THE EFFECT OF CONSUMER CULTURE AND SUPPLY NETWORK ON DIFFUSION OF ADINKRA SYMBOLIC CLOTHING IN GHANA

Josephine Aboagyewaa-Ntiri (PhD), Charles Baba Campion (PhD), Daniel Kwabena Danso (PhD)

University of Education, Winneba, Ghana

ABSTRACT: *It is believed that through fashion and textiles designing, the education on adinkra symbols can be transferred for use in modern clothing and create competitive advantage in the clothing and textile industry. In recent years, adinkra craft-based culture appears to be anachronistic art industry with minimal attention given to the Ghanaian clothing industry. However clothing, a highly rated consumption item, has been recognised as a channel for the proliferation of socio-cultural attributes. This research work was guided by two conceptual frameworks; to identify facilitating factors in the production of adinkra symbolic clothing and to promote the diffusion of adinkra symbolic clothing through a supply network model formulated. Qualitative research method was used to collect data and the analyses of the study resulted in the use of quantitative statistical tool, applying Nvivo version 10. Data was obtained from four different regions in Ghana with a convenient sample of 35 organisations and individuals involved (representing the main stakeholder groups in the textiles and clothing supply network). The study identified consumer culture as a chief facilitator in addition to four key factors (knowledge, technology, relationships, and absorptive capacity) that influence the production, adoption and use of adinkra symbolic clothing. Stronger collaboration is therefore encouraged within the stakeholders of the supply network in clothing and textiles industry in Ghana.*

Keywords: Adinkra Symbolic Clothing, Akan Culture, Clothing and Textiles Industry, Consumer Culture, Diffusion, Supply Network

INTRODUCTION

The textiles artisans in the Ashanti Region of Ghana have traditionally, been using adinkra symbols in the production of textile based craft (Agbo, 2011; Mato, 1986). These symbols come in different shapes and forms but beyond that, each symbol has a figurative meaning that is educative (Agbo, 2011; Arthur, 2001; Magee, 2010). According to Quarcoo (1972) these symbols have been highly regarded however, in recent years the symbols have been gradually disappearing from the modern Ghanaian society. The obvious reasons are lack of regard for traditional symbols, reduced consumption of traditional cloths due to limited use of dye colours, the fugitive nature of dye colours, coupled with heavy weight of the adinkra cloth (Willoughby, 2005).

Currently, adinkra craft-based textile printing which is considered as Small and Medium Scale Enterprise (SME) appears to be in dwindling state (Aboagyewaa-Ntiri & Mintah, 2016) and is outmoded art industry where usage have been mostly limited to funeral ceremonies that does not favour wider adoption and has stifled the spread of the educative meaning of the adinkra symbols. Four facilitating factors from which were used in the diffusion of Digital Inkjet Printing in the textile printing industry needs to be considered here (Burgess, Burkinshaw, & Vijayan, 2006). These include: knowledge, technology, relationships and absorptive capacity. Using these adopted factors, the diffusion of adinkra symbolic clothing, thus the knowledge of adinkra symbols, technological innovation that facilitate the production of adinkra textiles and clothing, relationships within the Ghanaian textiles and clothing supply network, and the absorptive capacity of the industry can promote adoption and use of these clothing. Relationship and communication

between participating social communities in a supply network are thought to amplify the diffusion process (Rogers, 1995). Cultural attributes such as, beliefs, values and social status have an impact on the consumption of goods and services because individuals form part of the culture (De Mooij, 2011; Roberts & Zahay, 2013). If adinkra symbolic cloths are to be widely accepted for use in the society as meaningful clothing then cultural practices that enhance consumption should be considered and properly channelled towards the diffusion and adoption of adinkra symbolic clothing.

From the foregoing there is significance in this study as it reinvigorates four factors which act as facilitators in the diffusion of digital ink as knowledge, technology, relationships, and absorptive capacity. Nevertheless the study, through review of the existing literature has identified a fifth possible gap to be, *consumer culture* which can also facilitate the diffusion of adinkra symbolic clothing. This study forms part of a larger research project on adinkra symbolic clothes as a means to develop technological innovation in adinkra craft-based sector in the Ghanaian textiles and clothing industry. It is justifiable therefore that this study explores all the stakeholders in the textiles and clothing industry to create more awareness, innovation, creativity, education and self-consciousness.

Turner (2012) explains culture as knowledge of a given society that guides people on choice of attitudes, desires, beliefs, values, occupation as well as total identity. Looking at it from this view, people cannot understand and control culture because it compels individuals to conform to what prevails in the society. Fair (2004) views culture as the power to construct, define and identify social and physical territories. By this explanation of culture, Fair points out an indication of why different craft activities have been established and promoted in different communities and territories.

The people of Ghana are skilful in traditional arts and craftworks (Cole & Ross, 1977). Artisans with specialised skills in different products are found all over the country. These artisans include basket makers, carvers, sculptors and textile designers and many others (Ghana Tourism, 2008). However, the focus of this study is on the adinkra textile craft sector which is generally instituted in the Ashanti Region of Ghana. Figure 1 shows sample of adinkra traditional cloth, being produced by an artisan in Ntonso, a town in Ashanti Region of Ghana.
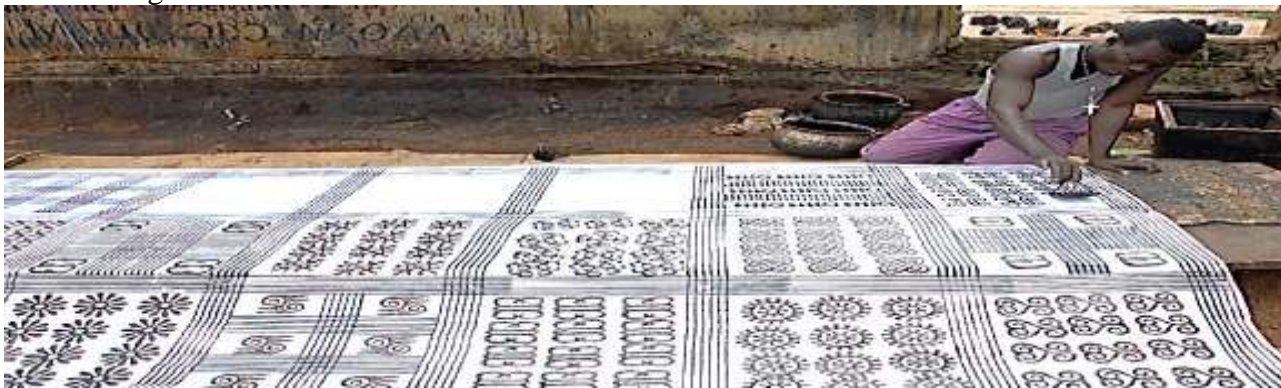

