Educators' Perceptions of Adinkra Symbols

A Phenomenological Study

BY

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THESIS

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To Ras Gameli Haligah, Mr. Gameli Mensah, and Mrs. Priscilla Gyapong-Kyei for your persistence and tenacity, I am deeply grateful. To the late Prof. Mkhululi for emphasizing the value of education and for your immense contribution to education in Africa. To all the participants in this study, without your experiences this study would not have been possible. I am deeply appreciative.

Dedication

To the cherished memory of my parents Opanyin Kofi Oppong-Wadee and Obaapanyin

Mrs. Afua Gladys Oppong-Wadee who provided a literacy-rich environment in our home

and developed in me a deep yearning for learning.

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ABSTRACT

Adinkra symbols have over the years become a feature of the African-American cultural landscape and has found its way into educational contexts. Educators use Adinkra symbols in both formal and informal settings. The question that drives this study hinges on 'how are these educators experiencing Adinkra symbols and what constitutes an experience'? The purpose of this study was to understand and describe the "essence of the experience" and the transactional meaning making that emanates from educators' interactions with Adinkra symbols, and the implication of this on literacy for people of African descent in educational settings. This study examined the areas of interaction between the processes involved in the use and understanding of Adinkra symbols (an African 'language') by educators and their potential relevance to instruction in contemporary settings for literacy development in the United States. Data from interviews and audio recordings were collected from 11 educators who use Adinkra symbols in their instruction. This study is unique in that it seeks to derive the essence of the educators' experiences while investigating the transactional meaning making that occurs from interaction with Adinkra symbols for purposes of instruction.

The basis of this study was predicated on the assumption that educators' experiences with Adinkra symbols result in making of meaning for the educator using Adinkra symbols. This focus was to explore the inclusion of meaning making symbols such as Adinkra symbols into the wider curriculum for the purpose of situating knowledge for students of African descent in cultural, social, and historical contexts.

This study used the development of textural and structural descriptions of the educators' experiences that resulted in a phenomenological description by identification of patterns and themes. These descriptions formed the core of the meaning making experiences that educators make from their interaction with Adinkra symbols. Meaning making is here defined as the process by which people understand or make sense of life, events, relationships, and the self. Meaning making is central to education (Ogden & Richards, 1923). Data analysis was conducted by reducing the information gathered from the interviews into categories from which themes were developed. As such, the collected data was assembled and then reduced to identifiable patterns, categories, or themes. The emergent themes then served as the foundation for the development of a detailed description of the phenomenon. This study was guided by a theoretical framework, African-centered theory. The essence of the experience of educators' interactions with Adinkra symbols is primarily a function of social and cultural practices. Sign systems are imbued with the capacity to convey meaning (Gavelek & Whittingham, 2017). I therefore emphasize the potential that symbols and images have in the conveyance of meaning but more so how educators come to experience them and the implications these experiences have for instruction. Thus, educators' experiences, meaning making, and their associated implications for education was the focus of this study.

CHAPTER 1: INTRODUCTION TO THE PROBLEM

Prior to the Civil Rights movement of the 1960s and 1970s, individual educators and community groups in the African-American community emphasized their right to define and establish standards of education for students that connect and situate students within an African historical and cultural framework (Shujaa, 1994; Ratteray & Shujaa, 1987; Lomotey, 1992). Preceding the *Brown vs. Topeka Board of Education* landmark decision to desegregate schools across the United States, and since, some educators of African-American students have sought to reaffirm their students' humanity by infusing knowledge that centers students' culture, society and history (Lomotey, 1992; Ratteray & Shujaa, 1987).

The emergence of African-centered theory was an outcome of earlier Pan-Africanist, and to an extent, Black Nationalist ideologies of the late 19th and early 20th centuries. Pan-Africanism is an international movement whose objective is the strengthening of the bonds of solidarity between continental and diasporic Africans, as well as working towards the political unification and economic advancement of African people worldwide. Pan-Africanism as a movement stands united against the unjust and unlawful treatment of African peoples all over the world. Modern-day Pan-Africanism finds its origins in a conference organized by the Trinidadian barrister, Henry Sylvester Williams in July 1900 in the city of London. Pan-Africanism has as its objective, the full participation of Black people in the social, political, cultural, and economic dimensions of world affairs. It is emphatically and unmistakably Afrocentric, looking to Africa as the starting point for all beliefs and ideas that it espouses. As a movement, Pan-Africanism

stands for the decolonization of Africa and all lands where people of African descent live, and is in total opposition to all forms of racial injustice and discrimination. Pan-Africanism is committed to the restoration of the dignity of African people world over (Watson & Johnson, 2000). Black Nationalism, as it emerged in the United States embraced the notion of political self-determination and unity among people of African descent. Black Nationalism as it has manifested in the United States has been a protest movement in political, cultural, economic, and cultural arenas (Blake & Cleaver, 1969). While early manifestations of political Black Nationalism sought a separation from the United States, economic nationalism sought the economic advancement of Black people in the United States and the crumbling of racial barriers through economic development. Culturally, Black Nationalism had as its goal the development and advancement of a cultural framework for Blacks that exists simultaneously with the development of racial consciousness, pride, and solidarity. These seemingly divergent strands of Pan-Africanist ideology and Black Nationalism were integrated by the most honorable Marcus Garvey after the First World War (Blake & Cleaver, 1969). Organizations such as the Nation of Islam under the leadership of Elijah Muhammad added a religious dimension. The influence of Malcolm X expanded the horizons of Black Nationalism. The political component of Black Nationalism has made self-determination one of its key aspects of its expression. Pan-Africanism shares core ideas and beliefs with Black Nationalism. These movements gave impetus to African-centered schools who sought to provide an emancipatory educational experience for learners and educators of African descent. This milieu provided the basis for the establishment of Afrocentric schools that were established to provide an alternative form of education (Pollard & Ajirotutu, 2000). One

school that used "African and African-American history, culture, and language as the basis of its curriculum and made use of pedagogical techniques that responded to African-American children's learning styles" (Pollard & Ajirotutu, 2000) was the Nairobi Day School of East Palo Alto, California. Similar schools were opened throughout the United States, with a surge in the 1980s and 1990s (Dei, 1994; Hopkins, 1997; Hopson, Hotep, Schneider, & Turenne, 2010). The establishment of such institutions attracted the attention of educational researchers who sought to document student achievement in these Afro-centric schools. These researchers found that students who attended institutions whose curriculum situated the culture, history, and social perspectives of the students´ communities tended to fare better cognitively, emotionally, socially, and academically than students attending traditional schools (Dei, 1994; Hopkins, 1997; Hopson, Hotep, Schneider, & Turrene, 2010; Kifano, 1996; Leake & Leake, 1992; Sanders & Reed, 1995). Other studies, such as those conducted by Sanders and Reed (1995) and Anselmi and Peters (1995) concluded that there was indeed increased academic and cognitive achievement that was reflected in an increase in achievement among students attending these schools. This high achievement was the result of cultural veneration, mentoring, positive affirmation, student-centered learning, familial classroom environments, high quality instruction, and community engagement (Dei, 1994; Hopkins, 1997; Kifano, 1996; Leake & Leake, 1992; Sanders & Reed, 1995).

