expected to supply finished garments to users by producing larger quantities, as compared to the

existing production levels. Similarly, users can also order products from the clothing industry through the concept of customerisation to suit individual needs, which is a prevalent approach to local production in Ghana currently. One of the duties of the clothing industry will be to supply new design ideas and trends to both the new Adinkra textile sub-sector and the retailers.

The Adinkra textile sub-sector and clothing industries will provide a source of employment for the design school graduates, while the design schools will supply trained and skilled employees for these two key industries. For example, the design schools will produce skilled staff in textile design, fashion design, pattern production and garment construction. These graduates can also construct new symbols and sometimes redesign old ones for use. The training and provision of skilled personnel cannot be overemphasised, as the new industry is envisaged to use modern technology such as digital printing, 3D knitting and Jacquard weaving. It is for this reason that the knowledge level of those involved in the industry and their absorptive capacity are important to the development of the new Adinkra textile sub-sector and propagation of the meanings of the symbols.

The business of the dye suppliers in this model is to supply printing paste to the new industry in large quantities and in return receive feedback on the performance of these dyes as to whether they are feasible to use in practice. Also, yarn suppliers will supply different yarns for both weaving and knitting and will obtain feedback on the performance of the yarns from the new Adinkra textile sub-sector.

Government support in the form of tax reduction and tax holidays would be an incentive to the firms that will engage in the production of the Adinkra fabrics and clothing, in order to promote innovation and diffusion of the products. These would be in the form of policies that are geared towards the development of products from the new Adinkra textile sub-

sector and spread of the meanings of the symbols through the use of the products by consumers. The government would not only initiate policies but also ensure compliance with these policies, which will promote harmony and development in the industry through strict regulations that protect both local and foreign firms in the country.

Further, trade associations would also contribute their quota in the spread of Adinkra symbols and symbolic clothing by providing links for networking to facilitate access to resources and raw materials from other key stakeholders within the model. All these activities and interactions of the abovementioned stakeholders are necessary to maintain and accelerate the status of the new Adinkra textile sub-sector and promote the spread of Adinkra symbols, symbolic fabrics and clothing.

The study has currently determined the different stakeholders operating in the clothing and textile industry of Ghana. Based on the roles played by different stakeholders in the industry, linkages have been developed between these stakeholders (see Figure 8.1). These linkages serve as the focal point for developing a new model for networking and collaboration among the stakeholders in the supply network to improve performance, distribution of the products and consequently the spread of the meanings of the symbols.

These interactions are also guided by five key issues: the stakeholders' knowledge of the Adinkra symbols, their views of Adinkra technological practices, their relationships with other stakeholders, their absorptive capacity within the field of innovation in the clothing and textile industry, and their understanding of consumer culture. These issues provide the conceptual distinctions and organise the ideas for analysis.

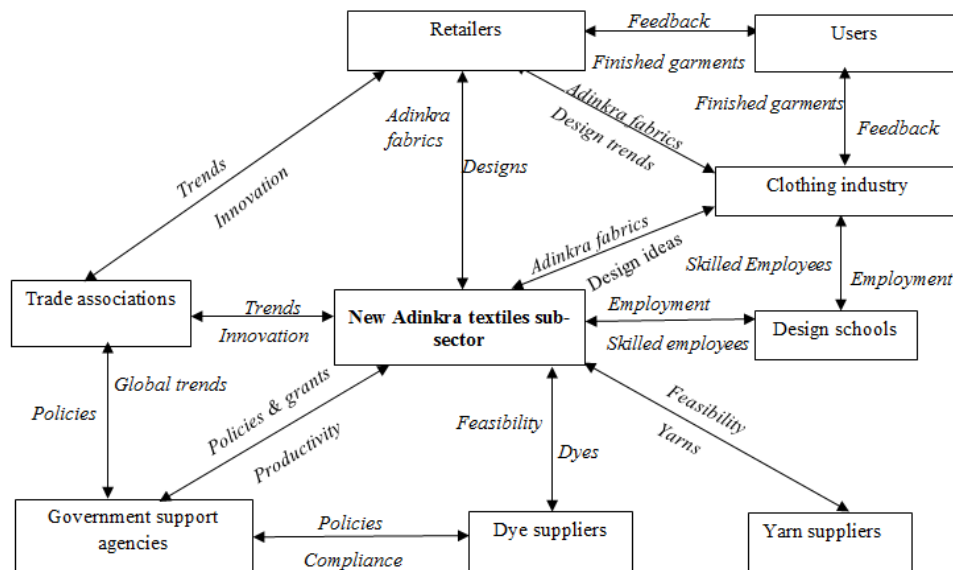


Figure 8.1 Proposed supply chain model

Source: Researcher 2015

8.3 Conceptual framework model

One of the main objectives of this thesis was to develop a model of diffusion. This section is dedicated to the development of a conceptual model capable of ensuring the diffusion of the meanings of the Adinkra symbols adopted as designs for the innovative products proposed in this discussion. Subsequent illustration of the model and its components is given below in Figure 8.2. The consumer culture is the focal section of the conceptual framework model and has been highlighted in red. The current market is no longer driven by the manufacturers but by the consumers (De Mooij, 2011; Kotler, 2012; Schultz et al., 2010). Understanding of consumer culture can have the ability to influence production, products and market share.

The conceptual framework model has been adopted from (Marinova & Philimore, 2003) and adapted to suit the direction of this discussion. This thesis is based on three of their models: linear, interactive and system models. The model in this study starts with a diffusion strategy and ends with the same diffusion strategy, which presents a closed-loop system of

arrangement. Thus, a flow model suggests relationships between the components to achieve the diffusion strategy proposed. Following the diffusion strategy are the four facilitating factors used in the research of Burgess et al. (2006), which has been adapted to suit the needs of the thesis. These factors are knowledge of the Adinkra symbols, relationships among the stakeholders in the industry, absorptive capacity in the field of innovation possessed by the textile industry in general and the proposed technology for the production of the new products. All these factors must be present in the industry; therefore, the supply chain model proposed for the industry in Figure 8.1 follows these facilitating factors. The presence of these facilitating factors will serve as a catalyst for the development of the newly proposed sub-sector.

Once the stakeholders in the supply chain are able to demonstrate the presence of these facilitating factors in the industry, the new Adinkra sub-sector can adopt some of the symbols, taking into consideration their meanings for the design of new products. The type of fashion and textile products that meet the needs of the market can be determined through the networking and collaboration among the stakeholders in the supply chain model and feedback from interaction with consumers. There is therefore a need for the establishment of continuous interactions between the supply chain (manufacturers, suppliers etc.) and the consumer culture (marketplace culture).

The development and production of the proposed innovative cultural products can be implemented through the use of the technology proposed in this thesis in the forms of Jacquard weaving, 3D knitting, 3D printing and digital printing. After the innovative products have been developed, it is important to ensure that these products reach the target consumers. The process of reaching consumers is through the use of markets, because it is through markets that product exchanges take place. These exchanges occur because the concept of consumer culture stipulates that consumers are products of their culture and

hence any product that is culturally based can penetrate consumer markets. As the innovative products are culturally based, it is believed that these products will be adopted by consumers. Also, through consumer culture, the spread of the meanings of the symbols can also be achieved, because movement of meaning begins from culture. Culture is adopted as designs for products and the meanings of the culture are transferred to consumers through the use of the products (McCracken, 1986).

To sum up, based on the conceptual framework for the production of innovative Adinkra symbolic product in Figure 8.2, achieving the consumption of the proposed Adinkra symbolic products can lead to the propagation of the symbols with their related meanings. This model is based on the three models of innovation including linear, interactive and system models.

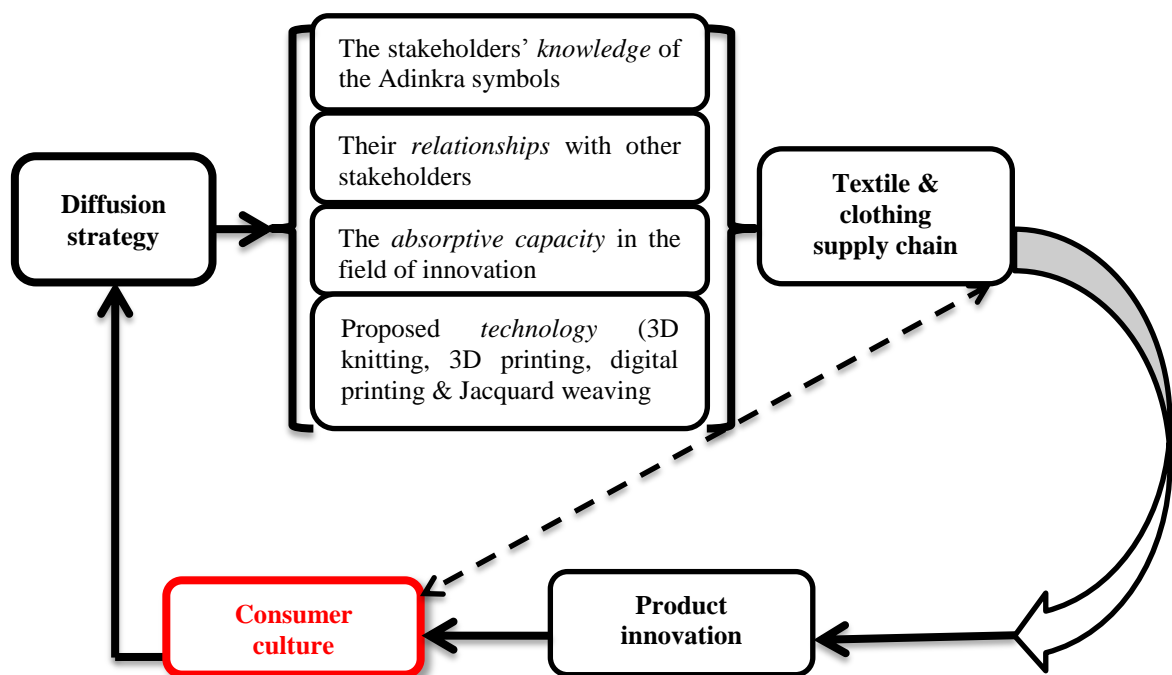


Figure 8.2: Conceptual framework

Source: Marinova & Philimore (2003) innovation models and Burgess et al. (2006) facilitating factors on diffusion in textile printing industry (Adopted and adapted for this thesis)

8.4 Summary

In summary, this chapter has sought to develop a supply chain model for integrating activities among the stakeholders in the clothing and textile industry of Ghana. It is argued that this supply chain model can serve as the basis for diffusion of the knowledge of Adinkra symbols and innovative Adinkra symbolic products. The supply chain model has been developed based on the transactional relationships among the stakeholders. The model has the potential to improve supply network performance, product distribution and spread of new innovative Adinkra symbolic products that are proposed to be developed as part of this thesis.

The conceptual framework is capable of aiding the consumption of the proposed innovative Adinkra symbolic products and leading to propagation of the symbols with their related meanings. This is because the model incorporates consumer culture, which aids in consumption, and simultaneously transfers the meanings of cultural products to consumers. In the next chapter, the thesis focuses on the innovative Adinkra symbolic products developed through the use of the modern clothing and textile technologies identified.

Chapter 9 Development of new Adinkra symbolic products

9.1 Introduction

As already stated in previous chapters, Adinkra symbols have mainly been used in the production of traditional cloth. The current techniques for the production of traditional cloth have been identified as outmoded and the resulting products are of low quality. Technology is always evolving to improve on existing products. The novelty of products in the market has elevated the tastes and preferences of consumers in line with ever-changing products. This thesis has identified a number of modern clothing and textile technologies that could be utilised to transform Adinkra cloth into modern clothing and textiles products in order to meet the standards of a larger clientele. Those clothing and textiles technologies adopted for this research have been discussed together with the products developed under each of them.

9.2 Digitised printing

Photoshop or Adobe Illustrator software has been utilised in designing a pattern to be digitally printed. The file type is 'Adobe 1998 Red Green Blue (RGB) colour' and it has to be saved in Photoshop Document (PSD) or Tagged Image File Format (TIFF) format. The design should then be text printed. The Roland Soljet III XJ-640 is a large-format printer used by RMIT University's Textile Design studios to print directly onto textiles (see Figure 9.1). This printer has been configured to run six colours with Manoukian Digistar inks, which are specifically formulated for use with textiles. This particular ink system is best suited to natural fabrics such as cotton, linen, silk and wool. The six-colour system implemented ensures that designs ripped in the accompanying Ergosoft TexPrint program are achievable as digital print outcomes, minimising the problem of out-of-gamut colours. The print-bed width of the digital printer is 1600 mm, allowing for rolls of fabric with a

maximum print area of 1500 mm. Bidirectional printing ensures that banding is eliminated. This, along with the six-colour system, ensures photorealistic print outcomes are achievable.



Figure 9.1: Digital printing machine
Source: RMIT University, Brunswick campus

In industry print bureaus using this system, fabrics are initially pre-treated with a chemical solution to ensure optimal ink take-up and adhesion to fabrics, and good washability. Since the printing technology relies on a roller take-up system to tension the fabric properly for printing, sheer (more open-weave) and stretch fabrics are challenging, with extensive testing and research required to achieve good results. The printer utilises a pre-heater to initially warm the fabric and remove any creases; a print heater then operates to promote ink adhesion; and finally a dryer allows the ink to dry completely before automated winding onto the lower calendar.

9.2.1 Textile designs for digital printing

In Figure 9.2 to Figure 9.11 are shown samples of Adinkra modern textile designs, with two design styles made from each of the selected symbols. All ten selected symbols for the thesis have been used in the design of the fabrics. These Adinkra symbols are: *Akoma Ntoaso* ‘Extension of the hearts’ – symbol of understanding and agreement, *Nkonsonkonson* ‘Chain link’ – symbol of unity and human relations, *Mate masie* ‘I have heard and kept it’ –

symbol of knowledge and wisdom, *Nyansapo* ‘Wisdom knot’ – symbol of wisdom, ingenuity and patience, *Ese ne tekrema* ‘The teeth and the tongue’ – symbol of friendship and interdependence, *Bese saka* ‘Sack of cola nuts’ – symbol of power, togetherness and unity, *Biribi wo soro* ‘There is something in the heavens’ – symbol of hope and reliance on God, *Nyame ye ohene* ‘God is King’ – symbol of majesty and supremacy of God, *Dwennimmen* ‘Ram’s horn’ – symbol of humility and strength, and *Okodee mmowere* ‘The eagle’s talons’ – symbol of strength and unity (see Table 7.9).