Figure 1. Adinkra cloth artisan at work in Ntonso
Source: Photo by the main researcher (2016)

The adinkra traditional cloth (See Figure 1) was once classified as a prestigious cloth for the royalty that was specially crafted. Adinkra cloth is a hand-stamp printed cloth for funeral ceremonies (Quarcoo, 1972; Rattray, 1927). The first documented adinkra mourning cloth was donated in 1817 by Thomas Edward Bowdich and it is found in the British Museum (London). The Akan culture in Ghana, is of a communal society whereby people from birth are initiated and absorbed into the family and the larger society (Sarpong, 1974). Throughout one's life protection is given in exchange for loyalty; this model is termed as highly

collectivist (Hofstede & Hofstede, 2005). This cultural ascription inculcates love and respect for the Ghanaian individuals who appear to be bounded by their cultural heritage. Cole and Ross (1977) revealed that most Ghanaians do not consider the design of cloths during purchase but rather prefer those proverbial names and meanings they carry.

One of the gaps identified during the field study was lack of a supply network that links the producers of the adinkra cloth and the end users; hence the study is dedicated to the development of appropriate and complete supply network model, combined with the facilitating factors of a conceptual framework, more importantly consumer culture, in order to diffuse the adinkra symbolic clothing.

It is against this backdrop that this study aims at meeting the following objectives, to:

- identify the adoption of consumer culture as a guide in the production of adinkra symbolic clothing to meet consumer needs and acceptance.

- formulate a conceptual framework for industrial requirements in the production of enhanced adinkra symbolic clothing and the development of a supply network model.

LITERATURE REVIEW

Facilitating Factors for Diffusion of Innovation

Four facilitating factors from (Burgess et al., 2006) which were used in the diffusion of Digital Inkjet Printing in the textile printing industry were considered as a model for this study. These key factors for diffusion of innovation were knowledge, technology, relationships, and absorptive capacity. Below are the relevant literatures of the four factors. Knowledge can either be tacit or explicit; Polyani (1966) distinguishes between them from tacit knowledge, usually covers subjective, cognitive, and experiential learning. According to Anatan (2007), knowledge is a source of competitive advantage in the economy where the only certainty is uncertainty. It has been argued that knowledge becomes important only when the people become aware, admit and recognise it for use (Graham et al., 2006; Ojiako & Aleke, 2011). Knowledge is needed in all businesses for the creation and further transfer of information to enterprises, firms and organisations, to bring about competitive advantage over other establishments and also to make them innovative (Argote & Ingram, 2000; Gupta, Lyer, & Aronson, 2000; Tsai, 2001).

Technology has also been identified in the diffusion strategy 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. Again technology is an important tool because it incorporates and interprets history; contemporary and future practices (Barnard, 1996). Similarly, McOmber (2006) observes that new technologies forever replace old ones; what was once a technology has been replaced and what is technological now will be displaced by future developments. As Ojiako and Aleke (2011) point out, enterprises and organisations without technology as a form of innovation exist temporally.

Relationship or networking within and outside enterprises, firms and organisations has proven to be more beneficial than harmful (Ritala, Olander, Michailova, & Husted, 2015). Tsai (2001) believes that through network coordination, knowledge is transferred and resource shared. Conversely, Ojiako and Aleke (2011) identify one of the factors that hinder the activities of the Small Scale Enterprises (SSEs) as poor business supply networks. Without relationships, interactions, sharing of knowledge and innovation, organisations cannot be sustained (Hendriks, 1999; Ojiako & Aleke, 2011). The most prevalent network system is communication or social network. Social media and networks facilitate the creation of new knowledge and relationships within and outside enterprises and organisations (Tsai, 2000).

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, Grève, & Flatten, 2011). Although the knowledge may be identified or available to the organisation or department, the organisation or department may not have the capacity to absorb and apply it for its own use. This is because organisations, firms and units differ in accessing knowledge, learning capabilities and replicating new knowledge. These have a significant impact on their innovation and performance (Cohen & Levinthal, 1990; Tsai, 2001). The level of absorptive capacity has a link with innovation performance which depends on whether the organisation has high or low absorptive capacity.

Diffusion and Innovation
Rogers (1995) describes the diffusion process as human interact where ideas are communicated between participating individuals. In other words, this human interaction is the social relationship created in organisation within and between, where one individual spreads the innovation to the other individual.
There have been a number of research works in the past that have dealt with innovation and diffusion of innovation theory that can be applied to an old established industry like textiles and clothing (Burgess et al., 2006; Clarke, 1999; Robinson, 2009). One such research that identified four key factors that influence the diffusion is (Burgess et al., 2006). In addition this research has identified consumer culture as yet another factor. However, this study takes a holistic perspective on the textile and clothing industry supply network with the intension to promote adinkra clothing adoption and usage.