Educators and researchers like Hilliard (1987) piloted the Portland Baseline Essays, a geocultural project whose aim was to provide a diverse curriculum to students. The scope of this project was broad and included subjects such as social science, art, physical education, language arts, music, health, mathematics, science and technology.

These individuals and institutions defined African-American educational excellence as one that is firmly entrenched in, and espouses a culturally relevant curriculum. The notion of cultural relevance emphasizes the importance in educators developing curricula that not only builds upon, but is also steeped in home cultures of the learners. Expressions of cultural relevance have been referred to by various names in the existing literature. These include *culturally responsive* (Erickson, 1987), *culturally congruent* (Au & Kawakami, 1994), *culturally compatible* (Jordan, 1985) *culturally relevant* (Ladson-Billings, 1990), and *culturally sustaining* (Paris, 2012). The diverse expressions of cultural relevance do not suggest or equate to synonymity. These educators who have for long advanced culturally relevant curricula have brought the history, math, art, music etc. of Africa into the instruction of students of African descent to develop a framework for their education that is culturally, socially, and historically situated. These educators have made use of, and connected learners to African cultural literacies including written symbols and signs. Such cultural literacies have included expression of and interaction with Adinkra symbols (Madhubuti & Madhubuti, 1994; Pollard & Ajirotutu, 2000). Adinkra symbols serve a transnational purpose in terms of serving as a medium and tool of education in the divergent geographical contexts in which they are used. This educational function of symbols has been employed throughout generations of African people (Martinez-Ruiz, 2013; Thompson, (2010).

Written symbols and signs have been integral to African systems of initiation and education for millennia (Martinez-Ruiz, 2013; Battestini & Evans, 2000). However, very little effort has been made to understand African forms of graphic expression on their own terms (Martinez-Ruiz, 2013; Mullen, 1996; Talbot, 1912; Wahlman, 1987; Arthur,

2017; Battestini & Evans, 2000). Pervasive racist notions of the seventeenth, eighteenth

and nineteenth centuries typically advanced the notion that African people were without

written expression (Hegel 1892, 1991; Obenga, 1999; Battestini, 2008; Martinez-Ruiz,

2013). During this period, value was only placed on writing whose characteristics

conformed to Western print culture, which is the kind of writing that is made up of single

alphabetic letters and is usually used in the publication of books and other canons of

literature (Martinez-Ruiz, 2013). Since that period, though, a host of historic African

writing systems that utilize symbols and signs have been identified. These include Coptic

texts in Egypt and Ethiopia, Islamic writing in Morocco, that of the Vai in Sierra Leone,

the Mum of Cameroon, Nsibidi of the Efik and Ekoi in Nigeria and Cameroon (Uka,

1978; Ogunleye, 2006). Graphic expression among Africans has been written about

holistically by scholars like Marcel Griaule, whose detailed epistemological ethnography

among the Dogon of Mali provided insight into their visual culture among other things

(Griaule, 1950; Griaule & Dieterlen, 1986). For the Dogon and related groups such as the

Malinke, Bambara, Bozo, and Minyanka, these primary signs, totaling 266 in number

form "the basis of all knowledge" (Dieterlen, 1991).

Signs and symbols are the direct expression of thought (Griaule & Dieterlen,

1986). Ott (1989) describes how:

Symbols are signs that communicate meanings greater than themselves and
express much more than their intrinsic content. They are invested with specific
subjective meanings. Symbols embody and represent wider patterns of meaning
and cause people to associate conscious or unconscious ideas that in turn endow
them with their deeper, fuller, and often emotion-evoking meaning (Ott, 1989, p.
21).

The knowledge of signs and symbols serve the individual who knows how to

decode them well by way of according the individual a high level of functionality in the

society. African symbols have been present in the Americas since the days of slavery

(Ogunleye, 1996; Martinez-Ruiz, 2013; Thompson, 1981). For over 150 years, Africans

fleeing enslavement on southern plantations lived in autonomous communities in Florida

where they continued to use African forms, traditions, and sensibilities in their rituals and

modes of communication. These forms included the use of the *Aroko* communication

system (Ogunleye, 1996). *Aroko* is a system of communication that has its origins in

Yourubaland in Nigeria and was carried over and used by the self-emancipated Africans

living in autonomous communities in Florida. While *Aroko* is a system of communication

that uses tangible objects as its mode, another system of communication that originated in

Africa and continued in usage in Florida among self-emancipated Africans is *Nsibidi*.

Nsibidi is an ideographic writing system that is "drawn, painted, shaped, or carved on

various materials, such as bark, metal, masks, and so forth" (Ogunleye, 1996). It

originated in Nigeria as a way of expressing the philosophical ideas of the Edo, Efik,

Ejagham, Ibibio, and Igbo peoples of Nigeria. Asante (1992), asserts that Nsibidi is an

ideographic writing system of great antiquity and that has connections to the African

philosophical system of the Nile Valley (Asante, 1992). It is important to note that both

Aroko and *Nsibidi* were both used in the education of children among others (Ogunleye,

1996). The continuity in use of symbolic modes of communication from Africa to the

Americas has served and continues to serve people of African descent in their usage of

several modes of communication in their societies. There has been reportage on such

continuities in the various media; however, the lens that this study will use is one that

seeks to aid in arriving at what constitutes the essence of the experience of educators,

formal and informal, who use such symbolic modes of communication, and more specifically, Adinkra symbols.

   Though Adinkra symbols made it to the Americas as well, it was not popularized in American society and more particularly in educational contexts until the 1960s (Temple, 2010). One of the most visible expressions of Adinkra in educational contexts is the *Sankofa* symbol. The Adinkra symbol, *sankofa,* is integral to the Akan (people of Ghana, West Africa) canon of symbols. The notion expressed by *sankofa* represents an important aspect of the Akan philosophical tradition. Its meaning may be translated as "return to fetch it," stemming from the proverb, *se wo were fi na wo san ko fa a yenkyi*, translated as "It is not a taboo to return to the past to fetch" (knowledge). *Sankofa* admonishes and teaches us to learn from the past, to "pick up gems from the past" (Quarcoo, 1972). In its application to education, Ofori-Ansa (1993) interprets Sankofa as the ability to learn from the past for the purpose of building for the future (Ofori-Ansa, 1993). Willis (1998) in affirming this future building aspect of Sankofa conclusively explains that:

> Sankofa means 'go back to the past in order to build for the future'…we should not forget our past when moving ahead. We should learn from the past, that is 'Go back and fetch what we need' and move forward into the future…Though the concept may seem new, it is an old tradition that links people to a discovery of their past, which is a fundamental building block for the future (Willis, 1989, p. 189).