The textile designs are from different design inspirations and ideas coupled with arrays of colours. The utilisation of different dye colours in the textile designs and subsequent prints has the ability to widen the potential use of the textile products. The differences in preference, taste and occasion of the customers play a significant role in the choice of colours. The available varieties of colours for the Adinkra textile designs can enhance their usage and propagate the symbols. The designs were created using Adobe Photoshop and Illustrator software.

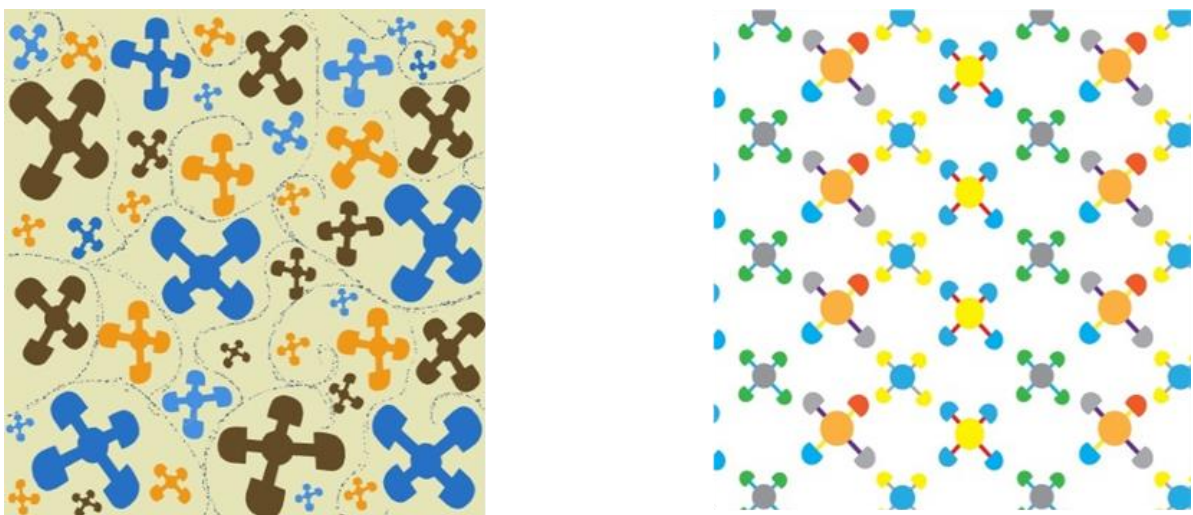


Figure 9.2: *Akoma ntoaso* – ‘Extension of the hearts’

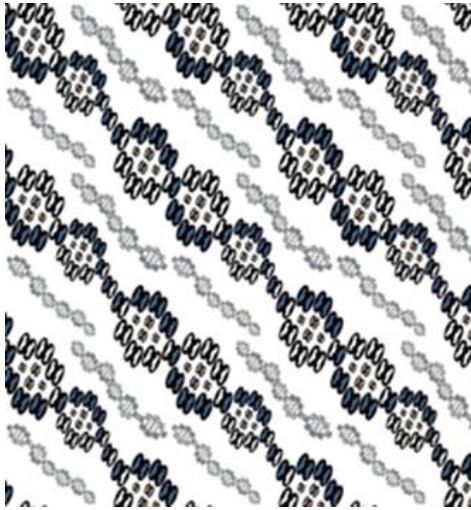


Figure 9.3: *Nkonsonkonson* – ‘Chain link’

The textile designs in Figure 9.2 and Figure 9.3 can be used in the production of clothing for activities that involve democracy. For example, the design can be printed on scarfs, T-shirts and caps during a period of organisational or national elections.

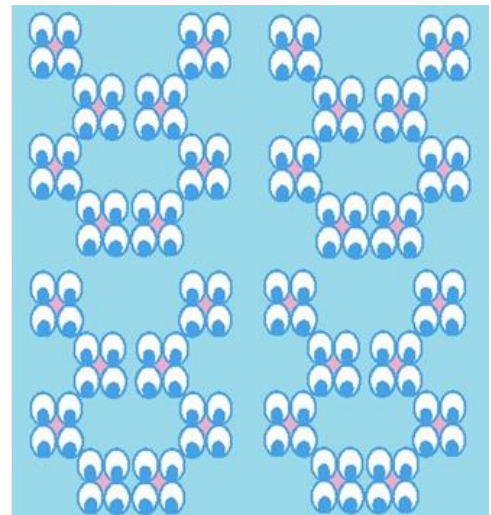
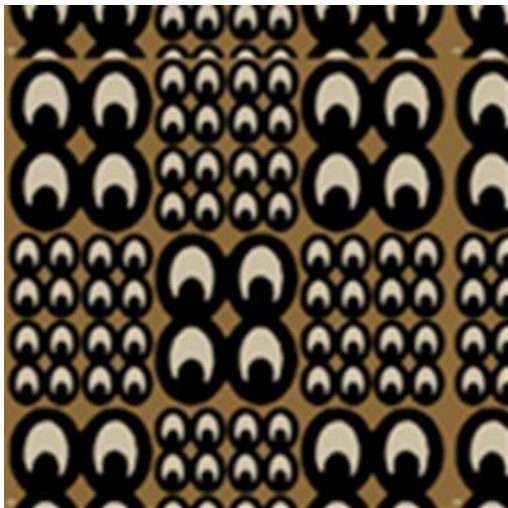


Figure 9.4: *Mate masie* – ‘I have heard and kept it’

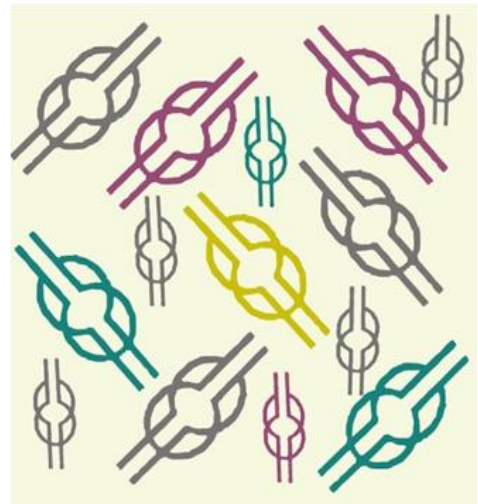
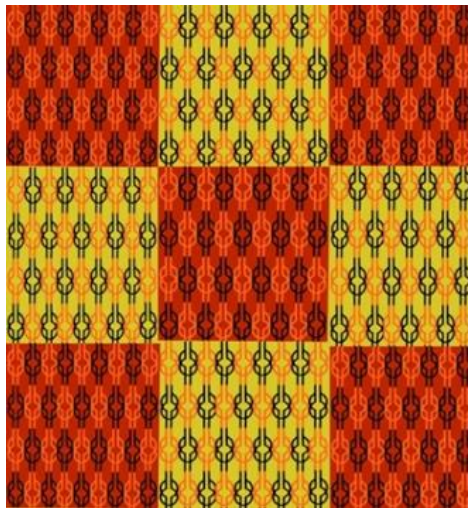


Figure 9.5: *Nyansapo* – ‘Wisdom knot’

The textile designs in Figure 9.4 and Figure 9.5 can be used in making clothing for activities that involve education; for example, dresses and shirts for students, school bags and laptop and tablet cases.

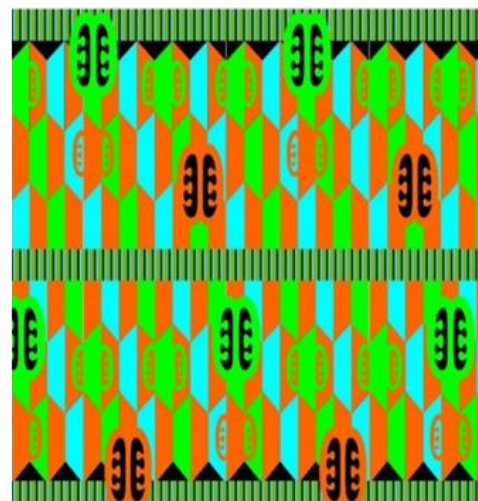
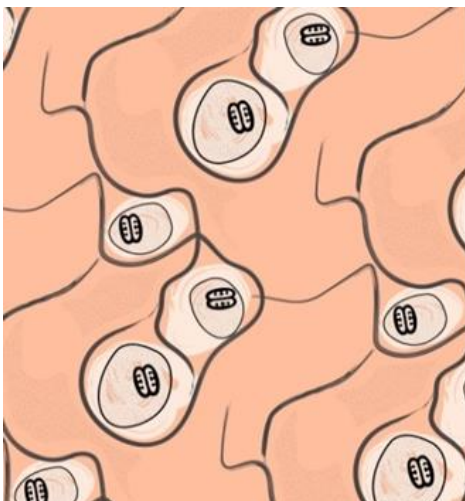


Figure 9.6: *Ese ne tekrema* – ‘The teeth and the tongue’

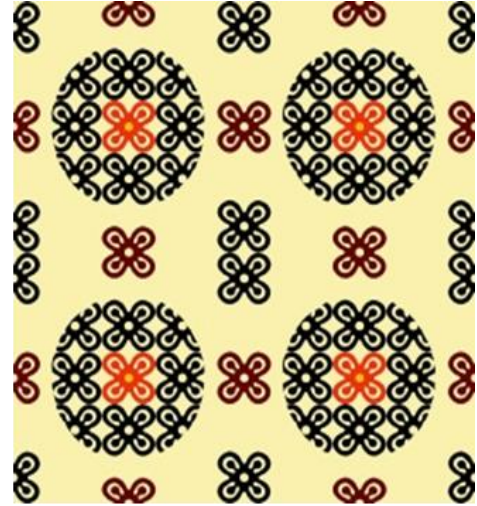
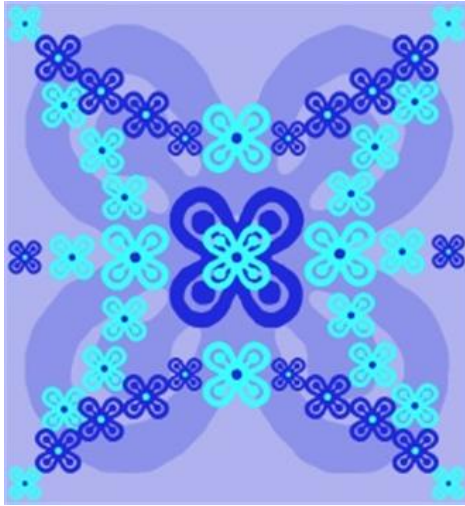


Figure 9.7: *Bese saka* – ‘Sack of cola nuts’

The textile designs in Figure 9.6 and Figure 9.7 can be used in the production of clothing for activities involving friendship. For example, the designs can be used to produce purses, wallets and scarfs as gift for friends and other people.

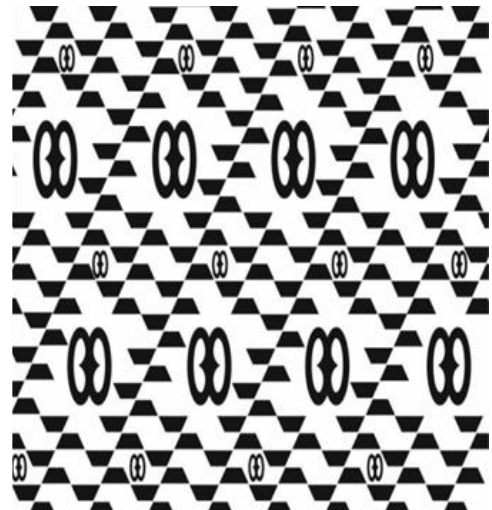
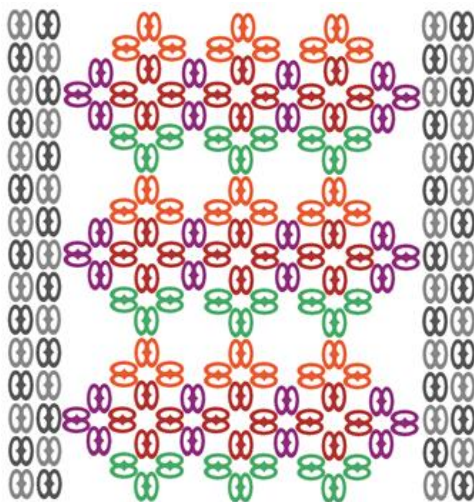


Figure 9.8: *Biribi wo soro* – ‘There is something in the heavens’

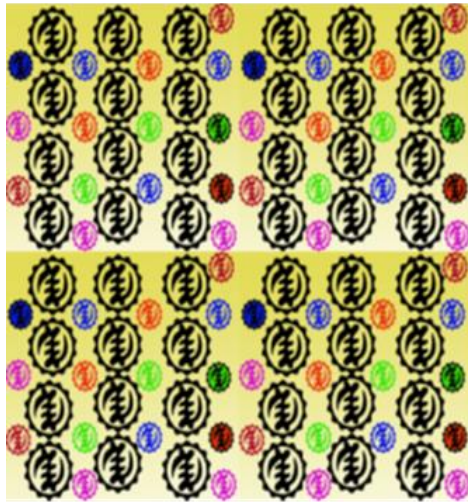


Figure 9.9: *Nyame ye ohene* – ‘God is King’

The textile designs in Figure 9.8 and Figure 9.9 can be used in the production of clothing for religious activities, for example, head covers, shirts, dresses, curtains and decorative items.

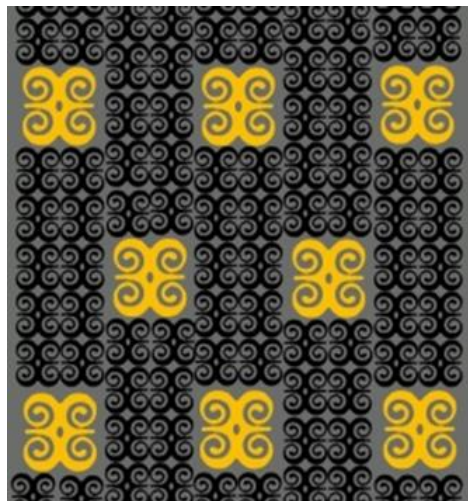


Figure 9.10: *Dwennimmen* – ‘Ram’s horn’



Figure 9.11: *Okodee mmowere* – ‘The eagle’s talons’

The textile designs in Figure 9.10 and Figure 9.11 can be utilised in the production of clothing for sport activities, for example, sports jerseys, scarfs and caps.

Note: All the Adinkra symbolic textile designs in Figure 9.2 to Figure 9.11 have been developed by the researcher in collaboration with RMIT University Masters of Fashion Entrepreneurship students, 2015 batch.