Consumer Culture
From the foregoing on the four areas on factors that facilitates diffusion of Digital Inkjet Printing in the textile printing industry, a gap on awareness of consumer culture has been identified to be a stronger contributory factor, as products are made for consumers; they have the ultimate purchasing power. Arnould and Thompson (2005, p. 869) described 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 resource on which they depend, are mediated through market'. This could infer that the total personality of the consumer has been interwoven with their consumption practices. In this same vein, Featherstone (1991) asserts that, consumer culture focuses on aspect of cultural practice in the construction of consumer society rather than just on consumption. This may imply that, cultural attributes such as, beliefs, values and social status, revolved around the consumption of goods and services too. The proposed conceptual framework for diffusion strategy for this study can be seen from the Figure 2, with consumer culture being a focal point of the diagram.

PROPOSED CONCEPTUAL FRAMEWORKS

Conceptual Framework (A)
The conceptual framework (A) has been adopted from (Marinova & Philimore, 2003) to suit the discussion under review. This study is based on three of their models: linear, interactive and system models. The model (Figure 2) 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 Burgesset al. (2006), which has been adapted to suit the needs of the study. These factors are knowledge of the adinkra symbols, relationships among the stakeholders in the clothing industry, absorptive capacity in the field of innovation possessed by the textiles and clothing industry and the proposed technology for the production of the adinkra symbolic clothing. The consumer culture is the focal section of this 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, Block, & BIGresearch,

2010). Understanding of consumer culture can have the ability to influence production, products and market share.

Once the stakeholders in the supply network 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 symbolic clothing. There is therefore a need for the establishment of continuous interactions between the supply networks. For example, manufacturers, suppliers, trade associations and others (see Figure 3).

The development and production of the proposed innovative symbolic clothing can be implemented through the use of the technology proposed such as Jacquard weaving, 3D knitting, 3D printing and digital printing. After the innovative clothing have been developed, it is important to ensure that these products reach the target consumers. As the innovative adinkra symbolic clothing is culturally base, it is believed that these products will be adopted by consumers. Cultural symbols are adopted as designs for products and the meanings of the culture are transferred to consumers through the use of the products (McCracken, 1986).
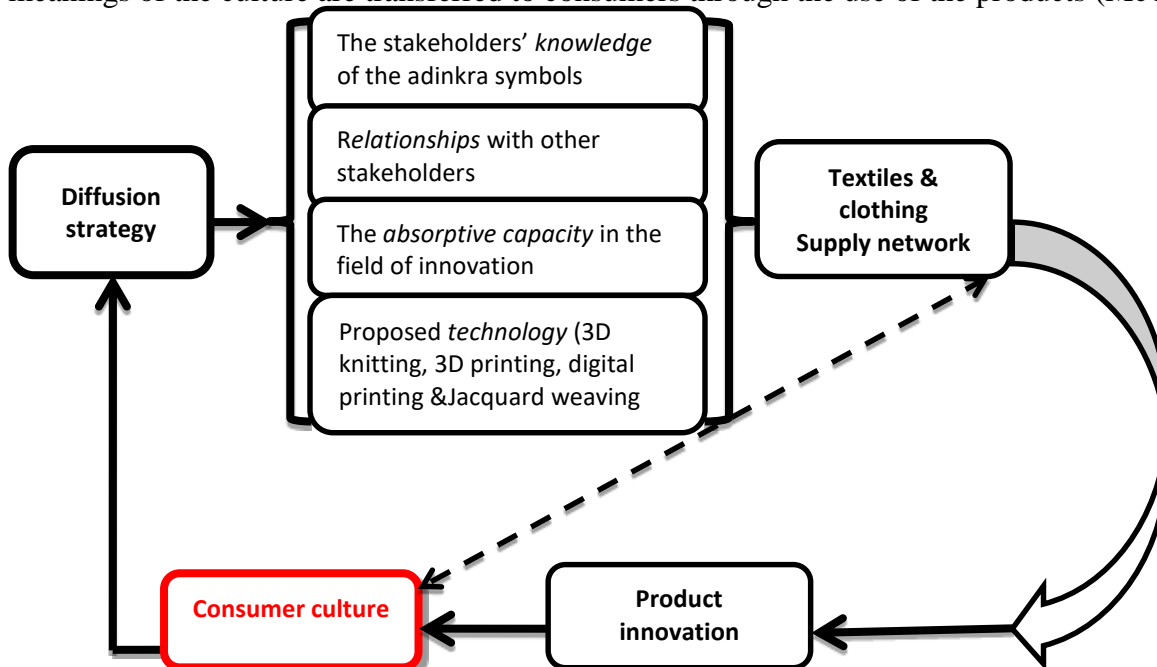

Figure 2. Conceptual framework (A): A typology from Marinova and Philimore (2003) innovation models and Burgess et al. (2006) facilitating factors on diffusion in textiles printing industry.

Conceptual Framework (B)
The interpretation of the conceptual framework (B) has been done in a clockwise manner with the retailers at the top-middle of the chart and the adinkra printing industry sitting at the centre to serve as the focal point for the key stakeholders in the industry. The retailers in the supply network are by far responsible for acting as agents of innovation and diffusing the textiles and clothing items within the supply network. They act as critics, sales agents and ambassadors for the adinkra textile prints. They tend to hold sub-outlets for the prints, selling to individual users as well as fashion designers who make custom-made clothes for clients or end-users. The adinkra printing industry is at the centre of the supply network (Figure 3) and surrounded by the other key stakeholders in the textile industry. This demonstrates the inter-linkages in the industry on the back of using traditional methods of production. The arrows in the different directions also show the communication flow between the stakeholders in the supply network.