While a popular Adinkra symbol among the Akan people of Ghana, the *Sankofa* symbol, also represents a diasporic phenomenon (Temple, 2010). This is so because in the diaspora, it is also seen as a call to return to the African center for knowledge that can be applied to contemporary contexts. The popularity and practical use of the notion expressed by *Sankofa* in the African American context "substantiates the community's

thirst for culturally relevant philosophies that can be used to characterize Black life"

(Temple, 2010). This expression of *Sankofa* aligns with the notion of situating African-

American learners within socio-cultural and historical contexts. Adinkra symbols as

communicative devices have the potential to provide such experiences and opportunities

for educators and learners alike (Kuwornu-Ajaottor, Appiah, & Nartey, 2016).

Cultural retentions

        Contrary to popular knowledge, African Americans retained aspects of African

culture in the western hemisphere that continues to the present day (Thompson, 2010;

Bascom, 1952; Moody, 2013; Mullen, 1996). This is particularly evident in religious

practices (Thompson, 1981). Dei (1994) explains the crucial necessity for the retention of

African culture in North America when he suggests that:

> "The retention of African cultural patterns in the diaspora was (and continues to
> be) both a response to, and a strategy for dealing with, the hardships (domination
> and alienation) and contradictions lived out at the juncture of being black in a
> white-dominated society" (Dei, 1994 p. 8).

        For centuries, Africans fled enslavement on Southern plantations of the United

States and lived autonomously in Florida (and other areas), and continued to use unique

African art forms, traditions, sensibilities, communicational modes, and rituals, as

subsistence strategies, and in designing battle plans for their prosperity and maintenance

of their freedom and autonomy. Cultural forms such as *Aroko*, *Nsibidi*, *Tusona*, or *Sona*

(ideographic writing systems were preserved and used by enslaved Africans in Florida

(Ogunleye, 2006). Other areas such as North and Southern Carolina reflect a high

retention of African cultural practices (Holloway, 2005; Thompson 1981). Such

continuities survived particularly in the Sea Islands of South Carolina as a consequence

of the area's isolation (Thompson, 2010). Holloway (2005), asserts that "African culture

has been retained in almost every aspect of Sea Island culture, including aesthetics, cuisine, folktales, folklore, language, and oral tradition" (Holloway, 2005 p. 187). Charleston, South Carolina was also one of the most prominent entry ports for bringing in captured Africans to the United States. Continuities in African cultural expression is a feature of African-American traditional life here (Thompson, 1981). Perhaps, the most enduring of such expressions is what has come to be known as the *Bakongo Cosmogram.* The *Bakongo Cosmogram* comes to the Americas by way of central and west central Africa, from the Kongo and Ngola regions (Thompson, 1984; Holloway, 2005). The *Bakongo Cosmogram*, having been a dominant symbolic expression of Kongo culture functions as a representational form of the African worldview. The *Bakongo Cosmogram* consists of two pairs of intersecting lines on the vertical and horizontal axes that is set within an ellipse, and has smaller circles at the four ends of the crossed lines (Fennell, 2000).

The cosmogram is seen in Bantu cultures (of which Kongo and Ngola are a part of) as a reflection of the crossroads.

Figure 1: The figure above depicts the Bakongo Cosmogram, otherwise known as the *Dikenga* used in sacred rituals and identified on remnants of pottery found in South Carolina and elsewhere in the United States.
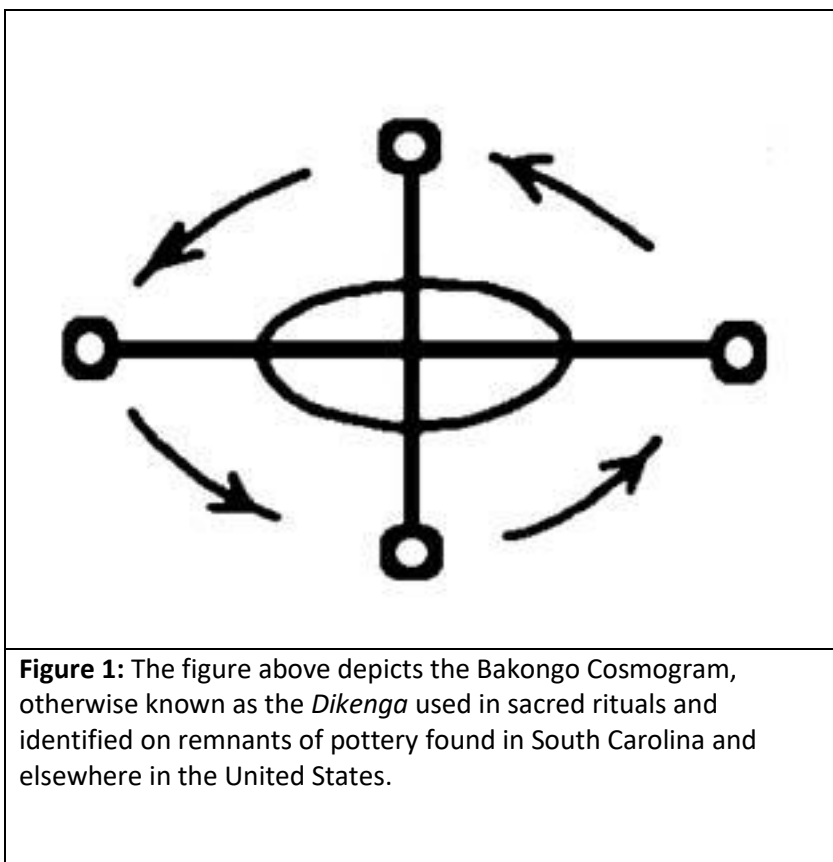
The *Bakongo Cosmogram* reflects the point of intersection between the living and the ancestors. The horizontal line serves as the dividing line between the land of the living and that of the ancestors. The importance of the *Bakongo Cosmogram* to the expression of the African worldview and the use of signs and symbols in the New World lies in its ubiquitous utilization (Holloway, 2005; Thompson, 1983). Additionally, persons take oaths by standing on these cognate signs written on earth (Thompson, 1981; Thompson, 1983). The Bakongo cosmogram (also known as the *Dikenga*) was incised onto pottery and other hand-crafted pieces of work (Thompson, 1993). These hand-crafted vessels, known as "colono ware" have been dug up from river beds in the Carolinas and have been dated as far back as 1725 (Thompson, 1993). This element of

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Kongo civilization resurfaced in the New World in places such as South and North

Carolina and Louisiana (Holloway, 2005). I make this point to emphasize the continuity

of African symbolic expression among the African people in the United States after their

forcible transplant to present times. The presence of these African symbolic expressions

was a result of the mass migration of many Bantus to the southeastern United States,

including areas such as Alabama and Louisiana. Indeed, Herskovits (1935) places the

Bantu center of North America as the South Carolina Sea Islands, an area noted for the

preservation of myriads of forms of African cultural expression (Herskovits, 1935;

Holloway, 2005). These African cultural forms of expression have been retained in the

definition and make-up of the aesthetics, child-rearing practices, family structures,

respect for the aged, cuisine, oral tradition, folktales, folklore, and language in the

cultural expressions of African peoples of North America (Holloway, 2005; Asante &

Asante, 1980; Powdermaker, 1939; Abrahams, 1970). This perspective that substantiates

African cultural continuities in North America has been confirmed and affirmed by

research conducted in the fields of folklore, anthropology, history, and sociology

(McCarthy, 1995). Studies that have documented aspects of African culture in North

America include Puckett's (1968), *Folk Beliefs of the Southern Negro*, Woodson's (1968)

The African Background and Dubois' (1939) *Black Folk, Then and Now*.