9.2.2 Digitised printed fabrics in different fibres and fabric constructions

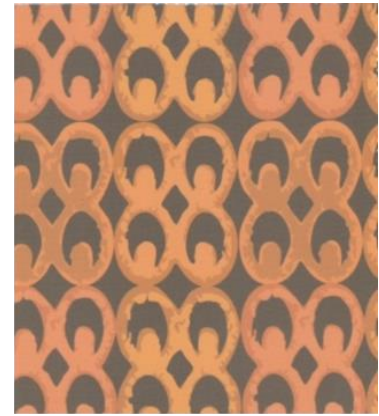
The catalogue of digitised printed swatches of Adinkra symbolic fabrics is shown in Figure 9.12 to Figure 9.18. The nature of the fabric: type of fibre, construction of yarns and filaments, fabric construction and chemical treatment, provides a diversity of choices for the manufacturing of additional textile products. The availability of a variety of Adinkra symbolic textile prints can enhance the production of Adinkra symbolic clothing for different modern social activities and practices. This will propagate the symbols and their meanings in the target society.



Polyester

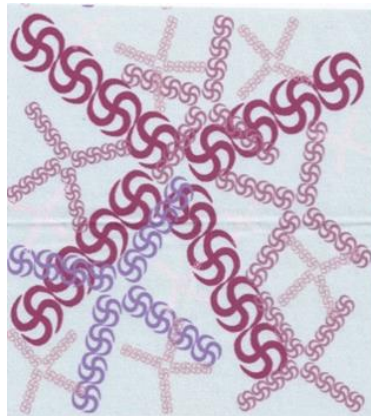


Linen cotton canvas

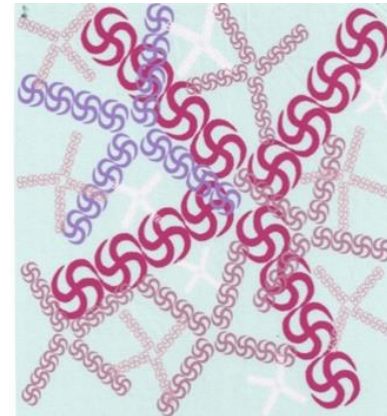


Silky faille

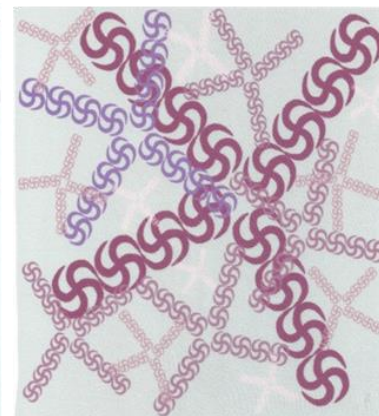
Figure 9.12: *Mate masie* – ‘I have heard and kept it’ symbolic digitised fabrics



Cotton interlock knit

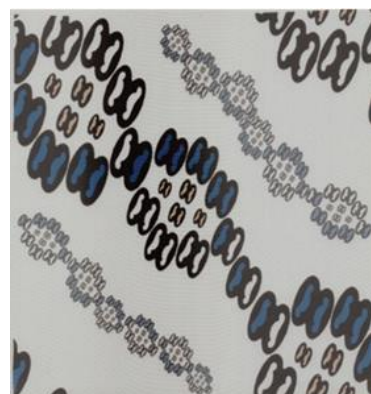


Performance knit

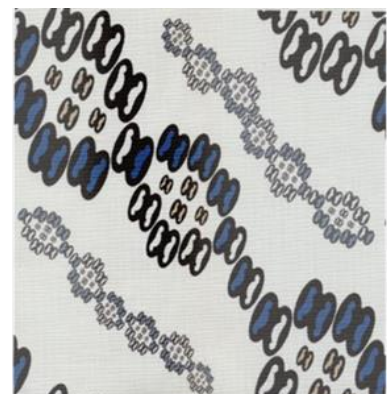


Silk crepe de chine

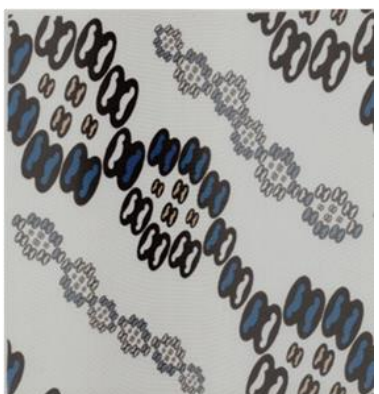
Figure 9.13: *Okodee mmowere* – ‘The eagle’s talons’ symbolic digitised fabrics



Organic cotton sateen



Linen cotton canvas

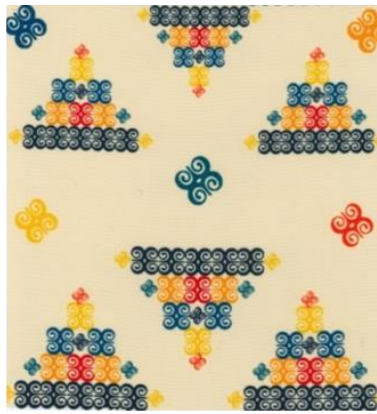


Silk crepe de chine

Figure 9.14: *Nkonsonkonson* – ‘Chain link’ symbolic digitised fabrics



Heavy cotton twill



Organic cotton sateen



Linen cotton canvas

Figure 9.15: *Dwennimmen* – ‘Ram’s horn’ symbolic digitised fabrics



Kona cotton quilting

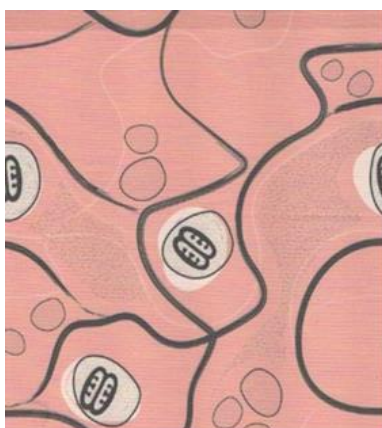


Linen cotton canvas



Interlock knit

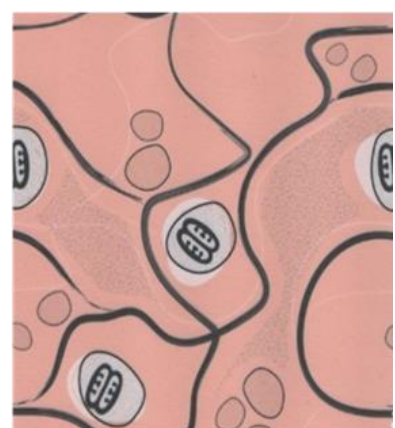
Figure 9.16: *Bese saka* – ‘I have heard and kept it’ symbolic digitised fabrics



Cotton poplin



Silk crepe de chine



Silky faille

Figure 9.17: *Ese ne tekrema* – ‘The teeth and the tongue’ symbolic digitised fabrics

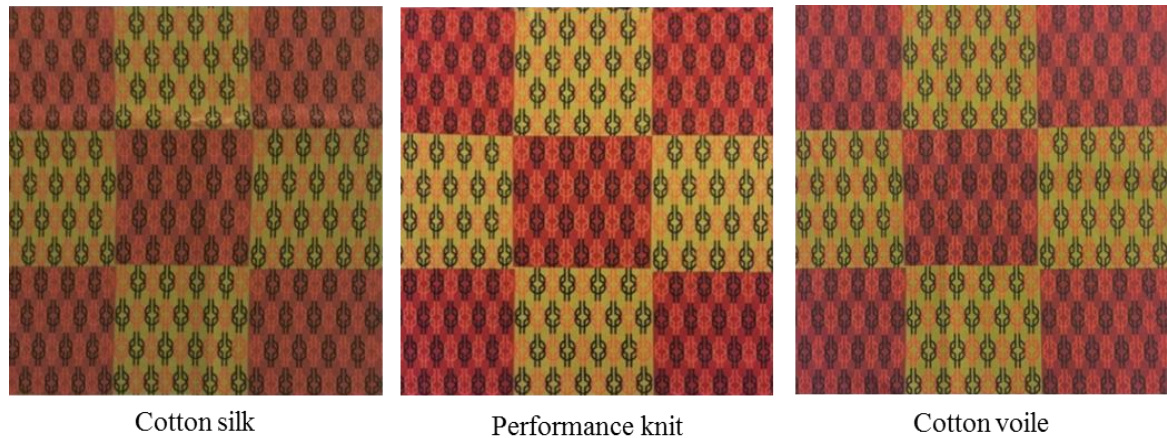


Figure 9.18: *Nyansapo* – ‘Wisdom knot’ symbolic digitised fabrics

It can be seen that each roll of the sample fabrics, which consist of three fabric swatches, have different shades of colours, structures and textures. All these textile properties avail themselves to different product ideas and constructions of clothing. The availability of different Adinkra symbolic clothing can enhance the choice, selection and usage of the products which in turn can promote the use of the symbols and spread their meanings.

All the polyester fabric swatches were printed free of charge by the Bravo Digital Print Group, 149 – 151 Atlantic Drive, Keysborough, Melbourne, Victoria.

9.3 Three-dimensional (3D) printing

The process for translating flat art designs into a physical 3D form can be achieved by modelling the form in Rhinoceros, a 3D modelling software. The line work has to be imported from Illustrator and then extruded into the z axis, giving it height. In order to extrude the shape, a decision has to be made as to which of the areas of the design will be solid and which areas will serve as the voids.

Once the model is complete, it is scaled to the desired dimensions and saved as an STL (Stereo Lithography) mesh. This process converts the surface area of the form into a series of polygons: flat shapes with straight edges. Many thousands of these facets are required to

build a shape which appears to curve, as short straight sections are used to give the appearance of roundness.

The STL files must be free of errors: areas where the polygons overlap, do not form a fully enclosed surface or do not meet up neatly with other polygons. Repair to these errors in the polygon mesh is achieved with Rhinoceros or a third-party software such as Netfabb or Magics. Once the file is ready, it can be opened in the 3D printer software interface and printed in the chosen material. Figure 9.19 shows the 3D machines used for printing.



Figure 9.19: 3D printing machines, large and small sizes

Source: RMIT University, Brunswick campus

The *Bese saka* ‘Sack of cola nuts’ – symbol of power, togetherness and unity, which this thesis has linked to friendship activities, was used in the 3D design and printing. The technology of 3D printing transformed the *Bese saka* symbol into a solid figure. The 3D printed *Bese saka* symbol can serve as emphasis and highlights the use of the symbol because of its thickness, different materials and varied colours that can be used in production. Figure 9.20 to Figure 9.22 show the catalogue of fashion accessories designed as products embedded with the *Bese saka* – ‘Sack of cola nuts’ symbol in 3D printing.

These fashion accessories can be used as souvenirs and gifts for friends and loved ones to spread the Adinkra symbol and its meaning, which is linked to friendship.



Figure 9.20: 3D printed Adinkra symbolic rings, bangle and necklace



Figure 9.21: 3D printed Adinkra symbol embedded in purse, hand bag and backpack



Figure 9.22: 3D printed Adinkra symbol embedded on hat and scarf

9.4 Three-dimensional (3D) knitting

The process for translating artwork into a Jacquard knitted textile on the Shima Seiki industrial knitting machine is to have the artwork as a digital file to be converted into a knitting program. This digital file can be a scanned hand drawn image or an image that has been created in an Adobe Creative Suite program. The image can also be drawn directly into the knitting program by using Knitpaint software on the Shima Seiki computer attached to the machine.

Each pixel of the digital file is converted into a single stitch. A series of knit stitches adjacent in a row creates a ‘course’ of knitting. Each course is knitted by the yarn feeders travelling horizontally across the needle bed. The next course of stitches is knitted into the previous course (and so on) to create the length of the knitted fabric. The specified design is knitted into these courses of stitches.

The number of colours used in the design need to be allocated to the physical yarn that will be knitted; for example, four different colours used in the design will need to be knitted with four different yarns. As each course is knitted, the computer program determines which stitch uses which yarn that is allocated to that particular colour and communicates to the specified yarn feeder holding that colour.

The two most commonly used Jacquard knitting techniques produced commercially are tubular Jacquard and bird’s eye Jacquard. Tubular Jacquard is knitted in two colours and depicts the intended design on the ‘technical face’ of the fabric and shows the reverse of the design, in inverted colours, on the ‘technical back’ of the fabric. Bird’s eye Jacquard can use two colours, or more, and the intended multi-coloured design is shown on the ‘technical face’ of the fabric, while the ‘technical back’ of the fabric shows the knit stitches in the

remaining colours that have not been used on the front of the design. Figure 9.23 shows the Shima Seiki knitting machine.

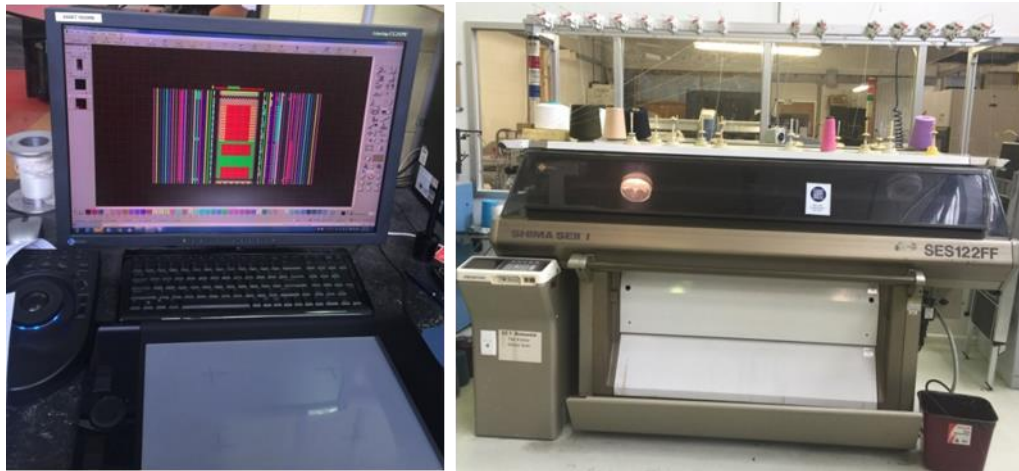


Figure 9.23: 3D knitting machine – Shima Seiki
Source: RMIT University, Brunswick campus

Samples of modern activity clothing are catalogued in Figure 9.24 to Figure 9.26. Three Adinkra symbols have been utilised in the 3D knitting technology: *Okodee mmowere* ‘The eagle’s talons’ – symbol of strength and unity, *Dwennimmen* ‘Ram’s horn’ – symbol of humility and strength, and *Mate masie* ‘I have heard and kept it’ – symbol of knowledge and wisdom. The meanings of these symbols have been linked to the clothing in order to create easy identification and understanding of these meanings. For example, in Figure 9.24, a leg warmer has been knitted with the Adinkra symbol *Okodee mmowere* ‘The eagle’s talons’ – symbol of strength and unity, to depict sport activity and ease of understanding of the meaning of the symbol.