The interaction of key stakeholders in the textiles and clothing supply network has been identified as one of the mechanisms to propagate the use of adinkra symbolic clothing. As, Rogers (1995, p. 14) affirms, the 'demonstration of interpersonal network is important in the adoption and rejection of an innovation'. Similarly, Acquah and Oduro (2012) highlighted networking as a platform for collaboration in determining many productive activities among the players in small, medium and large-scale enterprises. In the supply network, the end-users of the adinkra clothing provide feedbacks to the fashion designers who in turn exchange it amongst themselves before passing it on to the retailers. This is then passed on to the adinkra printing industry. The design institutions then interact with clothing industry by producing skilled staff in designing, pattern production and garment construction. These graduate staffs use the adinkra symbols and sometimes redesign some of them.

The reinforcement of interpersonal relationship is important for the Ghanaian textiles and clothing industry in order to help facilitate the adoption of adinkra symbols as concepts in clothing. Rogers (1995) amplifies the diffusion process as human interactions where ideas are communicated between participating individuals. The theory by Rogers (1995) on interpersonal network on adoption and rejection of an i
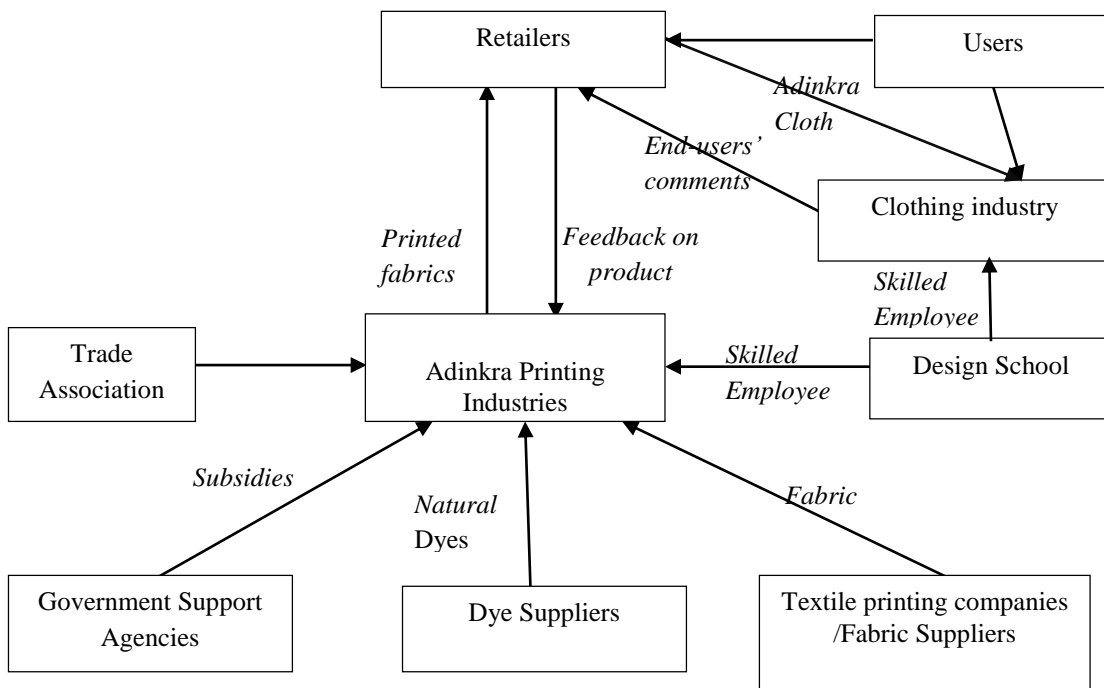

Figure 3. Proposed supply network model [Conceptual framework (Β)]

METHODOLOGY

The study applied mixed methods approach to collect data. Qualitative method was largely applied first as such approach generally uses narrative, descriptive and participatory methods to developing new knowledge. According to Creswell (2013), qualitative research is an approach to exploring and understanding the meaning that individuals give to a particular social or human problem. The qualitative method generally describes a situation or problem and attempt to understand it from the perspective of individuals who have experience on the subject. In this approach, the researchers applied data collected from the 35 participants through interviews on adinkra symbols/cloths to form major themes and develop understanding of a phenomenon. The sample size constituted various entities, operating within the textiles and clothing industry with breakdown of the sample size as in (Table 1).

Four regions were selected out of ten regions in the Republic of Ghana for this study. The regions include Ashanti, Eastern, Volta and Greater Accra. The Ashanti region is widely known as the home of the adinkra symbols/cloths, adinkra artisans and where the adinkra cloth is mostly patronised for funeral ceremonies. There are two large textile printing industries in Eastern and Volta regions, while the capital city of Ghana, Accra, is where most clothing and textiles industries are found. The semi-structured interview guide was used for the field work which lasted for a maximum of four months.

Table 1. Breakdown of sample size

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

The interview questions were designed based on five key themes or factors (knowledge, technology, relationships, absorptive capacity and consumer culture) set to guide the analysis and interpretation. For this study much focus is however given to consumer culture and relationships that made it possible to develop supply network model for the textiles and clothing industry.