The impact of the African worldview, and the influences of Kongo forms of

expression in particular, in the western hemisphere is readily noticeable in symbolic

forms of expression such as the *Bakongo cosmogram* (Thompson, 1983). I refer to the

symbolic and other retentions of culture above to emphasize the point that African

cultural expression has always been present in the African-American milieu. This is by

no means to suggest that every person of African descent is privy to the meanings of these forms of symbolic expression. What remains true is that the worldview from which these forms of expression emanate is what informs the cultural expression of people of African descent in the United States and elsewhere in the African diaspora (Thompson, 1983; Thompson & Dawson, 1991; Holloway, 2005; Fennell, 2000).

A publicized historical reference to an Adinkra symbol was its discovery at the African burial ground in lower Manhattan, New York (Temple, 2010). This Adinkra symbol (Sankofa), had been identified in an African American burial premise dating from 1760, motivated the National Park Service to adopt Adinkra symbols for its memorial in New York City. Moreover, Adinkra symbols continue to be an object of study across classrooms all over the United States.

The premise here is that African symbols such as the aforementioned, and by extension, Adinkra symbols, are not new to the African-American ethos. Indeed, they are intrinsic to it. These cultural continuities between Africa and the African-American community have persisted through slavery and beyond. Indeed, there is recorded evidence of the intentional and strategic usage of traditional African cultural practices and art forms by self-emancipated Africans in the writings of 17th, 18th, and 19th-century European and American missionaries, explorers, military personnel travelers, traders, , and residents of states such as Florida. There is a clear connection between the cosmographic signs of the Bakongo people of Africa and the chalked signs of initiation among African-Americans and the people of the island of St. Vincent (Ogunleye, 2006; Thompson, 1983). Cosmographic signs are signs that map the general features of the

universe and the universe itself as a unitary system. The cosmography of the Bakongo referred to integrates aspects of astronomy, geography, and geology.

In this regard, symbol-utilizing societies, such as the Asante (a subgroup of the Akan of Ghana) and others may be evidenced as making meaning from the said symbols. This meaning making includes multimodal communication, and other outcomes of interaction with symbols (Kress, 2004, 2009; Walsh, 2009; Jewitt & Kress, 2010; Jewitt, 2008). Meaning making involves the selection and assembly of resources that are directly related to one's perception as well as to those of one's audience and context (Stein & Newfield, 2006). Such meaning making outcomes include the transmission of values (Agbo, 2018), the use of Adinkra geometry, and the development of ethnomathematics software for use by educators and learners (Babbitt, Lyles, & Eglash, 2012), the use of Adinkra symbols in environmental sustainability education (Adom, Opoku, Newton & Yeboah, 2018), and the importance of Adinkra symbols in long-term information retention and the testing effect (Coppens, Verkoijen, & Rikers, 2011). This study seeks to conglomerate the experiences of educators to arrive at what constitutes the essence of their experiences with Adinkra symbols. More than ever before, the field of literacy is witnessing an increased emphasis and focus on multimodality and other "new literacies" as they relate to research and practice. The literate person of the future will be one who is able to read and create a range of paper-based and online texts, participate in, and create virtual settings, and critically analyze multimodal texts that integrate visual, musical, dramatic, digital, and new literacies (Sanders & Albers, 2010). Adinkra symbols provide potential opportunities for the participation in and engagement of such forms of literacy. In expressing a similar view, Kress, 2003 asserts:

It is no longer possible to think about literacy in isolation from a vast array of social, technological and economic factors. Two distinct yet related factors deserve to be particularly highlighted. These are, on the one hand, the broad move from the now centuries long dominance of writing to the new dominance of the image and, on the other hand, the move from the dominance of the medium of the book to the dominance of the medium of the screen. These two together are producing a revolution in the uses and effects of literacy and of associated means for representing and communicating at every level and in every domain (Kress, 2003, p. 1).

The view expressed by Kress (2003), highlighting the importance of the new emphasis on the image is similar to that expressed by Adinkra symbols which also emphasizes the image in communication. In the current wake of interest in multimodality in classroom teaching, the reemergence of the image and symbol as a mode of communication provides an opportunity for a case to be made for the inclusion of culturally appropriate symbols like Adinkra symbols in the curriculum; especially as it pertains to its meaning making capabilities. Given the fact that some educators are using Adinkra symbols in educational settings, it is important that the experiences of these educators are known. This knowledge will provide a basis for instruction and pedagogy, as well as for policymaking. The knowledge that emanates from the study of educators' experiences is particularly important for educators of African-American students because not only does it have the potential to equip them to provide students with an alternative mode of learning apart from writing, but also situate their learning in a social, cultural and historical context.

Problem Statement

The significance of culturally relevant and sustaining pedagogies to the education of learners of particular cultural backgrounds has been discussed (Ladson-Billings, 1995, 2009; Paris, 2012; King, 2006, 2015; Gay, 2002, 2018). Educators have not been equipped with the necessary tools to facilitate culturally situated education (Ladson-

Billings, 1995). This has resulted in a situation in which educators have identified tools that enable them to carry out their mandates. One such tool being used by a wide range of educators is Adinkra symbols. The questions that arise are 'Why are educators using Adinkra symbols and how are they using them"? In this study, I position and investigate the use in educational spaces of Adinkra symbols as a multifaceted culturally relevant tool of instruction, the adoption and continued use of which has the potential to positively impact the educational landscape, particularly for learners of African descent.

To this end, the ways in which educators are using them and the reasons for their use constitute the crux of the study. This is important as it uncovered the myriads of ways in which educators use Adinkra symbols as a tool of instruction, and which in turn provided points of reference and models with multiple dimensions that are also culturally situated and can be used in the education of learners of African descent in particular.

My journey into Adinkra symbols

I was born in the cosmopolitan and picturesque coastal city of Tema in Ghana. While I attended school there, I always enjoyed family trips that we embarked on to visit my grandparents in the city of Kumasi, known as "the cultural capital of Ghana," owing to its strong character reflective of African cultural aesthetics, norms, and values. On such occasions I got the opportunity to visit my grandmother's ancestral village (and one of mine) of Asokwa. I always enjoyed my time there as the features contrasted with what I interacted with on a daily basis back in Tema.