Beanie



Leg warmer

Figure 9.24: Sports clothing in *Okodee mmowere* symbolic design



Scarfs



Neck warmer



Circular scarf: front and back views

Figure 9.25: *Dwennimmen* and *Okodee mmowere* symbols in everyday clothing



Figure 9.26: Education clothing in *Mate masie* symbolic design

The book bag, skirt and blouse in Figure 9.26 have been designed and made through 3D knitting technology. The Adinkra symbol *Mate masie* – ‘I have heard and kept it’ has been selected and used in the construction of these items to link the meaning of the symbol to learning and education. The skirt and blouse can be worn by female college students. The book bag can be carried by all manner of students to hold books and other learning materials including pens, pencils and rulers.

Note: 3D knitted clothing with the Adinkra symbols: *Dwennimmen*, *Okodee mmowere* and *Mate masie* shown in Figure 9.24 to Figure 9.26 were developed by the researcher in collaboration with RMIT University Masters of Fashion Entrepreneurship students, 2015 batch.

9.5 Jacquard weaving

The Picanol loom-weaving machine at RMIT University Brunswick campus is a double rapier loom with a Jacquard head. The process for translating a symbol into a woven textile is achieved by converting a two-dimensional design in the Scotweave Jacquard software. The design of the selected symbol/s is imported as a digital file (it can be scanned, imported

from an Adobe design program, for example, Photoshop or Illustrator, or drawn directly in Scotweave). In this case, the files were imported from Photoshop.

Once the design is imported into Scotweave, it is reduced to a scale compatible with the technical specifications of the loom, in this case a Picanol Loom. The file is then ready to have the number of colours in the artwork reduced. The number of colours in an artwork relates to the number of weave structures to be used in the resulting fabric. Single pixels are eliminated from the file and the file is ‘cleaned up’ to ensure fine lines contain three or more pixels in order that the line will be visible once woven. Once this is done, the file is then taken into the Jacquard design part of the program and the artwork colours are replaced by the weave structures.

The Jacquard design file is then ‘cleaned up’ to have its float sizes restricted so as to be compatible with the end product (shorter float sizes for upholstery, slightly longer float sizes for apparel). A ‘tie file’ is created by using a ‘harness’ file that has been specifically designed for the Picanol Loom; in this case, a Bonas harness file was used. The Jacquard design file is embedded within the harness and a tie file is the result. This is the final file that is then loaded onto a Universal Serial Bus (USB) ready to be read by the loom. The fabric is then woven by the Picanol Loom in the chosen weft yarn.

Figure 9.27 shows the Jacquard weaving machine (Picanol GTM – AS) at RMIT University Brunswick campus. This weaving machine has been used to obtain the fabrics for the products in Figure 9.28.



Figure 9.27: Jacquard weaving machine (Picanol GTM – AS)

Jacquard weave was adopted and utilised in the production of fabrics for soft furnishings and academic gowns with the following Adinkra symbols; *Dwennimmen* – ‘Ram’s horn’, *Nyansapo* – ‘Wisdom knot’, *Ese ne tekrema* – ‘The teeth and the tongue’, *Bese saka* – ‘Sack of cola nuts’ and *Mate masie* – ‘I have heard and kept it’. Jacquard weave projects the Adinkra symbols and makes them visible that can enhance the spread of the symbols and their related meanings.



Figure 9.28: Soft furnishings and academic gown in Jacquard weaving

The Adinkra symbolic designs in Jacquard weave have been constructed into soft furnishings and a woven strip with *Mate masie* has been attached to decorate open front of an academic gown, in Figure 9.28. The Jacquard weave technology helps in raising the symbolic designs on the fabric and highlights the designs to make them easy to see. The soft furnishings can be used to decorate chairs and sofas, and communicate to people. For example, the armrest made in ash and black colours with the Adinkra symbol *Dwennimmen*, can be displayed and used in an office to highlight and promote the strength that one has to gain or needs to perform a piece of work. Equally, the meaning of the symbol is ‘humanity and strength’ and this connects the kind of activity or performance to the product. The linkage of the product to the activity provides easy understanding of the meaning of the selected symbol.

9.6 Summary

In this chapter, different clothing and advanced textile technologies have been identified, adopted and utilised. These technologies are 3D printing, 3D knitting, digital printing and Jacquard weaving. The utilisation of these technologies has produced different Adinkra symbolic fabrics and clothes with a variety of colours, textures and weights. These fabrics were produced with colour-fast dyes and without printing defects, which represents an improvement of the current Adinkra cloths, which are commonly made from non-colour-fast dyes and have some printing defects, coupled with hard and heavy textures of cloth. The clothes have been also made through linking the meaning of the selected Adinkra symbol to the chosen activity in which the garment can be used.

The utilisation of these advanced clothing and textile technologies have led to the production of fashion accessories, assorted clothing and soft furnishings with modern clothing and textile designs in arrays of colours. The meaning of each product has been

linked to a selected activity in order to enhance easy understanding of the meaning of that selected Adinkra symbol for the design. These Adinkra symbolic textile fabrics and clothes are expected to enhance the spread of the symbols, as many and different fashion products have been manufactured.

Chapter 10 Conclusion and further research

10.1 Introduction

The current traditional Adinkra cloth and its associated problems have been evaluated and described in Chapter 6. It has been determined that the low patronage of Adinkra cloth is largely due to its poor quality and restrictions that narrow the usage, which affects the spread of the Adinkra symbols and their meanings. There was a general consensus among the interviewed key stakeholders of the clothing and textile industry in Ghana to innovate the cloth for maintenance of the Adinkra symbols. The symbols have educational meanings and embody the culture of the Ghanaian people and must be conserved for current and future use. The participants in the interviews suggested the use of different fabrics and dye colours for the development of innovative Adinkra cloth and clothing.

10.2 Summary

Chapters 2, 3 and 4 have reviewed the related literature and established the theoretical framework for the thesis. They focus on the history of the Adinkra symbols, the symbolic Adinkra cloth and the operations of the Adinkra textile cottage industry. The identification of gaps in the literature has revealed limited usage of Adinkra symbols among Ghanaians. There is therefore a need to both document the symbols in a different way and adopt the use of the symbols through innovation in the qualities of the Adinkra symbolic cloth to meet the preferences of Ghanaians, especially the youth. In order to make improvements to the Adinkra sub-sector of the textile industry, a situational analysis of the sub-sector has been conducted to identify existing problems. The situational analysis has resulted in the identification of problems such as the low level of consumer satisfaction, lack of a supply chain and outdated technology. The need for modification of the cloth and use of the

symbols for other fashion products has therefore been identified. As a result, the theory of innovation has been used as one of the theories that underpin this thesis.

After innovation, the end products need to be accepted in the market and this is proposed to be achieved through the diffusion of innovation. Diffusion theories have been studied in conjunction with innovation theories to form the theoretical background of the work. This has enabled the adoption of the symbols as designs for the production of modern fashion goods capable of meeting the needs of the Ghanaian market. Five facilitating factors that can enhance the diffusion of the Adinkra symbols in the clothing and textile industry have been identified, listed and discussed in line with the current market trends. Based on these five facilitating factors, a model for the diffusion of the meanings of the symbols through innovative Adinkra symbolic cloths and other products has been proposed.

The current manufacturing technology for the Adinkra cloth is outdated and does not promote efficiency in production. The production process for a single cloth is time-consuming and laborious. The technology has seen some transformation in terms of how designs are printed on cloths, but the end product still suffers from visible design defects. It has been realised that, although the literature has identified this as a problem, no study had attempted to provide a solution. As such, this study has aimed to examine possible technologies that could be used to enhance the production of innovative Adinkra symbolic cloth.

In Chapter 5, the focus is on investigating the thesis research writing with respect to the various guidelines that are linked to research work. The methodology and research methods that could aid this thesis have been examined. Three-phased approaches to solving the research problem of the thesis have been discussed based on the set objectives. The methodology of the thesis has been outlined based on both the research questions and the

philosophy. Data collection strategies, for example, data collection techniques, choice of population, sampling techniques, sample size, sample characteristics and research sites, have been stated and discussed. In data analysis technique, the data reduction software NVivo 10 has been considered for quantifying the qualitative data for simple statistical analysis and description of the findings.

From the findings in Chapter 6, it is evident that the Adinkra cloth in its current state does not meet the needs of consumers. This is mainly due to the use of heavyweight fabrics and a single black-coloured dye. In view of this, potential new products have been investigated, which has resulted in the proposal to modify the existing Adinkra cloth through the use of lightweight fabrics and different dye colours to result in product variation. To meet the changing needs of consumers, the interview participants also proposed the adoption of some of the symbols for the production of other fashion accessories and clothing products. One challenge is the type of technology that is capable of aiding in the production of these suggested innovative products.

Therefore, modern technologies have been identified and investigated by using them for the production of some of the products suggested by the participants. The results show the outmoded method of production, which confirms the gaps in the literature. In view of this, it has been proposed that firms in the industry with the technical know-how should adapt to modern technologies for the production of new Adinkra symbolic fabrics and clothing. Four main existing modern technology forms, 3D printing, 3D knitting, digital printing and Jacquard weaving have been used for the production of innovative Adinkra symbolic cloth, clothing and accessories.

After production, it has been deemed important to spread these innovative products and ensure that they are successful. Their success is dependent on their acceptance among the

participants, who served as representatives of the Ghanaian consumer market. The spread of an innovation is through networks of relationships existing within an industry. Even though the study has identified participants from the clothing and textile industry of Ghana, there is no existing supply chain to effectively disseminate the idea of the new Adinkra symbolic products in the Ghanaian market.

In Chapter 7, the documentation of 60 original Adinkra symbols and the selection of ten specific symbols for the design of the suggested Adinkra symbolic products have been discussed. This documentation is to fill the gap identified in the literature review in Chapter 2, where the last documentation of Adinkra symbols was found to be about a decade ago. This is proposed to have the effect of saving the symbols from extinction. The documentation adopts Maslow's hierarchy of needs theory to suggest the possible adoption of the symbols as guides by Ghanaian society for attaining life goals at different stages. This is seen as key to the spread of the meanings of the symbols, because individuals can select symbols to motivate them to achieve their specific objectives in life.

Due to the absence of an effective supply chain, the distribution activities of the industry are ineffective. In this sense, a supply chain model has been developed in Chapter 6 to aid in both the distribution of the innovative Adinkra products and spreading of the innovative idea, which has the effect of spreading the meanings of the symbols through consumption. One significant feature of the supply chain is the network which depicts the interdependence of all stakeholders for specific needs throughout the production and distribution process. This ultimately creates a system of a closed loop where the producers can receive feedback on their products in order to factor them into customer needs when producing innovative Adinkra products. Similarly, a model for the diffusion of the innovative Adinkra products has been developed to ensure that the meanings of the symbols can be spread through consumption of the innovative products. The model uses the five facilitating factors as its

pivot, adding consumer behaviour for enabling acceptance of the products within the Ghanaian market and the proposed supply chain as the network through which the symbolic meanings of the innovative products can be spread.

In Chapter 9, different clothing and advanced textile technologies have been identified, adopted and utilised in actual production. 3D printing technology has been adopted for the production of fashion accessories to highlight the symbolic value of these products. This particular technology has resulted in Adinkra symbols embedded in the fashion accessories. 3D knitting has been used for the development of clothing including a skirt and blouse, bags and hat. Digital printing as a technology has been used for the development of fabrics of different weights, designs and colours. These designs are specifically related to the modification of existing Adinkra symbolic cloth to improve current practices. Lastly, Jacquard weaving has been used for the production of soft furnishings and an academic gown as a way of highlighting the symbols and spreading their meanings. The utilisation of these advanced clothing and textile technologies has led to the production of fashion accessories, assorted clothing and soft furnishings with modern clothing and textile designs in an array of colours. The meaning of each product has been linked to a selected activity in order to enhance easy understanding of the meaning of the Adinkra symbol selected for the design. These Adinkra symbolic fabrics and clothes are expected to enhance the spread of the symbols, as many and different fashion products have been manufactured.

10.3 Theoretical and practical contributions of the study

The main theoretical contributions of the study include development a supply chain model which can facilitate the spread of the Adinkra symbols as designs among the key stakeholders of the clothing and textile industry (Figure 8.1). The categorisation of the Adinkra symbols under Maslow's eight-level hierarchy of needs theory also adds new in-

depth knowledge of Adinkra symbolic studies in relation to the Ghanaian cultural principles of living (see Chapter 7).

The study has addressed the gap in the literature by linking the names of the Adinkra symbols to the meanings of current popular Ghanaian activities and practices for easy identification of the symbols and their related meanings (Chapter 9). It has been confirmed through the interviews that many Ghanaians do not know the educational meanings of the Adinkra symbols. In this thesis, a single symbol was selected at a time and adopted for use in designing textile fabrics and clothing that highlight the clear meaning embedded in the particular symbol. This expands on the documentation of the meanings of Adinkra symbols in the literature. There has been in-depth research conducted on the documentation of Adinkra symbols from authors like Glover (1971), Mato (1986), Quarcoo (1972) and Willis (1998). However, the use of Maslow's hierarchy of needs makes this documentation distinct and original.

The symbolic innovative fashion products have to be diffused in the market to ensure that they reach the final consumer for their meanings to be diffused. As a result, a conceptual model for the diffusion of the innovative Adinkra products has been developed in combination with consumer culture theory. It is argued that, because the symbols emanate from the culture of Ghanaians, they can drive consumption to ensure the diffusion of their meanings associated with specific popular activities, as postulated by the theory of consumer culture. This is reinforced by the argument that Ghanaians buy cloth and clothing based on their proverbial names and meanings (Cole & Ross, 1977).

In relation to the practical contributions of the thesis, the study has raised relevant issues facing the Adinkra sub-sector of the textile industry in Ghana and emerging economic opportunities have also been identified. Such issues include the lack of satisfaction by

consumers regarding the existing Adinkra symbolic cloth, outmoded technology and absence of interrelationships among the key stakeholders. As a result, several suggestions for new product development were given by the interview participants, who highlighted the need for the development of some innovative clothing products.