Quantitative method of data analysis was then applied to initially reduce the data collected. As part of the analysis process, data reduction software (NVivo, version 10) was used. Rating scheme categories and guidelines were followed to aid in analysing 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 analysed data was then statistically interpreted in sub-sections as appear in Figures 5 - 7. The aims and focuses of the ten groups from the key stakeholders of the textiles and clothing industry have been identified as variants. Therefore, the ten key stakeholder groups have been further sub-divided into four categories according to their roles. These categories were: market participants, technology users, materials suppliers and regulators (see Figure 4). In Figure 4, 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 network of the textile and clothing industry. Material suppliers are dye suppliers and textiles printing companies, due to their role in supplying the needed raw materials for the production of adinkra cloths or fabrics.
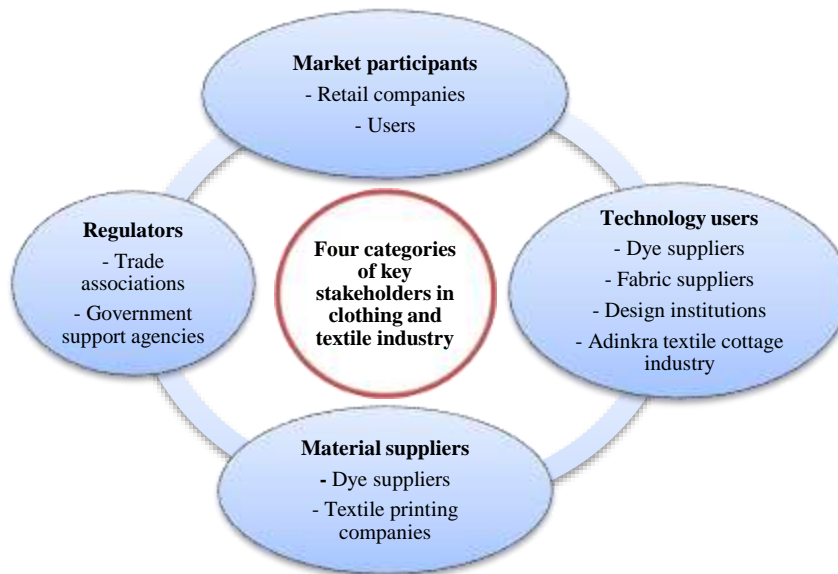
Figure 4. Categories of key stakeholders

RESULTS AND DISCUSSION

The results shown here are presented in a bar charts based on the aggregate responses from the four stakeholders' categories.

Choice of technology among stakeholder groups

Majority of the participants in the technology users' category, with a total number of 12 representing 75%, opted for modern technology and four (4) participants representing 25%, preferred the existing technology used by the artisans. The 25% of participants who opted for the existing technology were all artisans (see Figure 5). 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 and clothing industry. Similarly, two (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) observed 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. Ojiako and Aleke (2011) also pointed out that enterprises and organisations that do not upgrade technology as a form of innovation exist only temporarily. Small and Medium Enterprises are hampered by several factors including lack of finance, lack of managerial skills, regulatory issues, access to international markets and equipment, and outdated technology (Aboagyewaa-Ntiri & Mintah, 2016; Aryeetey, Baah-Nuakoh, Duggleby, & Steel, 1994; Gockel & Akoena, 2002; Okpara, 2011). Moreover, SMEs also suffer from the emergence of new technologies that render old technologies obsolete, cost-ineffective and inefficient in the production processes (Zulkifli-Muhammad, Char, bin Yasoa, & Hassan, 2009). During the field work it was established 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 clothing industry to make it more efficient and economically viable.
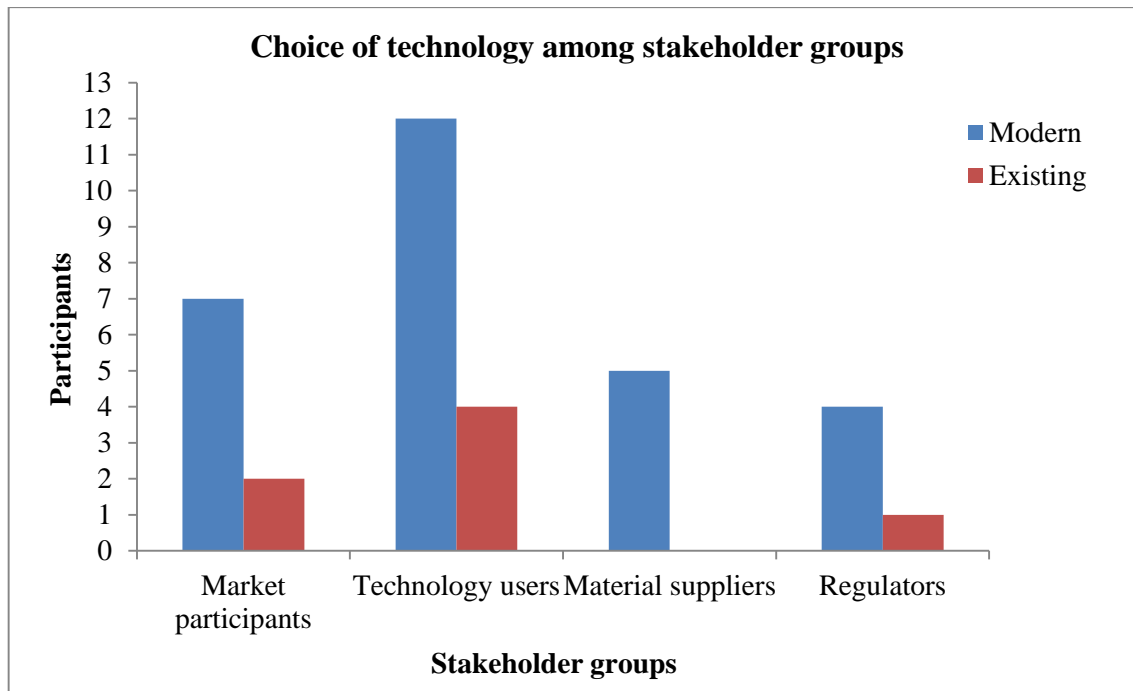
Figure 5. Choice of technology among stakeholder groups

Relationships among stakeholders

The relationships that exist among the stakeholders groups are not encouraging. Analysis of the views by 20 participants, representing 57% of the 35 stakeholders, reveals a lack of collaboration between individuals, as well as groups and organisations (see Figure 6). Enterprises and organisations focus mainly on their own work in order to preserve their trade secrets, especially among the same similar group of competitors. Also, 12 of the stakeholders, representing 34%, consider their relationships with others as medium but not very strong. This was because some stakeholders from different categories sourced their materials from others. In view of this, participants who agreed that there was 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 that are in line with this collaboration.