My grandmother's village, Asokwa, has been a center of Adinkra cloth production for centuries. It is to date one of the two main centers of Adinkra cloth production in Ghana, the other being the village of Ntonso. One of the things that caught my attention earlier on was the process of making Adinkra cloth. Adinkra cloth is fabric

that has been emblazoned with Adinkra symbols and is worn on occasions to communicate messages to those who were 'literate' in Adinkra symbols. Adinkra cloth is made by boiling the bark of the *Bodi* tree to make the dye that is stamped onto the fabric (There is woven Adinkra cloth now that exists alongside the stamped cloth). Stamps were made from calabash (the dried fruit of a gourd-producing tree) that are used in stamping the symbols onto the cloth. The process, colors, smells, and artifacts were a sight to behold! I did not make much of the symbols earlier on as I imagined them to be decorative motifs.

In Ghana, these symbols are ubiquitous, they are found on ancient shrine houses, modern buildings, and textbooks among other things. I later discovered that every symbol had a meaning and that these meanings were communicated to the discerning audience. I would engage my parents and grandparents in long conversations about the Adinkra symbols and their meanings. Later on, when I gained admission into the university, I noticed that they were there too, particularly the Adinkra symbols that spoke to the importance of knowledge and the maintenance of standards of high quality. I continued to learn about and engage Adinkra symbols on a personal level. I acquired the Adinkra dictionary and studied it vigorously.

Upon graduation, I journeyed here to the United States where I took a job as a substitute teacher in a suburban Chicago school district. The nature of the work required me to work at different school sites on an almost daily basis. It was during this time that I noticed that educators were using Adinkra symbols in almost every school that I worked at. This was particularly so in art classes. They all had the Adinkra symbols poster and they undertook many projects based on Adinkra symbols and their associated knowledge.

I wondered to myself, "What are Adinkra symbols doing here, and why and how are these educators using them?"

During this time, Arthur (2001) released his book on Adinkra symbols and came to Chicago to give a book talk to promote his book. I was present, acquired a copy, and studied it vigorously. This interest motivated me to do something with it and when the opportunities came, I wrote short papers on the subject. It was not until when I was deciding on a research focus that I returned to the subject to undertake a study into how educators in the United States came to experience Adinkra symbols, and how they were engaging them as instructional tools and otherwise in both formal and informal institutions. The desire to find answers to these questions laid the foundation for this study.

Adinkra symbols: what are they?

Adinkra symbols may be defined as ideographic, pictographic, cosmographic, and geometric symbols that are used as communication devices. In its symbolic expression, Adinkra symbols represent messages, thoughts, and proverbs among others. Symbols offer a lens through which aspects of a people's culture may be understood (Marfo, Opoku-Agyeman, & Nsiah, 2011). Adinkra symbols originated with the Akan people of Ghana and La Côte d'ivoire. The Akan is an umbrella name for a wide variety of ethnic groups who are culturally homogenous and who inhabit the modern-day countries of Ghana and La Côte d'ivoire (Arthur, 2001; Dolphyne & Kropp-Dakubu, 1988; Bodomo 1996). The Akan make up about half of the populations of both Ghana and La Côte d'ivoire. Adinkra symbols originated among the Akan and were popularized by the Asante sub-ethnic group. A symbol in this context may be defined as a creative

expression representative of a thought, message, or proverb. The alignment of a set of symbols to a particular culture-sharing group of people provides the observer with lenses by which aspects of that culture may be understood (Marfo, Opoku-Agyeman, & Nsiah, 2011). Adinkra symbols represent an expression of the worldview of the Akan people (Willis, 1998). Adinkra symbols reflect the complexities of traditional Akan people's social and spiritual existence. These symbols depict the totality of the landscape of Akan cultural life, historical events, proverbs, parables, aphorisms, communal values, cultural mores, philosophical concepts, codes of conduct, and social standards among others of the Akan peoples (Willis, 1998; Arthur, 2001; Mato, 1986; Quarcoo, 1971). Adinkra symbols constitute a language that is multilayered. The symbols are designed to convey concepts that are culturally specific but universally accepted notions of life and living (Willis, 1998; Arthur, 2001). Mato (1986), in addressing the notions and beliefs expressed in Adinkra symbols asserts that

> As an art of public display, Adinkra images carried aphorisms, proverbs, symbols and metaphors expressed through visual form. As carriers of abstract or tangible information Adinkra images were firmly rooted in the proverbial literature of the Akan. As a communicative system, Adinkra images carried Akan traditional wisdom regarding observations upon God and man, the human condition, upon things spiritual as well as the common-place and upon the inevitability of death. Adinkra stamps [symbols] are therefore an example of the penchant and skill of the Akan to set proverb or verbal statement into visual form (Mato, 1986 p. 228–229).

This ability to set a verbal statement into visual form has profound implications for literacy (Coppens et al, 2011; Babbitt et al, 2015). The multilayered and complex meanings of Adinkra symbols express clear messages (Arthur, 2001). Adinkra symbols have been used among the Akan peoples as an aid to the thought process, a means of comprehension, and as a method of authentication or witness bearing (Arthur, 2001).

Adinkra symbols are directly linked to and stem from other forms of Akan (Twi, one of the major Akan languages employs a Latin-based script. The words in parentheses here are in the Twi language. See glossary) traditional expression such as folk songs (*nwom*), poetry (*awensem*), quizzes and riddles (*abrone ne abisaa*), Ananse stories (*anansesem*), libation, prayer, and associated drum poetry (*apaeyi*), oral history (*Abakosem anaa mpanyinsem*), funeral dirges (*nsubaa anaa sudwom*), and proverbs (*mme anaa mmebusem*). In asserting the nature of the complexity of the Akan expression of knowledge, DeGraft Johnson (1971) says, "The Akan man has a rare talent for compressing a mass of knowledge into an apothegm, and his proverbs and witticisms are rich with many apposite remarks and observations that show the depth of his insight into human nature" (DeGraft Johnson, 1971, p. 90). Adinkra symbols are communicative devices that draw from the above listed forms of communication and are also able to be expressed in multiple ways thus contributing to its multi-layered meaning making abilities. The purpose of Adinkra symbolism is the conveyance of specific messages to a comprehending target audience (Marfo, Opoku-Agyeman, & Nsiah, 2011). Adinkra symbols express sociocultural information that informs and educates.

Adinkra symbols: theories of origin

Several theories have been developed to which the origins of Adinkra symbols have been ascribed. These theories place the point of origin of Adinkra symbols at Bono, Denkyira, Gyaman, (all states in Ghana and the Ivory Coast) vis-a-vis an etymologically based theory of origin. As a researcher, I posit that there are factual elements in all of the aforementioned theories relating to the origin of Adinkra symbols. Given that the Bono state was the parent state and parent culture of all the Akan subgroups, I assert that Adinkra symbols must have originated during the period in which the Bono state held

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sway. Owing to the non-static nature of Adinkra symbols, additions must have been made with time as additions are continually made to the canon, even to this day. Subsequent additions to the Adinkra canon of the Asante subgroup of the Akan people must have been made prior to the Asante-Denkyira war of 1700 as well as the Asante-Gyaman war of 1819. It is my view that as the Bono state began to expand, and as Akan subgroups such as Denkyira and the Gyaman developed, they made innovations to Adinkra symbols and contributed new additions. These new symbols were probably incorporated into the canon of Adinkra symbols by the Asante during their interactions with the Denkyira and Gyaman subgroups. Thus, when Bowdich (1819), visited Asante in 1817, Adinkra symbols were already in common usage. These must have been a conglomerate of the various symbols from all the sources mentioned above such as the Bono, Denkyira, and Gyaman. The primary symbols must have come from the Bono state with later additions from Denkyira and Gyaman. This situation has also resulted in the seemingly unrelated stories of the origins of Adinkra symbols and their emanation from disparate quarters.