In relation to the innovative cultural Adinkra cloth suggested in this thesis, it appears to be the first of its kind to use modern clothing and textile technologies for the production of Adinkra symbolic clothes. Traditional Adinkra symbolic cloth is limited in use in modern Ghana. There is therefore a need to implement the identified technologies in the industry to enhance the acceptance and use of the symbols and the cloth in order to avoid the disappearance of the symbolic cloth from Ghanaian society. Outdated production technology is being used by the artisans, which hinders efficiency and profitability in the Adinkra sub-sector of the textile industry. The Adinkra symbols can be embraced as designs for innovative Adinkra textile fabrics and clothing to meet the present-day trends of clothing needs in Ghana.

10.4 Proposal for further research

It is clear that this thesis has focused on certain specific areas, including documentation of Adinkra symbols and development of an association between the meanings of selected symbols and popular social activities and practices. It has also developed a supply chain model for the clothing and textile industry of Ghana and a conceptual model for diffusion of the meanings of Adinkra symbols, proposing the use of modern technology in the production of Adinkra symbolic products. Lastly, the thesis has also developed clothing using the Adinkra symbols as designs, including fabrics, soft furnishings and fashion accessories.

However, there still remain some gaps in the research on the Adinkra symbolic cloth sub-sector that needs to be further studied. For example, the list of modern technologies introduced in this thesis is not exhaustive. Therefore, further research can examine the potential of other forms of clothing and textile technologies, such as embroidery, crocheting and laser-cutting. This could aid the stakeholders to choose from a range of different technologies for different designs at different times. Also, the symbols need to be studied further to identify other social activities and practices that can be associated with other symbols in addition to the ten that have been selected and used in this thesis. Moreover, there are several fabrics apart from those that have been used in the development of innovative Adinkra symbolic clothing. Hence further research could examine other fabrics and their appropriateness for the development of Adinkra symbolic clothing. Lastly, dye chemists should investigate different types of natural dyes in different colours, as this is among the prominent challenges facing the artisans.

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Appendices

Appendix A: Ethics approval



Design and Social Context College Human Ethics Advisory Network (CHEAN)
Sub-committee of the RMIT Human Research Ethics Committee (HREC)

Notice of Approval

Date: 31 March 2015

Project number: CHEAN A 0000015678-08/13

Project title: The Diffusion of Adinkra Symbols in the Modern Ghanaian Clothing and Textiles Industry

Risk classification: Low Risk

Investigator: Dr Arun Vijayan and Josephine Aboagyewaa-Ntiri

Approved: From: 31 March 2015 To: 03 March 2017

I am pleased to advise that your request to change project title to "The Diffusion of Adinkra Symbols in the Modern Ghanaian Clothing and Textiles Industry", inclusion of Mr Mac Fergusson as second supervisor and the use of Adinkra Symbols to support different technological design ideas for project work has been granted ethics approval by the Design and Social Context College Human Ethics Advisory Network as a sub-committee of the RMIT Human Research Ethics Committee (HREC).

Terms of approval:

1. **Responsibilities of investigator**
It is the responsibility of the above investigator/s to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by the CHEAN. Approval is only valid whilst the investigator/s holds a position at RMIT University.
2. **Amendments**
Approval must be sought from the CHEAN to amend any aspect of a project including approved documents. To apply for an amendment please use the 'Request for Amendment Form' that is available on the RMIT website. Amendments must not be implemented without first gaining approval from CHEAN.
3. **Adverse events**
You should notify HREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
4. **Participant Information and Consent Form (PICF)**
The PICF and any other material used to recruit and inform participants of the project must include the RMIT university logo. The PICF must contain a complaints clause including the project number.
5. **Annual reports**
Continued approval of this project is dependent on the submission of an annual report. This form can be located online on the human research ethics web page on the RMIT website.
6. **Final report**
A final report must be provided at the conclusion of the project. CHEAN must be notified if the project is discontinued before the expected date of completion.
7. **Monitoring**
Projects may be subject to an audit or any other form of monitoring by HREC at any time.
8. **Retention and storage of data**
The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

In any future correspondence please quote the project number and project title.

On behalf of the DSC College Human Ethics Advisory Network I wish you well in your research.

Suzana Kovacevic
Research and Ethics Officer
College of Design and Social Context
RMIT University
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Appendix B: Interview question guide



**School of
Fashion and Textiles**



INTERVIEW QUESTIONS ON BARRIERS TO THE DIFFUSION OF SYMBOLIC CULTURE IN THE GHANAIAN CLOTHING AND TEXTILE INDUSTRY

INDIVIDUAL / CORPORATE INFORMATION

<i>COMPANY NAME</i>	
<i>COMPANY ADDRESS</i>	
<i>TOWN / CITY</i>	
<i>POST OFFICE BOX</i>	
<i>COUNTRY</i>	
<i>EMAIL ADDRESS</i>	
<i>NATURE OF BUSINESS</i>	
<i>NO. OF EMPLOYEES</i>	
<i>SALES TURNOVER</i>	

INTERVIEW QUESTIONS

The questions below are based on key issues such as knowledge, relationships, technology, absorptive capacity and consumer culture of stakeholders in the supply chain that influence the diffusion of symbolic culture of Adinkra symbols as designs for printed fabrics and clothes in the Ghanaian clothing and textile industry.

Continued interview question form

The interviews took approximately 50 to 90 minutes.

This set of questions is about your organisation's *KNOWLEDGE* of Adinkra symbols.

- 1. What is the extent of your organisation's knowledge of the names of the Adinkra symbols?**

- 2. What is the extent of your organisation's knowledge of the meanings of the Adinkra symbols?**

- 3. What do you think are the technologies used in Adinkra cloth printing?**

- 4. How can these technologies be compared to the well-established textile industry technologies?**

- 5. What are the extents to which your organisation knows of materials such as natural dyes, stamps and fabrics for Adinkra cloth?**

6. How can the technologies used in the Adinkra textile cottage industry be upgraded?

7. How reliable are the intended upgraded technologies compared to existing technologies that they will have to replace?

8. How does the cost of production using upgraded printing technologies compare to the current Adinkra technologies?

- MATERIALS (dyes and fabrics)

- LABOUR

- OVERHEADS

9. How reliable are dyes use for intended upgrade of Adinkra textile printing compared to the existing technology that they will have to replace?

- 10. What are the colours used in the printing of the Adinkra cloth and what colours do you recommend to be used?**

- 11. How does current traditional Adinkra cloth print meet the end-use requirement for textile and garments?**

- 12. How will this intended upgrade of technologies meet the end-use requirements for the Adinkra cloth?**

- 13. How capable are the traditional Adinkra artisans in acquiring other technologies to be introduced?**

- 14. What are the key factors that influence the choice of technology for the Adinkra textile print?**

The next four questions are about RELATIONSHIPS and STAKEHOLDERS in the printing industry's supply chain.

15. Who are the key stakeholders with influence within the textile printing industry?

16. Who are the key stakeholders that your organisation relates to?

17. Who are the key stakeholders that influence the choice of technology within the textile printing industry?

18. What changes in your organisation's relationships with others in the textile printing supply chain would help promote the Adinkra printing production?

The next two questions are about your organisation's PRODUCTS.

19. To what extent will your existing products promote or hinder the Adinkra textile printing within the textile printing industry?

20. How innovative would your products need to be to promote the Adinkra textile production within the textile printing industry?

The next four questions are about your PRODUCTION AND BUSINESS PROCESSES.

21. To what extent will your existing production processes promote or hinder the Adinkra textile production within the textile printing industry?

22. To what extent will your existing business processes promote or hinder Adinkra textile printing within the textile printing industry?

23. How innovative would your production processes need to be to promote or hinder Adinkra textile production within the textile printing industry?

24. How innovative would your business processes need to be to promote or hinder the Adinkra textile production within the textile printing industry?

25. Finally, is there anything you think is important that has not been covered above concerning the topic of this research i.e. the diffusion of symbolic culture in the Ghanaian clothing and textile industry?

Thank you very much for your cooperation.

Appendix C: Published articles

Note: The published articles start from the next page.

Adinkra symbolic clothing for the empowerment of African women: Akan example

Josephine Aboagyewaa-Ntiri* and
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Abstract: Adinkra, a collection of symbols with names and meanings that represents the culture of Akans has existed over a century; yet, Adinkra is limited in usage because they are mostly utilised as designs on funeral costumes. This article emphasises on positive attributes of selected Adinkra symbols to serve as a source of design for both traditional and modern fashion products for the propagation of gender equality. Adinkra symbols as designs for modern women fashion and clothing products has the effect of highlighting on the meanings of the symbols to signify the strength of women, offer flexibility in their choice of dress to affirm the needed changes for women empowerment. An original contribution of this paper is to show another way of affirming changes necessary to engender women empowerment for gender equality. Through the use of selected Adinkra symbols as designs for clothing, women empowerment can be achieved through positive affirmation.

Keywords: Adinkra symbols; designs; fashion; spread; attitudinal change; empowerment and betterment; African women; Ghanaian Akan culture; Africa.

Reference to this paper should be made as follows: Aboagyewaa-Ntiri, J. and Vijayan, A. (2016) 'Adinkra symbolic clothing for the empowerment of African women: Akan example', *Int. J. Gender Studies in Developing Societies*, Vol. 1, No. 3, pp.267–277.

Biographical notes: Josephine Aboagyewaa-Ntiri studied fashion and textiles at the Higher National Diploma level in Kumasi Polytechnic, and holds an undergraduate degree in Home Economics; Clothing option from the University of Cape Coast. She also holds an MA Arts in Fashion and Textiles from the Nottingham Trent University and is currently a PhD candidate at the Royal Melbourne Institute of Technology University. She has 12 years teaching experience of fashion and textiles in tertiary institutions. Her research interest is on inculcating traditional ideas especially symbols into modern garments as a way to preserve symbols and to promote their usage.

Arun Vijayan is a Senior Research Fellow at the School of Fashion and Textiles, Royal Melbourne Institute of Technology University (RMIT) Australia. He has a textile technology background, with a Master of Science in Colour Chemistry and PhD in Textiles from the University of Leeds. He has over 15 years industrial experience and has worked for leading research organisations such as CSIRO and RMIT University, Centre for Advanced Materials and Performance Textiles, on various key industrial projects in the

advanced materials and functional textiles areas. He has worked closely with the textile industry and has focused on technological innovation and new product development to sustain growth.

This paper is a revised and expanded version of a paper entitled 'The adoption of Adinkra symbols by the modern Akan women of Ghana' presented at 23rd IAFPE Annual Conference of International association for Feminist economics, University of Ghana, Legon, Accra, 27–29 June 2014.

1 Introduction

Globally, human beings are seen in clothes, although the kind of material, fabric, motif, design cut and shape can differ from one place to the other. An observation has been made by Turner who discusses a closer look at the dressing of people from Kayapo native ethnic group of the southern borders of the Amazon forest revealing almost naked people in a fabric of cultural meaning as compared to elaborately draped Victorian dress (Turner, 2012). Dresses are used to perform many functions in cultures all over the world. For example, they serve as protection, adornment as well as depiction of culture (Eicher and Roach-Higgins, 1992). In most instances, it is the designs or motifs in dresses that send the intended messages as part of culture of a group of people.

In the Ghanaian society especially the Akan culture, specific designs in dress portrays the art and total life of the people. It is in this context that Omatseye and Emeriewen (2012) and Picton (1999) affirm that African art is full of history, aesthetics, powerful emotions, beliefs as well as politics. Dress is not only worn as a body cover, but for other functions. These other functions include identification and communication through the designs and motifs of dresses. These functions have their basis from beliefs and values of the people and they are the first consideration for dressing before its aesthetic quality. It is in the recognition of this that Cole and Ross (1977) express that most Ghanaians do not consider the aesthetics of cloths during purchase but the proverbial names and meanings that accompany the designs. In this regard, there are two main issues to consider. Firstly, dressing in a particular design makes one feel he or she belongs to a particular fashion group. Secondly, the sentiment attached to the proverbial names of either the motif or design of cloth is of much significance to the wearer in Ghana.

In Ghana, dress archives the content of culture and reveals individual attitudes. For this reason, designs in dress can be used as a channel to communicate and effect changes in the status of women of Ghana and Africa as a whole for empowerment and betterment. To confirm this, Matthews (1979) admits that, dress serves as a guide into other aspects of behaviour with its usage as material culture. Cultural designs and symbols in clothing (cloths and dresses) convey meanings to both the wearer and other people and can be used to communicate specific ideas. These ideas can be those that extol virtues of, for example, hard work, honesty and chastity.

In every society, there are different roles usually assigned to the different genders. These roles affect the livelihood outcome of these different genders. In an attempt to bridge the gap of gender inequality and to give equal opportunity to women that the Fourth World Conference on Women (1995) was held in Beijing. Since then many groups and organisations have sprung up with the same intention of nurturing the social,

political and economic status of women. As Balogun (2010, p.22) confirms, “various women liberation movements have evolved and there has also been considerable scholarly effort to expose the source and dangers of the oppression of women, restoring the identity and dignity of women, and empowering them for national development”.

One powerful tool that has been identified and can cause a change in the attitude of people is through the use of symbols. This is because symbols can be used to convey meanings from the originator to a recipient who understands the meanings (DeLoache, 2004). These meanings may help to reconstruct or/and shape human attitudes towards his or her environment. The body outfits or garment with traditional Adinkra symbols as designs can be a useful tool to enhance women’s standard of living because fashion is a sign language and an unspoken method of communication (Lurie, 1992). Traditional Adinkra symbols with their didactic meanings may help to realign the attitudes of most women to actively pursue careers, professions and vocations that would enhance their positions within every endeavour of society and more importantly to elevate their standards of living.

The human body has long been identified and used as one of the powerful media for communication. In the same vein, Eicher (2001) reports that the body becomes a symbolic stage through which social life can be displayed. If Adinkra symbols that signify women empowerment are used as designs for dresses, it can provide a platform for disseminating the meanings of the symbols which can have positive impact on women in society.

The focus of this paper is to highlight on empowerment of the African women with example from Ghana through the use of Adinkra symbols as designs for dresses. The intent here is to identify some traditional Adinkra symbols and their meanings that relate to betterment and empowerment of human attitudes. An attempt is made to bring to the fore, the Ghanaian beliefs and values and their connection with these symbols and to convey an in-depth knowledge of the symbols through exhortation and reflection. Adinkra symbols may help to realign the attitudes of most women to actively pursue a career that will improve their standard of living if the meanings are known and adopted, especially through their choice of clothing. This article was written because of the perceived absence of a text that covers the concept and significance of Adinkra symbols and symbolic garments in the Ghanaian society of Africa.