Relationships within and outside enterprises, firms and other organisations have been identified to be beneficial. Hendriks (1999) and Ritala et al. (2015) indicated that relationships among workers from different organisations, sharing knowledge on innovation can be critical because of linking of essential information that can cause loss. On the contrary, sharing 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. The non-existence of strong stakeholder collaboration in the Ghanaian textiles and clothing industry, negatively affect productivity because of challenges with the supply of raw materials and delivery of finished products to the market.

The supply network 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) highlighted 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, Ireland, & Hoskisson, 2012; Tsai, 2001).

16

Lack of an effective supply network is evident in the data collection process. Clearly, this demonstrates 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.
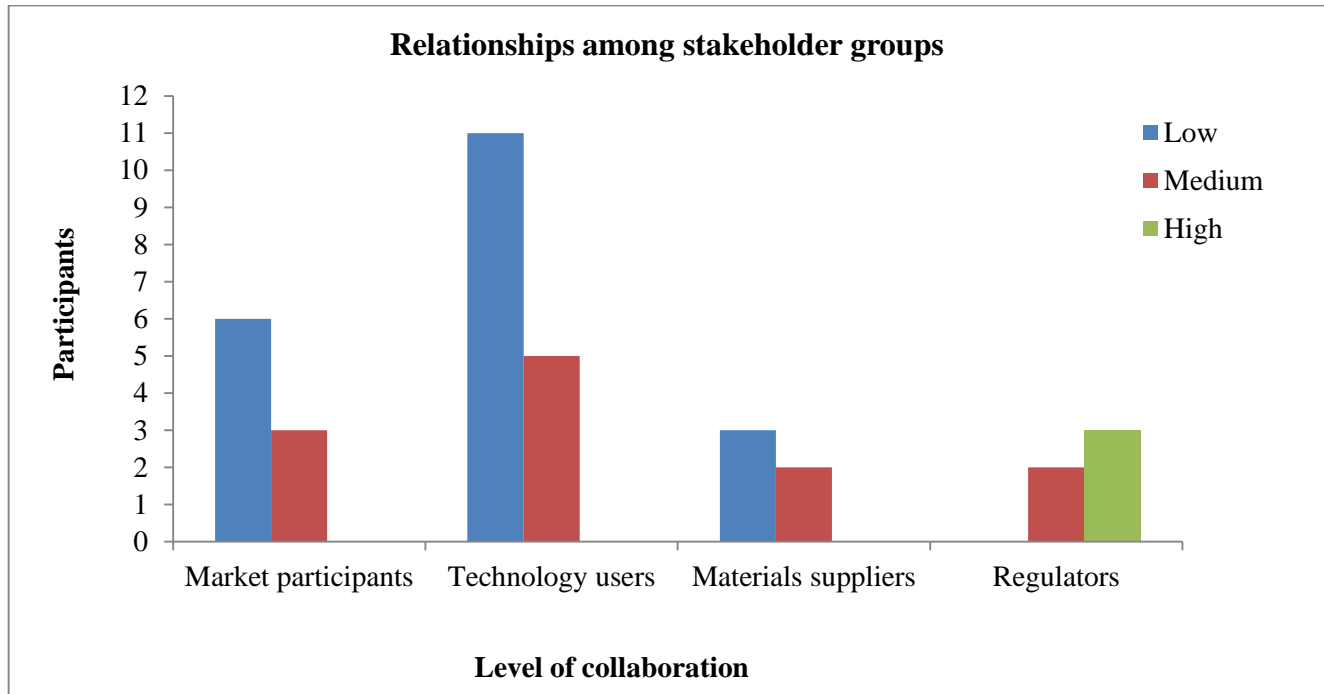

Figure 6. Relationships among stakeholder groups

Consumer requirements in the current Adinkra cloth

Due to lack of patronage for the existing adinkra cloth, this study has solicited views from participants on the requirements for the enhancement of the cloth. From the analysis of the data, 13 participants from the technology users' category, representing 81% of the category, expressed a low level of meeting consumer requirements in the current adinkra cloth. The remaining 19% were of the view that a medium level of consumer requirements is being met in the current adinkra cloth, were all artisans (see Figure 7). This can be attributed to their fear of losing their jobs to other participants in 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.
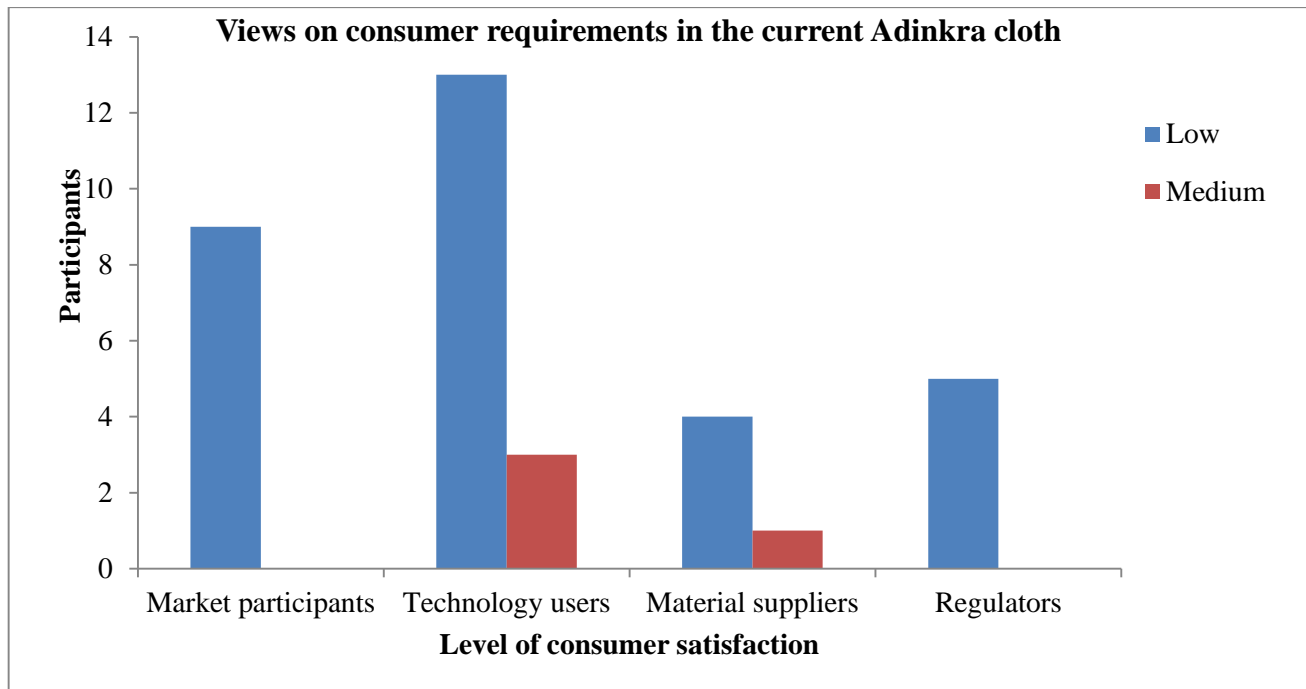
Figure 7. Views on consumer requirements in the current adinkra cloth