Adinkra symbols and their usage

Adinkra symbolism is one such form that employs varied forms of communication and has implications for instruction (Eglash, 1999). Indeed, a wide spectrum of educators use Adinkra symbols in both formal and informal settings across the United States. The experiences of these educators and the implications of their experiences for instruction have not been highlighted. The locus of this study was to arrive at, through data collection and analysis, the essence of the experience of educators use of and interaction with Adinkra symbols. Adinkra symbolism has traditionally been used in Ghana as a communicative device and is usually found on fabric, buildings, textbooks, among many such sites of expression. Indeed, it permeates all aspects of life.

It has also been adopted across classrooms and educational institutions and in African-American cultural contexts across the United States. Adinkra symbols are particularly popular in art classes.

Each symbol is associated with a proverb, and while the image expresses meaning visually, the proverb does so textually. Concomitantly, the proverbs are also expressed through drum language, aurally. The color in which the image is situated communicates the intended emotions to be expressed. An example is given in the image below. This Adinkra cloth was designed to commemorate the passing of former president Atta Mills in 2012. The colors deep red and deep black signify an intense state of mourning. The symbol on the cloth is known as *Nyame Dua* which translates as 'altar of the Supreme Being.' It is a symbol of the presence and protection of God. It is used here to symbolize the yearning of the nation for God's protection for the departed president as well as for the nation during this period of uncertainty. Here the message conveyed by the cloth is one of seeking God's protection and presence for the departed as well as for the nation, and the situation of the symbol in the deep red and black colors to signify mourning. There is therefore no confusion as to why this message is being conveyed at this time.

Figure 2: Funeral cloth for the late president of Ghana, Prof. J.E.A. Mills depicting the Adinkra symbol known as *Nyame Dua* (Altar of the Supreme Being)

This example of *Nyame Dua* highlighted a number of issues I was interested in exploring in this study, for example the kinds of meaning making that inform overarching concepts, how symbol word pairs are ideal for information retention, meaning making with shapes, and how locales impact the individualized meanings that those who interact with Adinkra symbols ascribe to them. Educators who are aware of the implications for long-term memory retention through the use of Adinkra symbols are privy to an aspect of the essence of the totality of such experiences. This study, through data collection and analysis aimed at developing textural and structural analysis that will result in the 'essence' of the educators' interactions and experiences with Adinkra symbols.

I situated this study within the context of Adinkra symbolism, and will contribute to the discussion on literacy in general, the need to revisit such culturally relevant

symbols and tools with the purpose of inculcating aspects of their instructional capability into the classroom and the wider curriculum. Many students come into the classroom already familiar with multiple languages and modes of communication. I suggest here that teachers will be more effective in their practice if they are familiar with multiple modes of communication including culturally relevant ones as is the case with Adinkra symbols. The US Census projects that by 2050 (Perez-Johnson & Maynard, 2007), the majority of the US population are people who are classified as minorities; with the largest segment being Hispanic people of all racial classifications. Many children, from these families, will enter the school system already familiar with multimodal forms of communication. I argued that a teacher familiar only with linear, unimodal communication (reading and alphabet-based writing) will be a sub-optimal instructor for America's shifting demographic. Moreover, I further posit that the study of any non-western form of multimodal communication can inform and potentially re-train educators to be more sensitive to nonverbal ways in which students communicate.

My research on Adinkra symbols provides a window into a well-developed, time-tested form of multi-modal communication. Providing educators with opportunities to study forms of multimodal communication such as is found in Adinkra symbols and the resultant experience of the interaction has the potential to not only provide them (educators) with a culturally situated and relevant mode of communication, but also avenues to situate their interaction and student learning in social, cultural, and historical contexts. What then are these experiences, and what role can they play in literacy? What is the wider role of culture in literacy?

The role of culture in literacy

Culture is the lifestyle expressed by a people or a society, which is advanced and passed on through the social pactices and structures of a society (Anquandah, 2006). It is expressed in tangible and intangible forms (Asihene, 1978). Culture has been defined by Tylor (1871) as "that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society" (Tylor, 1871 p. 1). In this broad definition, Tylor (1871), expresses the notion of formal schools as sites of cultural acquisition together with other informal educational settings (Tylor 1871; Erickson, 2011). To this end, it is the totality of all the activities engaged in by people, including their products, social and religious orders, customs, and beliefs (Dixon, 1923). Culture may also be defined as being concerned with the ideas, actions, and the artifacts that individuals belonging to the tradition value, share, and learn (Arnove, 1999).

The term 'culture' is used to refer to all aspects of the life of a culture-sharing group, including the mental, linguistic, physical, and social forms of culture. The ideas that the people of the culture-sharing group possess, the relationships that they have with others, in both nuclear and extended family settings, as well as within institutions, the languages spoken, together with the music and the symbols used among members of the group, are all components of culture. Culture expresses the value system of the culture-sharing group which is integral to defining it. Culture determines the quality of life of a people in large measure (Myers, 1987). The importance of cultural identity, its formation and development, to people of African descent has been repeatedly emphasized (Asante, 1983; Myers, 1987; Cruse, 1967; Karenga; 1982; Paris, 2012; Kamalu, 1990; Hilliard, 1997; Ladson-Billings 1995a, 1995b). Culture has potential implications for the study of

education and more specifically learning, in the sense that education and learning cannot be studied without an acknowledgement of the cultural content or form of educational transmission the learner is familiar with, and the settings within which the learning processes take place. Kluckhohn (1961) asserts that cultural phenomena are as essential and definite as physical or biological phenomena, and further links her argument to systems of socialization and education, both formal and informal. The content transmitted through socialization or education reflects the basic value orientations of the culture-sharing group (Masemann, 1991). Dei (2012) in discussing the role of culture in the education of learners of African descent, asserts

> Culture is not necessarily as much about sameness as it is about a shared body of knowledge. Culture is about identity, history and constitutes a form of pedagogy. Culture is also hotly contested and is saturated with power. It is the complex engagements of the individual within and with the dynamic entity of culture that shapes who they are and how they come to know the world…culture influences human and social action in very complex ways.

When tradition or heritage forms the basis of our definition on culture, we may define it as ¨the sum total and organization of the social heritages which have acquired a social meaning because of racial temperament, and of the historical life of the group" (Park & Burgess, 1921, p. 72). It is however not static, culture is dynamic. Culture is not simply a state or a condition but rather a "process; as in *agriculture* or *horticulture* by which we mean not the condition of the land but the whole round of the farmers' year, and all that he does in it; culture, then, is what remains of men's' past, working on their present, to shape their future" (Myers, 1987, p. 16).