The paper has been structured as follows: Section 1 is dedicated to introduction of the paper. In Section 2, the literature review is also explained in terms of the Adinkra symbols and how symbolic meanings can be spread through dress. The methodology is discussed in Section 3 after which Section 4 discusses the selected symbols that can be used as designs for dresses to empower women in the African society. The last section is dedicated to conclusion of the paper.

2 Literature review

2.1 The role of women in Ghanaian cultural setting

Many cultures all over the world have ascribed roles for different sex groups. Within some of these cultures are body art and decoration to signify the role of each sex. From this view, Brain (1979) indicates that, in many parts of the world, but particularly in Africa and Melanesia, the tattooing of nubile girls is a sign of recognition of their future

roles and acceptable way of living their lives. So from that time, the minds and bodies of these young ladies are tuned to what they can or cannot do in that particular society. Acker (1992), Butler (1999) and Hofstede and Hofstede (2005) look at gender as socially constructed and instituted where emotional roles are clearly distinct. Gender roles are different for both sexes for example, males are supposed to be tough, self-confident and acquire material needs for the home. On the contrary, females are ascribed to be more modest, tender and concern with caring for homes. Again, gender can be described as the division of society into different segments for example biological, occupational and social roles (Balogun, 2010). All these difference in roles for different sexes are causing a setback for many women in the entire globe.

For decades past, a typical Ghanaian woman's role was centred in the house; house wife and home carer, child bearer and child carer, and perhaps subsistence farmer and trader (Matthews, 1979). These roles generate a lot of services but little or no income to support the rest of the family. As a result, the potential of women to contribute effectively to societal growth is limited. Ogundipe-Leslie (1993) affirmed this by suggesting that 'women work' was often poorly regarded when not totally unpaid. Coupled with these, the cultural setup is such that women are sidelined in actively contributing to the household when it comes to decision making.







2.2 Adinkra symbols and symbolic dress

In this modern way of life, many Ghanaian women need to be empowered to elevate their standards of living and survival of their families. Adinkra symbols are said to hold the key for life transformation activities and ventures (Arthur, 1994). Equally, Akpang (2013) asserts that, symbols are also used as a means of self-expressions that communicate difference in attributes. The traditional Akan people of Ghana have an ancient and rich cultural heritage that comprised elegant pictorial symbols known as Adinkra. Adinkra means 'farewell' (LaGamma and Giuntini, 2008; Quarcoo, 1972). These symbols are mostly printed on fabrics and termed as Adinkra cloth. The cloth was originally worn only during funeral ceremonies to bid farewell to the dead by royals (Danquah, 1968; Rattray, 1927). The Adinkra images are an art that serve as figurative symbols with maxims expressed through visual form. The Adinkra symbolise the Akan way of life with each symbol representing a proverb from the Akan cultural principles (Mato, 1986). The Adinkra symbols and their accompanying proverbs form a communication system that makes identification of the symbols less difficult. Adinkra symbols preserve, protect and communicate the cultural and spiritual values and beliefs of the people. According to Rattray (1927), an Adinkra symbol called 'Nyame, biribi wo soro, ma no meka me nsa' literally means, 'O God, everything which is above, permit my hand to touch it'. This pattern was stamped on paper and hung above the lintel of the king's bedroom door in the palace. The king of Ashanti used to touch the paper, then his forehead, then his chest, repeated these words three times every morning. He says these words with full hope and assurance that what he asked for would definitely happen. This shows the magnitude of belief the Akans possessed in these symbols.

This paper intends to project Adinkra symbols to all prospective readers especially African and particularly Ghanaian women to positively affect their attitudes to life. Some writers like Ogundipe-Leslie (1993, p.114), stresses that, "women [African] are shackled by their own negative self-image, by centuries of the interiorisation of the ideologies of patriarchy and gender hierarchy". To remove or lessen this mind set of many African

women especially Ghanaians, a table with Adinkra symbols (Table 1) has been constructed to be shared and probably study. Through these activities, individuals may identify and know the meaning of each symbol after deliberation and continuous acceptance. Bogatyrev (1971) highlights on cultural costume and reiterates that, drivers learn to recognise road signals as well as geographers learn to draw and use maps. From childhood, members of a given society have to learn to differentiate their costumes from that of others. This emphasises the importance of studying and understanding one's cultural attributes because they serve as guidelines for acceptable way of life for its members. The Ghanaian Adinkra comes in a collection of symbols. Each symbol has a name and meaning that relates to an aspect of social life. Examples include the existence of beauty, love, human training and life enhancement. The Adinkra symbols have been carefully selected amongst the lot to depict the theme of this article; women empowerment.

Table 1 Selected Adinkra symbols for betterment and empowerment of women

<i>Symbols</i>	<i>Names of symbols</i>	<i>Literal meanings</i>	<i>Roles</i>
	Aya	'Fern'	Symbol of endurance and resourcefulness
	Sesa wo suban	'Change your behaviour'	Symbol of life transformation
	Fawohodie	'Independence'	Symbol of freedom, emancipation and liberty
	Mmerɛ dane	'Time changes'	Symbol of dynamics in life
	Nyansapo	'Wisdom knot'	Symbol of wisdom, ingenuity and patience
	Nea ɔpese ɔbedi hene	'He who wants to be king'	Symbol of leadership

2.3 Dress as sign

Dress in this article can be explained as all items added up to the natural body which includes garment and accessories, make-up and body decoration. According to Eicher and Roach-Higgins (1992), dress is an assemblage of modifications of the body appearance. In this same vein, Wilson (2003) identifies dress as an extension of the body. Hansen points out that, dress at a point serves as a dual quality because it touches the wearer's body and faces other people outside (Hansen, 2013). To make the message of the meaning of Adinkra widely spread, outer wearable garments have the ability to mediate between self and society. Dress is worn for various functions. One of the most identifiable functions of dress is to serve as non-verbal means of communication (Bogatyrev, 1971; Omatseye and Emeriewen, 2012; Roach-Higgins and Eicher, 1995). In

this way, the wearer and the observer should have a clue of the intended message as well as the meaning that the dress sends. Someone who is not from the group or the society of that particular dresser will only see it as an object. When the meaning of the message in the dressing is not understood, Bogatyrev (1971) termed the dress as a technical production intended to protect the body. Dress as communication is like any other form of speech, albeit wordless in nature, with the same intention to send a message. This might be a possible reason for Wilson (2003) to term dress as always ‘unspeakably meaningful’. This may be explained that, dress has meaning and anything with meaning is intended to send message. This meaning becomes important only because of relationships with other people. To understand the meaning one has to learn and practice whatever dress communicates. Bogatyrev (1971, p.83) states “in order to grasp the social functions of costumes we must learn to read them as signs in the same way we learn to read and understand different languages”. To reinforce this assertion, Kwakye-Opong and Uche (2013) reveal that, to fully comprehend Akan traditional culture, a detailed and updated knowledge of clothing and adornment is required by individuals.

Dress may reflect the mood of the wearer. An individual who is in a certain mood may wish to externalise it so it can be conveyed to and shared with others. For example, if one dresses energetically it may inspire others who see the dress to be energetic. Although the viewer or the observer has not put on that dress, he or she may exhibit the energetic mood (Roach-Higgins and Eicher, 1979). Few women who may decide to wear Adinkra symbolic dress may externalise their moods, convey and share with others. This may assist in spreading women enhancement messages across the entire society.

The use of dress to communicate has been documented in different parts of Africa to emphasise on the cultural and symbolic importance of African dress. In the Yoruba town of Abeokuta in Nigeria of West Africa, during the postcolonial era, women used dress to articulate Christianity, political and cultural issues (Byfield, 2004). In southern Ethiopia, specifically in the town of Dorze, a shawl (Net’ela) is worn to indicate the wearer’s occasion. For example, shawl is worn with the border placed over the left shoulder for casual dressing, while for working mood the pattern in the shawl is worn over the right (Mathiszig, 2014). The use of dress to communicate is not a new phenomenon in Ghana either. Similarly, Dogbe (2003) alleges that dresses have been used in Ghana to express political ideologies in the past. For example, market women used cloth to convey political meanings to rally against Dr. Busia’s government which may have led to his overthrow through a coup in 1972.

2.4 Women and fashion

Fashion has been observed as a consumer good that receives great patronage from women (Nixon and Blakley, 2012). The reason for this high level of acceptance of fashion by women is because of the desire to imitate and be conspicuous (Simmel, 1957). It is based on this desire by women to be conspicuous in their dressing that clothing was chosen as a medium to spread the meanings of the Adinkra symbols to achieve women empowerment. In view of this, the use of Adinkra symbols as designs for clothing with the view of achieving women empowerment through the communicative power of symbols is appropriate.

Fashion has been observed as a field where females participate more than males. This attitude has been reported on over a long period by Simmel (1957) who supports the view that, women possess great delight in fashion items than that of their male counterparts. It

is in this context that Roy Morgan Research (2013) stated that nearly one in two women (49%) buys at least one piece of women's outerwear in an average of four weeks. Inferably, if more females buy and wear clothes often, then dress is an appropriate choice for the use of women empowerment exercise.

The empowerment of women is of great importance at this time where female population outnumbers that of their male counterparts. The high number of women when empowered can help in contributing their quota to ever-changing environmental, social and economic problems. In this stance, this paper argues that, the use of meaningful clothing or fashion in general can be a powerful tool that could help address these issues. According to Simmel (1957, p.551) "in a certain sense fashion gives woman a compensation for her lack of position in a class based on a calling or profession". This point is considered important in this research to make use of what women like to upgrade any shortcoming of not being on an equal level with their male counterparts when it comes to job placement; using what women are fond of (fashion) to sensitise them to get what they do not have. The use of the names and meanings of selected Adinkra symbols on female garments might work as a way to bridge masculine gap in Ghanaian societies and Africa as a whole. Women have been described as generally accepting and approving of different ways of life, yet they are strict in regard to their custom and observance (Simmel, 1957). If women adhere to their culture as stated, then the choice and use of symbolic Adinkra dress seems appropriate for the research and to spread the use of Adinkra symbols for cultural survival and modification.

3 Research methodology

The initial approach to this study was an in-depth study of the names and meanings of Adinkra symbols based on several documentations found in the literature. Glover (1971) and Willis (1998) documented a total of 60 and 69 symbols, respectively. These documentations were carefully studied and considered to make meaning for this paper. The reason for the choice of original Adinkra symbols was the fact that the symbols have deeper meanings and are educative at each stage in human life. The latest developed Adinkra symbols may have been created from some current activities and events with or without an abstract influence on individual attitudes. Among the 69 original symbols, six of them were carefully selected based on their names and meanings in relation to human empowerment and liberation, coupled with previous literature and experience of women in Ghanaian culture and particularly the cultural role designation as well as poverty level of females. Categorisation and interpretation of these symbols were made in line with Ghanaian cultural principles.

4 Discussion

This section of the paper is used to discuss the selected symbols from the Adinkra collection and highlights the potential of the symbols to impact positively on the lives of women in the African society especially, Ghana. This can be achieved through the use of the symbols as designs in clothing to give women the flexibility and choice to select from different designs of Adinkra dresses. The use of the symbols as designs with their

meanings serves as a conduit for achieving affirmative change in the attitude of women in society through the use of clothing.

4.1 Selected Adinkra symbols for the designing of clothing

- 1 Aya – ‘Fern’, is the symbol of endurance and resourcefulness. This symbol has been chosen as one of the potential designs to send a message to young ladies or women – to be steadfast in all their daily activities. They should understand and persist with what is right in the development of their lives. The meaning of the symbol is to have patience and forge ahead till one succeeds. With this message the Ghanaian women may ponder, reflect and exhibit examples in their life styles.
- 2 Sesa wo suban – ‘Change your behaviour’, is a symbol of character transformation. This symbol is taken to reassure all women in African societies especially Ghana of the essence of life, transformation and its influence on individuals. This particular symbol emphasises on life transformation in terms of character in the society. It can be linked to a proverb which states “Wo ahoɔ fe de wo beko, nanso wo suban de wo besan aba”. Literally, good character offers the best in society but a bad character leads to societal rejection. This symbol seeks to positively impact on the lives of women to lead acceptable lives in the society. The meaning of this symbol may be used to encourage as well as to sensitise women on personal development and betterment in life.
- 3 Fawohodie – ‘Independence’, is a symbol of freedom, emancipation and liberty. In current Ghanaian culture, some traditional male-dominated attitudes and dictations are losing recognition. Many fathers now wholly support their female child’s education. This should motivate young girls to climb higher the educational ladder and to achieve positions at job places according to their qualifications. The meaning of this symbol may be used to encourage young girls and women to move hand in hand with their male counterparts in obtaining equal opportunities in their day to day activities.
- 4 Mmerɛ dane – ‘Time changes’, a symbol of dynamics in life. The journey of life is not always smooth. The young ladies as well as women need to understand the ups and downs in life and to encourage them on changings that time comes along with. The meaning of this symbol, when understood, may encourage them to work very hard and prepare adequately for the unknown future. Body strength reduces alongside with aging, what one used to do at a younger age may not be done at older ages. Young ladies need to enhance their knowledge and be abreast with time for any necessary changes, as time never waits for any one. Making amendments to one’s life is one of the important ways to promote a higher standard of living.
- 5 Nyansapɔ – ‘Wisdom knot’, is a symbol of wisdom, ingenuity and patience. Young ladies or women need to be smart in this fast growing world. They should be encouraged to take both formal and informal education seriously to provide them with a holistic approach to life. To learn to acquire wisdom takes time and patience. The meaning of this symbol, when known and understood may go a long way to

motivate females to be more inventive and industrious. This may lead to lives lived better than before.

- 6 Nea o pe se o bedi hene – ‘He who wants to be king’, is a symbol of leadership. Young ladies and women should be encouraged to take up more challenging responsibilities and leadership roles. This may help to erase or reduce the reluctant nature of many females to involve themselves in leadership roles. By the meaning of this symbol when females learn and understand, they may be encouraged and sensitised in their behaviours to take up ‘masculine roles’ or better still nullify ‘masculine roles’.

4.2 Practical suggestions for the production of Adinkra symbolic clothing

The six selected Adinkra symbols for betterment and empowerment of women (Table 1) can be incorporated into a wide range of female clothing and accessories. The textile printing industries can select each of the symbols and fuse into different textile techniques such as laser cut, jacquard weave, three dimensional printing and embroidery. Clothing industries could as well use designed Adinkra fabrics to construct clothes and accessories. For example, blouses, skirts, scarves, handbags and belts. These products could be adopted for use in different modern social activities that will enhance women empowerment.