An examination of the adinkra symbolic cloths at the production centres during field data collection also suggested the use of mainly black dye for printing. As a result of the black colour of the dyes on dark coloured fabrics, especially black dye on red fabric, 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 low level of patronage for the products. Newly proposed products must therefore be of variant colours to overshadow the red, brown and black effects in order to enhance product adoption and usage.

On 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 or the traditional people. During the interviews, 33 participants, representing approximately 94% of the total population, stated that as part of caring for the cloth, information given to users by retailers requires them not to wash the cloths. This is in line with Glover (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 also confirmed in earlier research on adinkra cloths (Mato, 1986; Willoughby, 2005).

On the weight of the adinkra symbolic cloth, the responses received from the artisans, who were the main producers of the cloth, stated 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 dye/s and can result in unwanted leakage in the design of the cloth. 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. Again that prevents the users from constructing the cloth into particular garment styles, especially draped designs. This reason affects its appeal to a larger population and results in low level of patronage.

Approximately 89% of users are unsatisfied with the end product from the artisans, representing 31 participants, with the remaining 4 participants suggesting that the level of satisfaction is at a medium level.

18

As a result, an effective supply network 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.

CONCLUSIONS

The adinkra symbols/cloths of Ghana have rich and deeper meanings and through adoption may form part of the behaviour of the daily life of the people. Unfortunately, the adinkra cloth appears to be less significant and prevalent in modern Ghanaian textiles and clothing market; this slows down the diffusion of the symbolic cloth to the larger society. Adinkra clothing has been recommended for high consumption because apart from the aesthetic qualities of the symbols, there are figurative rich meanings accompanied with them. Again, adinkra clothing provides the opportunity for personalisation and customisation of the product by the consumer in question.

Following 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 and clothing industry. The absence of an effective supply network, the distribution activities of the industry are ineffective and supply network model could be developed to enhance production and distribution. It is important to note that, due to the proposed new technologies for the development of modern adinkra symbolic textiles and clothing products, the artisans cannot be the producers because of their level of knowledge in relation to modern technological skills and the high cost of physical infrastructure. The proposed model would, therefore, have potentially new producers to use the newly proposed technologies to produce adinkra symbolic clothing to reach the final consumers. This will ultimately create a close-system where the producers can receive feedback on their products in order to factor these into customer needs when producing the products. Again, customer satisfaction would be improved, leading to greater adoption and usage of the adinkra symbolic clothing. Moreover, if price could be used as a competitive tool in order to break into the established markets, there would be the need for the producers to take control of their supply network. Development of the supply network could also enhance the competitive advantage of the products, in order to determine new ways to make the products meet the needs of the market and serve the target clients.

In brief, it has been discussed that the technology used for the production of adinkra textile cloth is outmoded and appropriate technical know-how should adapt to modern technologies for the production of new adinkra symbolic textiles and clothing. This will have the potential to open up a new line of business for expansion of the adinkra textiles and clothing market. Again, such technological approach could also reduce the total work time involved in production, as well as enhancing the quality of adinkra textiles to meet the consumption of current clothing needs. The opportunity for the development of adinkra symbolic textiles and clothing products has received encouraging feedback from the stakeholders, as they indicated that such a revolution could create demand for culturally based products.

REFERENCES

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.

Acquah, B. S., & Oduro, K. A. (2012). Traditional cloth dyeing enterprise at Ntonso: Challenges and opportunities. *West African Journal of Applied Ecology, 20*(1), 25-35.

Agbo, A. H. (2011). *Values of Adinkra symbols*. Kumasi: Delta Design and Publications.

Anatan, L. (2007). Innovation as core competency: The role of knowledge and organisational learning in knowledge-based competition era. *Jurnal Manajemen, 6*(2), 1-13.

Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes, 82*(1), 150–169.

Arnould, E. J., & Thompson, C. J. (2005). Consumer culture theory (CCT): Twenty years of research. *Journal of Consumer Research, 31*(4), 868-882.

Arthur, G. F. K. (2001). *Cloth as metaphor (re)reading the Adinkra cloth symbols of the Akan of Ghana*. Accra: Cefiks.

Aryeetey, E., Baah-Nuakoh, T., Duggleby, H. H., & Steel, W. F. (1994) Supply and demand for finance of small enterprises in Ghana. *World Bank Discussion Paper No 251*. Washington, DC.

Bae, J., & May-Plumlee, T. (2005). Customer focused textile and apparel manufacturing systems: Toward an effective e-commerce model. *Journal of textile and apparel, technology and management, 4*(4), 1-19.