Culture may also be defined with an emphasis on it as a problem-solving device. Small (1905), posits that culture "is the total equipment of technique, mechanical, mental, and moral, by use of which the people of a given period try to attain their end ….

"culture" consists of the means by which men promote their individual or social ends¨ (Small, 1905, pp. 344–345). In the pursuit of social ends, culture serves as a medium of learning. It is in reference to this that Wissler (1916), conceives of cultural phenomena as including "all the activities of man acquired by learning…...Cultural phenomena may, therefore, be defined as the acquired activity complexes of human groups" (Wissler, 1916, p. 195). Culture is therefore the sum of social learning that is transmitted to an individual or group. It is "all behavior learned by the individual in conformity with the group" (Davis, 1948, p. 59). In its function as a medium of learning, culture is "all behavior that is mediated by symbols" (Bain, 1942, p. 87). It is an organization of phenomena such as material objects, sentiments, bodily acts, and ideas that consist of or is wholly dependent upon the use of symbols (White, 1943). The role and function of Adinkra symbols in learning supports and provides further evidence to highlight the importance of cultural, social, and historical knowledge and practices to learning.

Culture, as it is perceived in educational settings refer to the patterning that occurs in human activity as well as the beliefs and standards of judgement placed on social actions by social actors (Erickson, 2011). Culture can be viewed appropriately as "the organization of people's everyday interactions in concrete contexts" (Pollock, 2008). Kroeber and Kluckhohn (1952), offered an evaluation of over 160 definitions on culture, spanning diverse perspectives. In defining culture, Kroeber and Kluckhohn (1951) offer a conglomerate by the expression of culture as,

> ...patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, and on

the other as conditioning elements of further action. (Kroeber & Kluckhohn, 1952, p. 283).

Every group of people possesses a way of life, and by extension a culture. In large measure, it is 'culture' that determines the quality of a people's way of life. Culture, when defined as "the total way of life of a people, is somewhat indestructible" (Myers, 1987). The relevance of cultural identity to the quality of life of people of African descent has been repeatedly foregrounded (Asante, 1983; Cruse, 1967; Karenga, 1982; Myers, 1987). Anthropologists have long sought to match the home and community cultures of non-white students who had not exhibited academic success in schools (Ladson-Billings, 1995). There has been no significant advancement made in terms of addressing the role of culture in literacy mainly owing to the fact that contemporary educational practices and policies are steeped in a framework that has its origins in colonialism (Bishop & Glynn, 1999). Scheurich and Young (1997), assert that current educational policies and practices employed in mainstream contexts are steeped in epistemological racism, propagating the fundamental principles of the dominant culture while at the same time excluding the epistemologies of other races and cultures. This tends to have a negative impact on people of color in general (Scheurich & Young, 1997). Attempts by mainstream education to cater to the needs of culturally diverse students have been woefully inadequate in combating epistemological racism (Bishop & Glynn, 1998). To this end, several scholars have put forward frameworks and models designed to address the importance of culture to the process of literacy. In alignment with this notion of epistemological racism is the creation and development of an identity crisis among student populations classified as non-white, such as those of African descent.

The term "culturally appropriate" was used by Au and Jordan (1981), to refer to the pedagogy employed by teachers in a school in Hawaii who intentionally incorporated aspects of the cultural backgrounds of students into reading instruction. In this study, the teachers used a language interaction style known as talk-story among Native Hawaiians during instruction, resulting in higher than predicted levels of reading on standardized tests. A similar study was conducted by Mohatt and Erickson (1981), in which they observed teacher-student interactions and participation structures. They concluded that teachers of Native American students who used language patterns that were close to the students' home cultural patterns were generally more successful at improving the performance of students. In expressing the importance of culture to the learning process, Jordan (1985) posits that:

> Educational practices must mesh with the children's culture in ways which ensure the generation of academically important behaviors…The point of cultural compatibility is that the natal culture is used as a guide in the selection of educational program elements so that academically desired behaviors are produced and undesired behaviors are avoided (Jordan, 1985, p. 110).

Studies undertaken by King (1991), Ladson-Billings (1992), Siddle-Walker (1993), have all raised questions about the things that schools can do and should do in promoting the academic success of students of African descent. A detailed study undertaken by Ladson-Billings (1995) highlights the importance of culture in educational settings by an examination of the practices and beliefs of a number of successful teachers of African-American learners. The identified outcome of this study was that the academic success, cultural competence, and critical consciousness of the learner were what was most prized and aspired to by both parents and students. The common beliefs held by the teachers in this study were threefold: the conceptions about self and others held by

culturally relevant teachers, the manner in which social relations are structured, and the conceptions of knowledge held by culturally relevant teachers. What this study emphasized was the centrality of culture to the learning environment and process. Cazden (1988) suggests that there is a direct relationship between educational achievement and the extent to which discourse patterns in educational settings are compatible with the learner's culture of origin (Cazden, 1988).

Adinkra symbols, having been introduced into the cultural landscape of people of African descent in the United States, particularly by way of the practice of *Sankofa*, serve as a tool of cultural literacy in their own right. These symbols are always used in African high ceremonies across the United States. These high ceremonies include graduation ceremonies, burials, and marriage ceremonies. The use of Adinkra symbols among people of African descent in the United States reflects the thirst of the community for culturally relevant philosophies that characterize the diverse elements of Black life in the wider society (Temple, 2010). In contrast to affirming approaches to communication and learning writ large, stand deficit approaches to learning and teaching that have been in place prior to and during the 1960s and 1970s. During this period, the wider educational context that was provided through schooling viewed the literacies, cultural ways, and languages of non-white students and communities of color as deficiencies that needed to be repaired by the learning and adoption of the literacies, cultural ways, and literacies of the dominant and legitimized culture (Lee, 2007; Paris & Ball, 2009; Smitherman, 1977; Valdes, 1996; Paris, 2012). Adinkra symbols, in the context of being historically accumulated and culturally developed symbols of knowledge are essential to the process of individual functioning and of learning (Moll & Gonzalez, 1994).

The integration of Adinkra symbols into the educational framework has the potential to promote cultural values that in turn promote the success of learners of African descent. Such values include the fostering of an attitude of communalism, collective success and achievement, and collective discipline. The role that culture and cultural symbolism play in literacy tackles the issue of representation as well. The depiction of the reality of the learners by their institutions of education and associated processes are directly a function of representation of the minority and marginalized groups. Such representation is directly linked to the cultural aspirations of people of African descent for example, and how their learning preferences and prejudices are tied into their cultural aspirations. Culture informs how education should be delivered (Verharen, 1997). It is important for teachers of students of African descent to infuse instruction with cultural variables if they seek structure and sustainability in the development of optimum learning environments for students of African descent (Wright, 2012; Verharen, 2002; Dei, 2014; Asante, 1991). How knowledge is taught, and the means of creating realities must all be done within the purview of African cultural mores and values as defined by African peoples (Shujaa, 1993). Adinkra symbols serve as affirmative cultural representation for learners of African descent (Dei, 1996). It behooves that educators of such learners are acquainted with the ways in which they can be used for instructional purposes. Although educators are using Adinkra symbols in different ways in delivering instruction, little is known about how these educators come to use them, why they use them, and the successes and challenges they have chalked or faced in their pursuit.