5 Conclusions

The ancient Akan traditional Adinkra symbols of Ghana have been identified as one of the oldest traditional symbols that can be reinvigorated and used in the current social context. Some of the names and meanings of the symbols can be used as a signboard to advise and encourage women on empowerment and improvement in their standard of living. Many Ghanaian women have been sidelined due to some aspects of the culture. Education is seen as a tool to liberate and inculcate positive attitudes and values in women. This kind of education has been identified in Adinkra symbols which can preserve, protect and communicate the cultural and spiritual values and beliefs of the Ghanaian people. These symbols may be used on clothing and accessories especially for women to sensitise them to learn and know the meanings of the symbols, which when pondered over may reflect such attributes in their lifestyles. Production of female garment designed with Adinkra symbols has been considered for use to send meaningful messages because fashion has been recognised as a field for more women participation.

There is therefore the need to persuade women on the use of clothing that are designed with Adinkra symbols in the Ghanaian society. Such an enchantment is hoped to motivate and alleviate more women to empower themselves and take up challenging roles in the modern era by adopting these symbols. If these symbols are identified, analysed and interpreted in the modern context, it will allow for continuous pondering over and may reflect in the lifestyle of women in Ghanaian societies.

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Challenges and Opportunities for the Textile Industry in Ghana: A Study of the Adinkra Textile Sub-Sector

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Abstract

The purpose of the study is to examine the challenges facing the Ghanaian textile industry with emphasis on the Adinkra textile cloth printing sub sector in Ghana, as well as opportunities for improving the industry. The sub sector is distinct and has different dynamics from other sub sectors of the broader textile industry. The study informs policy makers and private sector on the factors resulting in the decline of the Adinkra textile sub sector and the need to sustain the sub sector of the textiles industry due to its heritage importance and contribution to the economy. It also examines potential business opportunities for local and international firms to invest in the textile sub market for expansion and profitability. An empirical research design with mixed-methods approach was used in this study. A qualitative approach (semi-structured interviews) was used to collect the data, coded and analysed using standard NVivo software which generated quantitative outcomes for descriptive statistical analysis. Qualitative approach was also used to interpret the findings of the study. The results indicated that, factors such as lack of access to capital, outmoded forms of technology, issues with supply chain and nature of the dyes for printing the textile cloths are primarily responsible for the declining state of the sub sector. The implications of the challenges and the declining state of the sub sector are discussed and solutions proffered to solve the challenges.

Keywords: Adinkra cloth, challenges, business opportunities, textiles

1. Introduction

In the 21st century, there is no doubt that, small and medium enterprises (SMEs) play a significant role in the economic development of a country. Through trade liberalisation of the 1980's, the textile manufacturing sector of which the Adinkra small scale textiles cloth printing is a sub-sector, has been plagued with a number of challenges. This is compounded by the onset of the information and digital age on the industry which has shaped the industry products and processes. This has affected the Adinkra textile cloth production sub-sector tremendously; hence the Adinkra textile cloth production is now in a declining state.

Historically, the total number of large and medium sized textile manufacturing companies in Ghana by mid-1970's was in excess of 16 companies (Quartey, 2006) whereas the garment industry also had about 138 medium and large-scale garment manufacturing companies (Quartey & Abor, 2011). In sharp contrast, several factors ranging from unfavourable and inconsistent policies emanating from the central Government to market forces have resulted in a consistent decline (refer to Table 1 for the statistics). Statistically, the decline had been drastic that by March 2005, a count of the major companies existing in the industry was Ghana Textile Manufacturing Company (GTMC), Akosombo Textile Limited (ATL), Ghana Textile Product (GTP), and Printex (Quartey & Abor, 2011). Table 1 shows a drastic decline of total number of employers and yards of fabric produced between 1977 and 2005. For example, 25000 people were employed in 1977 and dropped to 2961 workers in 2005.

Table 1. Decline of the textile industry in Ghana

Year	Total number of employers	Percentage (%) change in employment	Yards of fabric produced
1977	25,000	-	129 million
1995	7,000	72%	46 million
2000	5,000	28%	65 million
2005	2,961	41%	39 million

Source: Adapted from Quartey and Abor (2011).

Quartey and Abor (2011) argued that, local consumers in the Ghanaian market prefer the locally manufactured fabrics as compared to the imported fabrics from both the neighbouring countries and abroad. Inferentially, if the locally made textiles and prints are preferred to the foreign imported products, this should result in increased demand for the local products to sustain the industry. However, the industry has experienced consistent decline as shown in Table 1. Currently a lot of workshops under trees and by road sides have been deserted and dilapidated (Field study 2014). This situation serves as evidence that reflects the decline state of the Adinkra textile cloth production. Again, Adinkra textile cloth printing is a dying art; there is a considerable decline in the use of Ghanaian cultural symbols (Kquofi et al., 2013) in textile prints.

Apart from the large manufacturing companies, there are other small-scale textiles and garment firms operating in the sector. These are mainly screen printers, tie and dye/batik cloth producers and dressmakers. Also, there are traditional or indigenous textiles such as Kente cloth (traditional woven fabric), Adinkra cloth (traditional hand printed cloth) and other types of undocumented woven fabrics available on the market. The focus of this paper is on the Adinkra cloth sub-sector which has also suffered from this decline.

Adinkra textile cloth needs to be reinvigorated in order to promote the symbols, preserve cultural material and sustain the business activities of the artisans for economic prosperity. It is believed that, this can be achieved through innovation and well-crafted dynamic competitive marketing strategies. However, crafting such a strategy requires current market situational analysis to determine the challenges facing the industry and examine the existing opportunities. These when determined, can shape the marketing strategy intended for this peculiar sub sector of the textiles industry in Ghana.

Several factors affect the small and medium scale enterprises worldwide and the Adinkra textile sub sector is among the SME's in Ghana. Some of the challenges and factors resulting in decline of SME's are lack of finance, low productivity, technology and managerial capabilities (Decker et al., 2006; Harvie, 2004; Ritchie & Brindley, 2000). Currently, other factors that affect the SME's includes an intensified globalisation that offers cheap products to international markets, new and emerging technologies that renders old technologies obsolete, cost ineffective and inefficient in production processes (Zulkifli-Muhammad et al., 2009). These factors negatively impacts on SME's and especially small businesses located in Africa that are competing with other global giants.

Studies on SME's in Africa have focused on country specific issues. However, Abor and Quartey (2010) studied issues in the development of SME's using a comparative analysis between Ghana and South Africa. It was argued that, the development of SME's are hampered by several factors including finance, lack of managerial skills, equipment and technology, regulatory issues, and access to international markets (Anheier & Seibel, 1987; Aryeetey et al., 1994; Gockel & Akoena, 2002; Steel & Webster, 1991).

On the small and medium scale enterprises in Ghana, Boakye (2008) suggested that there are numerous problems facing these companies. It was argued that internal capacity problems such as inadequate capital and lack of raw materials among others are the some of the problems of SMEs. Other external forces such as smuggling of manufactured textiles and garments from neighbouring countries like Togo, Benin and Nigeria and advance technologies in textiles and garments manufacturing of industrialised countries such as China and India.

A recent study that focused on one of the Ghanaian textile sub-sectors (cloth dyers) have been conducted by (Acquah & Oduro, 2012). The study technically evaluated the challenges faced by the cloth dyers sub-sector empirically with emphasis on the production of dyes needed for use by the industry. Among the challenges are poor quality of dyes, lack of drying facilities with its attendant effect on operations during the raining season, difficulty in accessing fuel wood for boiling roots and barks to produce the dyes, and lack of financial support to expand businesses. The study focused on identifying the type of trees suitable for the dye production, example Kuntunkuni tree. The question that needs an answer is whether these reasons adduced for the sharp decline of the textiles industry and its sub-sector are the same reasons behind the drastic fall in the production and employment capacity of the traditional Adinkra textile cloth sub sector.

Therefore, the present study is focused on the Adinkra hand printing textile cloth sub sector of the larger textile industry which is distinct from the cloth dyers in respect of designs, production and target group. Besides, the present study examines challenges and business opportunities within the sub sector for textile companies to better serve the needs of the market.

In summary, studies on the textile sector have focused on the SME's in general and the numerous challenges both from the broader African and country wide perspectives. In Ghana, it is the study of Acquah and Oduro (2012) that specifically considered the traditional cloth dyers textile sub sector. On the contrary, this study focuses on the traditional Adinkra hand printing textile sub sector.

This study therefore, sets out to determine the causes of declining state of the Adinkra sub sector and compare with studies on the textile sector in general to determine whether factors are same or otherwise, discuss the implications on this important sub-sector and present opportunities for sustaining the industry. Beyond this, industry and country wide implications of this decline are examined within the textile printing industry in Ghana with emphasis on the Adinkra textile cloth sub-sector. Lastly, it is an objective of this study to intellectually analyse the factors of decline, proffer solutions which can be turned into opportunities for businesses operating in the industry and other potential firms that may capitalise on the opportunities.

The study is organised into four main sections; introduction in section one, followed by research site and methods in section two and section three is dedicated to the discussion of the empirical results of the study and finally, the last section is used for conclusion and further research.

2. Research Site and Methods

2.1 Adinkra Hand Printing Cloth

A nation rich in history, Ghana has a unique culture with a continuous inheritance. One example is traditional symbols such as Adinkra. Adinkra is a visual image that combines aesthetics, history, wisdom, identity and the works of life of the people of Ghana (Quarcoo, 1972). Adinkra symbols serve as a tool for not only displaying aesthetic characters but also perceiving the world with its rich and deeper meanings. Adinkra symbols are usually imprinted on plain dark coloured fabric. These symbols are adopted as designs to produce symbolic textile cloth. Adinkra symbolic textile cloth is said to be the only African cloth printing tradition of pre-colonial origin and one of the prestigious royal craft (Clarke, 2011). In Table 2, samples of the symbols that are adopted as designs for the textile cloth is displayed with their names, meanings and roles. Figure 1 exhibits Adinkra textile printed cloth with a number of Adinkra symbols.

Table 2. Description of two Ghanaian Adinkra cultural symbols



SYMBOLS	NAMES OF SYMBOLS	LITERAL MEANINGS	ROLES
	Akoma ntoaso	"Extension of the hearts"	Symbol of understanding and agreement
	Dwennimmen	"Ram's horn"	Symbol of humility and strength



Figure 1. Adinkra textile cloth

2.2 Geographical Location

The production and marketing of Adinkra cloth is predominantly centred in the Ashanti region of Ghana. Specifically, the Kwabre East district of Ashanti region of Ghana is recognised for the printing and sale of local textiles known as Adinkra textile cloth. Many Ghanaians home and abroad used to patronise Adinkra textile cloth due to the meanings of the symbols hence, spreading their meanings.

Ntonso, a town in the Kwabre East District of the Ashanti Region of Ghana is known as the centre of Adinkra textile cloth making. The town is Ghana's foremost Adinkra cloth design and manufacturing centre. As can be seen in Figure 2, the district is located in the central part of the Region. The Kwabre District shares common boundaries with Afigya Sekyere District, Kumasi Metropolitan Area, Ejisu-Juaben-Municipal, Offinso Municipal and Atwima District to the north, south, southeast, west and to the northwest respectively. The area lies within the geographical coordinates of 6° 50' N and 10° 31' W with a total land area of 24,700 ha, constituting about 1% of the total land area of the Ashanti Region. In Figure 2, Kwabre district is shown using a red rectangular shape. An arrow has also been pointed to show the location of Ghana in the Africa map.

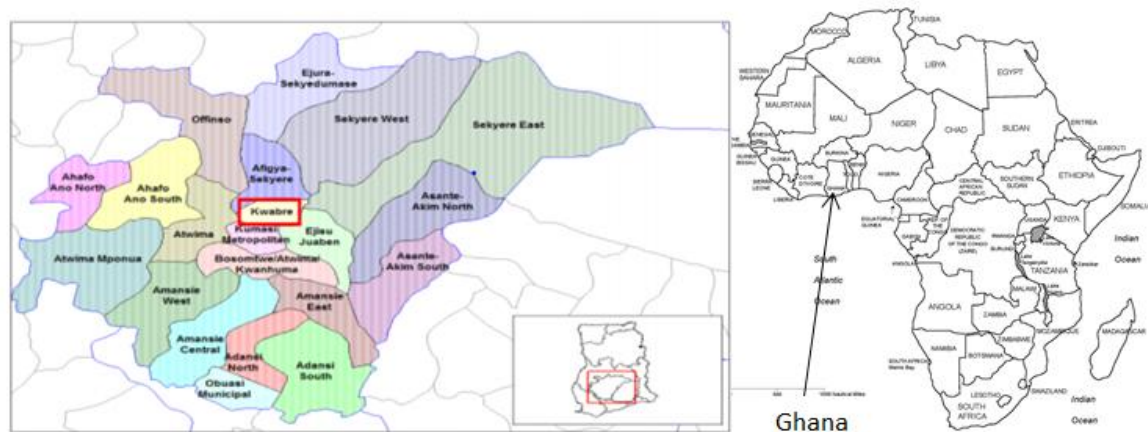


Figure 2. A map of Africa showing Ghana, and a map of Kwabre district in Ghana

Source: Bosome Freho District (2008) and Graphatlas.com (2015).

2.3 Methods, Sample Size and Procedure

This study adopted a mixed method approach. Mixed research methods generally refer to an approach of enquiry where a researcher combines aspects such as techniques, methods and data of both qualitative and quantitative in a single study (Greene et al., 1989; Johnson & Onwuegbuzie, 2004). It is pluralistic and does not depend on a single source of enquiry to answer research questions. In this study, the research method adopted the mixing across stages where the primary data in the form of interviews was collected using a qualitative approach. However, in the analysis stage and data presentation, the qualitative data was quantized and descriptive statistics was used to present the findings in the form of percentages.

Specifically, semi-structured interviews were used as instruments of data collection which were conducted with managers, heads of departments and individuals drawn from key stakeholders within the textile industry of Ghana identified during the field work. The sampling approach used for the selection of interview participants was both stratified and purposive sampling. Firstly, the respondents were categorised based on their roles such as users, suppliers, producers and retailers. Afterwards, they were purposively selected to represent the different categories based on their level of experience and position in the respective organisation.