Barnard, A. (1996). Technology and nursing: An anatomy of definition. *International Journal of Nursing Studies, 33*(4), 433-441.

Brettel, M., Grève, G. I., & Flatten, T. C. (2011). Giving up linearity: Absorptive capacity and performance. *Journal of Managerial Issues, 23*(2), 164-189.

Burgess, T. F., Burkinshaw, S. M., & Vijayan, A. P. (2006). Adoption of a focal production innovation within a supply network. *International Journal of Management and Decision Making, 7*(6), 628-642.

Clarke, R. (1999). A primer in diffusion of innovations theory, Xamax Consultancy Pty Ltd. Canberra, Australia. Retrieved from http://www.rogerclarke.com/SOS/InnDiff.html

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*(35), 128-152.

Cole, M. H., & Ross, H. D. (1977). *The arts of Ghana*. USA: University of California.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles: Sage publications.

De Mooij, M. (2011). *Consumer behavior and culture: Consequences for global marketing and advertising* (2nd ed.). London: Sage.

Fair, L. (2004). Remaking fashion in the Paris of the Indian Ocean: Dress, performance, and the cultural construction of the cosmopolitan Zanzibari identity. In J. Allman (Ed.), *Fashioning Africa power and the politics of dress* (pp. 13-30). Bloomington and Indianapolis: Indiana University Press.

Featherstone, M. (1991). *Consumer culture and postmodernism*. London: Sage.

Forster, P. (2013). Traditional mourning dress of the Akans of Ghana. *Matatu-Journal for African Culture and Society*(13), 279-291.

Ghana Tourism. (2008). Facts about Ghana. Retrieved from http://www.touringghana.com/facts.asp

Glover, E. A. (1971). Adinkra symbolism. Accra, Ghana: Labadi.

Gockel, A. F., & Akoena, S. K. (2002) Financial intermediation for the poor: Credit demand by micro small and medium scale enterprises in Ghana: A further assignment for financial sector policy? , *IFLIP Research Paper 02-6*. Geneva: The International Labour Organisation.

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions, 26*(1), 13-24.

Gupta, B., Lyer, L. S., & Aronson, J. E. (2000). Knowledge management: Practices and challenges. *Industrial Management & Data Systems, 100*(1), 17-21.

Hendriks, P. (1999). Why share knowledge? The influence of ICT on the motivation for knowledge sharing. *Knowledge and Process Management, 6*(2), 91-100.

Hitt, M., Ireland, R. D., & Hoskisson, R. (2012). *Strategic management cases: Competitiveness and globalization* (10 ed.). Canada: Cengage Learning.

Hofstede, G., & Hofstede, G. J. (2005). *Cultures and organizations: Software of the mind* (Second ed.). New York: McGraw-Hill.

Kotler, P. (2012). *BSS FAQs on marketing : Answers and advise by the gurus*. Singapore: Marshall Cavendish.

Magee, C. (2010). Social fabrics: Gold mining, diaspora, and word and image in the painting of Papa Essel. *African Arts, 43*(4), 8-19.

Marinova, D., & Philimore, J. (2003). Models of innovation. In L. V. Shavinina (Ed.), *The international handbook on innovation* (pp. 44-53). Oxford: Elsevier Science Ltd.

Mato, D. (1986). *Clothed in symbol-The art of Adinkra among the Akan of Ghana*. Indiana: Bloomington.

McCracken, G. (1986). Culture and consumption: A theoretical account of the structure and movement of the cultural meaning of consumer goods. *Journal of Consumer Research, 13*(1), 71-84.

McOmber, J. B. (2006). Technological autonomy and three definitions of technology. *Journal of Communication, 49*(3), 137-153.

Ojiako, U., & Aleke, B. (2011). Symbols as cultural expressions of technology diffusion. *Social and Business Review, 6*(3), 198-213.

Okpara, J. O. (2011). Factors constraining the growth and survival of SMEs in Nigeria: Implications for poverty alleviation. *Management Research Review, 34*(2), 156-171.

Polyani, M. (1966). *The tacit dimension*. London: Routledge & Kegan Paul.

Quarcoo, A. K. (1972). *The language of the adinkra patterns*. Legon: Institute of African Studies.

Rattray, R. S. (1927). *Religion and art in Ashanti*. London: Oxford University Press.

Ritala, P., Olander, H., Michailova, S., & Husted, K. (2015). Knowledge sharing, knowledge leaking and relative innovation performance: an empirical study. *Technovation, 35*, 22-31.

Roberts, M., & Zahay, D. (2013). *Internet marketing: Integrating online and offline strategies*. Mason, OH: Cengage Learning.

Robinson, L. (2009). A summary of diffusion of innovations. Retrieved from http://www.enablingchange.com.au/Summary_Diffusion_Theory.pdf

Rogers, E. M. (1995). *Diffusion of innovations*. New York: Free Press.

Sarpong, A. (1974). *Ghana in retrospective*. Tema: Publishing House.

Schultz, D. E., Block, M. P., & BIGresearch. (2010). *Retail communities: Customer-driven retailng*. Worthington, OH: Prosper Publishing.

Tsai, W. (2000). Social capital, strategic relatedness and the formation of intraorganizational linkages. *Strategic management journal, 21*(9), 925-939.

Tsai, W. (2001). Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *Academy of management journal, 44*(5), 996-1004.

Turner, T. S. (2012). The social skin. *Journal of Ethnographic Theory, 2*(2), 486–504.

Willoughby, J. (2005). Adinkra printed ceremonial clothes of Ghana. Hampton: An Ends of the Earth Surviving Traditions Production.

Zulkifli-Muhammad, M., Char, A. K., bin Yasoa, M. R., & Hassan, Z. (2009). Small and medium enterprises (SMEs) competing in the global business environment: A case of Malaysia. *International Business Research, 3*(1), p66.