The total sample size is 35 participants (see Table 3 for sample size and respondents). The sample size of 35 is ideal for a qualitative research because qualitative researches normally place emphasis on richness of data (O'Leary, 2013) as opposed to quantitative research that depends on numbers to make generalizations. Besides, due to the number of 35 respondents which fulfils the normality assumption, the researchers can infer the central limit theorem to make statistical generalisations from the data.

After the interviews with all the stakeholders was completed, the data collected was transcribed, coded and analysed by using standard software named NVivo to generate the different themes for the findings. The different themes emanated from the literature discussion and the interviews. The NVivo software generated tables with numerical information which was analysed using descriptive statistics such as percentages. This enhanced the analysis and delivered robust results that improved the presentation and discussion immensely. The results from the statistical analysis was presented, discussed and conclusions drawn for the study.

Table 3. Stakeholder types and number included in the sample

Stakeholder group	Number in sample
Textile printing companies	4
Clothing industry	4
User	6
Design institutions	3
Adinkra printing industries	5
Fabric suppliers	2
Retailers	3
Dye suppliers	3
Government support agencies	3
Trade associations	2
Total	35

3. Results and Discussion

The discussion section entails the presentation of the findings deduced from the analysis of the data collected from the field study. This discussion is grouped under the respective headings that were used for the interviews. In other words, a themed approach was used for the presentation of data and analysis.

3.1 Nature of Dye, Colours and Cloth

The interviews with the participants sought to identify the different factors that affect the businesses of the artisans. As a result, all the key stakeholders in the textile industry were asked of their views on the dye, its colour and the cloth in general. During the interview, 33 responses representing approximately 94% of the total respondents admitted that, as part of caring for the cloth, information given to users by retailers requires them not to wash. The reason adduced for such a requirement is the fact that the dye has been found as water soluble dye. Hence, bleeds out during wash. This is confirmed in an earlier research on the Adinkra textile cloths (Mato, 1986; Willoughby, 2005). Furthermore, from the field study it was identified that most dyes used in Adinkra textile cloth production is self-made by the artisans. These self-made dyes are generally poor in quality as compared to the factory dyes.

With regards to the colour of the dyes, it was realised that the main colour is black. Colour generally serves as an attraction for customers in purchasing products. An evidence is given by Bae and May-Plumlee (2005) who states that primarily, customers are attracted by the colour of a product. From the field study, colour was found to be relevant to the consumers because in Ghana, certain colours are associated with particular social activities. For example black colour is for funerals whereas white is generally used to represent victory. Hence, a desired change in attitude of users towards the cloth can be greatly enhanced through the use of different colours because consumers can have variety to choose from.

Moreover, responses received from the artisans who are mainly producers of the cloth suggest that, the cloth is of medium to heavy weight, usually cotton and cotton blends. As evidence, all the five Artisans who are mainly producers of the cloth responded in affirmative. The main reason given for the usage of this material is that, light weight fabrics absorb the dye and can result in unwanted leakages in the design of the cloth. This characteristic of the Adinkra textile cloth has negative impact on general and casual usage. It mostly prevents the user from constructing the cloth into garment styles more especially draped designs, if one desired to do so. This reason affects its appeal to a larger population to buy and make use for more widespread activities. Therefore, one of the barriers that prevent the usage of the cloths is the nature of the dyes, colour and weight of the cloth. Even though this particular characteristic is good for the production of the traditional cloth, any attempt at adapting the cloth to modern use must be associated with the necessary changes to suit the needs of the postmodern consumer.

3.2 Access to Capital

As discussed, the Adinkra cloth makers are small and medium enterprises (SME's). The SMEs are generally grouped into organised and unorganised enterprises. The organised companies are those with registered offices and can afford to pay the salaries of their employees whereas the unorganised category is mainly made of artisans that engage in the cloth making as an informal trade. These artisans work in open spaces, temporary wooden structures, or at home and employ little or in some case no salaried workers. The Adinkra artisans are placed into the informal category. From the field study, all the respondents representing 100% agreed that, access to capital is a great challenge. However, the level of access to capital for the business activities of the artisans

was varied among respondents. The determination of the level of capital as a challenge was therefore ranked based on a standard from Low to High. The respondents were expected to rank the access to capital based on this standardised scores for better analysis. Using this standard rating, a response rate of approximately 6% agreed that, they have medium access to capital whereas the remaining 94% suggested that, access to capital is low and a great challenge. This clearly demonstrates the lack of access to capital to compete with other firms with huge capital base. In view of this, larger firms with huge capital base are able to secure funding for production from the financial institutions. Besides, the larger firms enjoy economies of scale in terms of production with low cost per unit of output and distribution. The lack of access to capital renders the small Adinkra textile groups handicapped in competing with the larger firms for the same clients. Participants in the interview responded that they usually rely on family members, life time savings, friends and donations to start their businesses, hence the inability to expand and improve the Adinkra textile cloth sub sector. This particular finding is supported by earlier studies (Fisseha, 1987; Mayers, 2006) who determined that, about 80% of financing for small and medium forest enterprises (SMFEs) comes from owners, families, friends and personal savings. Access to capital is also primarily due to artisans lacking the requisite collateral to attract mortgages from financial institutions. As discussed, they operate under trees and open spaces, hence cannot use those spaces as collateral. Several banks including commercial and rural banks are often unwilling to lend funds to SMEs due to perceived lack of business sustainability, credit unworthiness stemming from poor records keeping and low repayment of loans (Adu, 2009; Osei-Tutu et al., 2010). Practically, it was observed that, as a unit with proper operations through trade associations, this challenge can be surmounted because as a group, the credit worthiness can be improved drastically. On the contrary, the Adinkra textile cloth makers have actually been duped by some members through the formation of association. Therefore, this option, though has worked for other traditional forms of textile cloth makers (Osei-Tutu et al., 2010), does not seem appropriate for the Adinkra textile cloth producers due to the bad experience. Among the solutions to this problem can be in the form of organising the temporary structures into permanent structures with good records keeping for the business to enhance proper assessment and creditworthiness.

3.3 Supply Chain Issues

Supply chain is cardinal to the distribution of products to reach the final consumer and a way of receiving feedback from clients and users of a product. In this same vein, Acquah and Oduro (2012) highlight supply chain as a platform for collaboration in determining many productive activities among all members of small and medium scale enterprises. The levels of existing supply chain or communication strategies within and across industries determine their products and services, improvement in production, economic prosperity and development of new business platforms (Tsai, 2001). From the field data collection, it was also determined that, there is lack of collaboration among the key players in the industry, herein referred to as the stakeholders. As detailed in Table 1, the stakeholders noted are textile printing companies, clothing industry, users, design institutions, Adinkra printing industries, fabric suppliers, retailers, dye suppliers, government support agencies and trade associations. These stakeholders are supposed to collaborate and deliver an end user driven product that satisfies the need of clients and consumers. In practice however, they operate in a disjointed manner and the artisans produce textile cloths based on their intuition without any rigorous marketing research to satisfy the needs of clients. Besides, the other stakeholders that can serve as sources of valuable information are also not contacted in the production of the textile cloths. The effect of this lack of collaboration is the production of products that do not meet the needs of customers. Therefore, this hampers the marketing activities of the artisans leading to lack of patronage for the final products. This lack of an effective supply chain is evident by the field data that depicts that, 21 respondents representing 60% suggested a low level of collaboration among the stakeholders. Again, 11 respondents representing approximately 31% suggested a medium collaboration whereas the remaining paltry number of 3 respondents denoting 9% confirmed a high level of collaboration. Clearly, this demonstrates a lack of collaboration among artisans and other stakeholders.

In view of the lack of collaboration among the key stakeholders, a high rate of 88.5% of users is unsatisfied with the end product from the artisans. This represents 31 respondents with the remaining 4 respondents signifying that, the level of satisfaction is at medium level. In this instance, it must be stated that, all the stakeholders were considered to be part of the users because they also use some of the products occasionally. As a result, an effective supply chain that can enhance collaboration among stakeholders must be developed to ensure that, the needs of clients are factored into the production of the textile cloths to enhance end user satisfaction. This has the potential to induce patronage from the clients and other users of the products. Due to non-existence of an effective supply chain for the distribution of the products, the producers cannot determine the final price of Adinkra textiles cloth. As a result, there was price discrimination which is unfavourable because the users paid

exorbitant prices as compared to other manufactured textile cloths on the market and this became evident from the field study.

3.4 Outmoded Forms of Production Technology

The artisans who responded during the interview affirmed that, the technology is quite laborious and time consuming. Even though they expressed sentiments about the technology, much has not been done to improve upon this technology which has been in use before 1927. One peculiar problem that the artisans emphasised on is the difficulty of acquiring the raw materials for production. The most challenging part is the dyes needed for printing the textile cloths. The locally manufactured dyes are very difficult to produce. They are normally obtained from processing barks and roots using an outmoded form of technology. After the laborious work to produce the dyes, they are also of low quality. This is primarily due to the fading nature of the dyes after using the textile cloth. Several attempts have been made to improve upon the process of producing the dyes. For example a grinding machine was introduced for grinding bark of tree. However the introduction of this machine worsened matters as the end product did not meet the expectations of the artisans. At present, the most reliable means of acquiring the quality dyes is from the established manufacturing firms in the textile industry. However, these factory dyes imported by the established firms were meant to be used for their production and not for retail purposes. This makes it difficult for the artisans to find the appropriate dyes for the production of the textile cloths. From the field work, all the respondents agreed that, the scientific dyes (factory dyes) have high degree of reliability as compared to the locally made dyes by the artisans. This was evidenced by the responses from 14 (40%) and 21 (60%) respondents who suggested that, the scientific dyes are reliable and highly reliable respectively. This results confirmed the findings of Acquah and Oduro (2012), who discussed that there is the need for the development of new dyes to replace the old fugitive dyes. In view of this, it is important that, industry and stakeholders take the necessary steps to develop new dyes in order to sustain the business.

3.5 Implications

The decline in the industry is as a result of low demand for products as reported earlier in Table 1. This has consequences for an industry that attracts a considerable number of tourists all year round. According to Holden et al. (2011), the total number of tourists arriving in Ghana in 2009 were 74,293 and according to the World Bank (2015), the total number of tourists that visited Ghana in 2010 amounted to 931,000. These tourists patronise the Adinkra traditional textile cloths as souvenirs especially products such as scarves and other portable items made of Adinkra cloth. It can be inferred that, this sector contributes greatly to the economy of Ghana. Therefore, the collapse of the Adinkra textile sub sector which also attracts a considerable number of tourists means the loss of important revenue to the state from tourism as well as taxes from the numerous retailers, producers, dye suppliers, fabric manufacturers, designers and other stakeholders who are indirectly connected to the industry. Besides, the artisans who gain their livelihood from this trade are also likely to lose their jobs in the process. Moreover, a tradition that has lasted for over a century is likely to extinct, hence altering the great history of a society.

The non-existence of supply chain has also resulted in price discriminations of the products from the producers to the final consumers where retailers are able to price products without regard to consumers ability to afford. This also affects the demand for the products as the prices are sometimes highly inflated. Besides, the issue of the supply chain also has negative effects on the distribution and good feedback from the users of the cloths for improvements.

As these problems and the challenges are seen as surmountable, these solutions are proffered as part of our analysis of the issues presented. Firstly, there should be an effective supply chain network that can directly enhance the collaboration between the different stakeholders identified in this study. If the supply chain network is developed, the wider implications will be a control of the end user price of the textile cloth to ensure a competitive pricing on the market in comparison with other textile products on the market. As Ghana is a least developed country, price differentials are likely to be pivotal in a diffusion strategy to ensure adoption of the textile product.

Moreover, access to capital is a central theme to all small scale industries. In this regard, the identification of the trade associations as one of the stakeholders of this study can serve as a breakthrough to attract the needed capital in the form of group loans from micro finance companies. The formation of these associations would result in the pooling together of resources that can serve as collateral for acquisition of a mortgage. This must also come with stringent control to curb the menace of duping artisans.

3.6 Business Opportunities

Due to the numerous challenges exposed as plaguing the Adinkra textile cloth sub sector, an analysis also revealed several untapped business opportunities that can be harnessed to develop this sub sector to improve upon the general textiles industry. Firstly, due to the absence of an effective supply chain, distribution activities of the industry are ineffective. In this sense, a very effective supply chain can be developed to enhance product distribution through the chain beginning from the artisans who are the producers to the final consumers who are the users of the products. This will ultimately create a system of closed loop where the producers can receive feedback on their products in order to factor them into customer needs when producing the textile cloths. There will also be an improvement in customer satisfaction, leading to the adoption of the textile cloths.

Moreover, if price can be used as a competitive tool in order to break into the established markets such as the broader local and international textiles industry, there is the need for the producers to be able to take control of their supply chain. The development of the supply chain can also enhance the competitive advantage of the products in order to determine new ways to make the textile products meet the needs of the marketplace and serve the target clients.

Lastly, it has been discussed that, the technology for the production of the textile cloths is outmoded. In view of this, it is proposed that, firms with the technical know-how should develop modern technologies for the production of the textile cloths. This has the potential to open up a new line of business for expansion of the Adinkra textile market. This will drastically reduce the total work and time involved in the production of the Adinkra textile cloth.

In summary, this study has identified the numerous challenges bedevilling the Adinkra textile sub-sector of the Ghanaian textile industry. Based on these challenges, an intellectual analysis was developed to proffer solutions to these problems after which the business opportunities existing in the industry has been presented. It is argued that, with all the solutions espoused in this study, the quality, production and promotion of the Adinkra textile cloth can be improved considerably. This has the potential to improve the demand for the textile cloth leading to economic prosperity for the artisans and contribution to the economy of Ghana.

4. Conclusion

In this study, the theme was to determine the factors that account for the decline of the Adinkra textile sub sector, which is part of the main textile industry in Ghana. Stemming from the discussions of the findings, it is evident that, the factors that inhibit the ability of producers of the Adinkra textile cloth to develop the industry and reach the final consumer with the product are varied as compared to those found in earlier studies. Some of the factors corroborate the findings of earlier studies but there are new factors that were identified to be specific to the Adinkra textile cloth sub sector including the nature of dyes and colours of dyes, end user satisfaction and supply chain issues. These were in addition to the general factors such as poor access to capital and outmoded technology.

The study has examined the challenges and presented the existing opportunities that have the potential of transforming the Adinkra textile sub sector. Solutions to the numerous problems have been proffered to enable policy makers and stakeholders take action to sustain the sub sector due to its heritage importance and contribution to the economy. The study has unravelled avenues for business opportunities for local and international firms to invest in the Adinkra textile sub market for expansion and profitability.

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