Representations and expressions of Adinkra symbols

The Adinkra symbol below is known as *Akoko Nan* (Hen's feet).

Figure 3: Adinkra symbol known as *Akoko Nan* (The hen's feet)
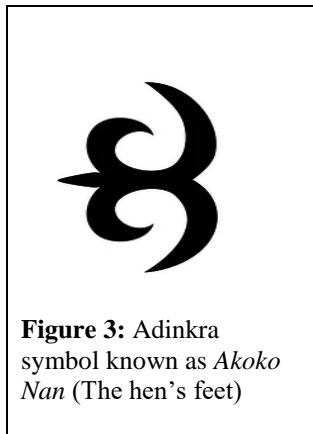
It represents protectiveness and parental discipline tempered with patience, mercy, and fondness. It is based on the proverb "*Akoko nantia ne ba na enkum ba"* translated as "When a hen treads on her young ones, it does not intend to kill them." This symbol is here expressing concepts of the need for parental protectiveness and discipline of younger ones, and the necessity to do so with mercy and patience. It further offers the idea that strictness (within parameters) does not necessarily hurt children; in fact, it may be the one of the most effective strategies that a parent or instructor has at his or her disposal to bring out the desirable characteristics in a child. *Akoko Nan* is a symbol that can be drawn as art or worn on clothing, it is also a proverb that can be repeated, it has its associate poetry and dance that can be performed for entertainment and it has a drum text (literally a specific drumbeat) which reminds the listener of its meaning. All of these modes of communication serve to condition the mind of children as well as the larger society to embrace well-meaning educators and parents who are strict because they are ultimately seeking to refine human character.

This symbol, *akoko nan*, and hundreds of other Adinkra symbols, have global resonance. In the United States, the use of Adinkra symbols reflects an orientation towards African consciousness. Meaning making and interaction with these symbols

resonate with individuals transnationally, in the United States, Ghana, and elsewhere. The adoption and use of Adinkra symbols have had a remarkable influence on the African-American culture in the United States (Temple, 2010). Having been born and raised in Ghana, and having a degree of familiarity with Adinkra symbols, it was a big surprise to me to travel to the United States and see that it had found its way here and that people, educators, students, and laymen alike were making connections, interacting with them and making meaning from them. An interesting aspect of the transnational meaning making that Adinkra symbols provide has been its use by educators in educational settings. It is in use in a variety of educational contexts from ethnomathematics/mathematics instruction, art instruction, and software development, to name a few.

The photographs below depict Adinkra symbols in relief on the walls of an Asante sacred shrine. The Adinkra symbols shown here are *dwenninimen* (The ram's horns- symbol of, strength and humility), *Aya* (The fern- symbol of persistence and defiance against oppression), and *Sankofa* (Return to the past and get it - symbol of wisdom, knowledge, and the heritage of a people).

Figure 4: Asante traditional shrine depicting Adinkra symbol *Dwennimmen*, symbol of strength tempered with humility in relief.

Figure 5: Asante traditional shrine depicting the Adinkra symbols *Sankofa*, *Aya*, and *Denkyem* in relief. Also worthy of note here are the colors in which the symbols are situated. See text for further discussion.

Figure 6: Akan stool with the *Sankofa* bird carved into it. Time tested knowledge is of relevance to the contemporary terrain.

Figure 7: The *Sankofa* bird features prominently in this bracelet. The visual invokes the memory of the necessity to return to the past, socially, culturally, and historically to retrieve what can be applied to contemporary experiences.

Figure 8: Wood carving depicting another form of the Adinkra *Sankofa* symbol.

Figure 9: Akan stool with the Adinkra symbol *Gye Nyame* carved into it communicating that no one else except the supreme being knows the inner workings of the universe. *Gye Nyame* is the symbol of anciency and infinity of the universe.

There exists a space, or better still, a vacuum, for the integration of culturally relevant literacies such as Adinkra symbols that have become part of the African-American cultural expression into the curriculum for students of African descent in particular. The question that is to be asked is, how have educators interacted with Adinkra symbols and what are the constituent aspects of their experiences? What is known is that educators across the United States use Adinkra symbols in their instruction in both formal and informal educational settings. Based on a cursory but informed observation, what I can deduce is that the use of Adinkra symbols in educational settings is on the increase. There may be various reasons why they choose to do so, but my suspicion is that many of these reasons are common to most educators, if not all. The task at hand is to conduct this study to offer an in-depth insight into the experiences of these educators who interact with Adinkra symbols and who use them in instructional delivery.

The extant research literature addresses the uses and contexts in which the Adinkra symbols are employed. The focus of this study was to tread on heretofore unchartered territory, and delve into the ways in which educators experience their interactions with Adinkra symbols. The approach was a phenomenological one with an objective that culminated in the 'essence of the experience of the participating educators.' The uniqueness of this study lies in its adoption phenomenological approach in uncovering educators' experiences with Adinkra symbols. This unique trait also lends to contributing to the field and interested audiences, knowledge that will be unearthed from this study. Policy makers will potentially benefit from gaining access to the uses to which educators put Adinkra symbols to use and enact policies that consider cultural relevance

for the improvement of literacy and education writ large in African-American contexts. Other researchers also stand to benefit by ability to reference the information and knowledge that will result from this undertaking. Teacher practitioners will prospectively also be able to gain insight from the interactions of other educators who uses Adinkra symbols and be able to glean from it for the benefit of their students.

In conducting this study, I adopted the highly structured approach to phenomenology proposed by Moustakas (1994). This approach entails the identification of significant statements made in the interviews, the creation of meaning units, the development of themes into clusters, the advancement of structural and textural descriptions that culminated in a composite description of the said structural and textural descriptions. From these descriptions I drew the 'essence' or essential invariant structure of the experience (Moustakas, 1994; Creswell, 2013).

This study was designed to research findings that contribute to or hinge on the following questions:

1. What is the essence of the lived experience of educators using the Adinkra symbols in their professional practice?

2. What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?

CHAPTER 2: LITERATURE REVIEW

Adinkra symbols constitute a system of communication that interfaces with multiple forms of meaning making, including signs and symbols, pictographs, gestures, oratory, drum language, figures, and actions. Adinkra symbolism, an expression of philosophical thought integrated into cosmogony, functions as a recording, informational, and constructive device that extends beyond the framework of picture theory into a territory in which images are repositories of concepts and communicative meanings.

Considering the breadth of meaning making and form of Adinkra symbolism, diverse and multiple forms of scholarship contribute to an understanding of these communicative properties. One of such communicative properties of Adinkra symbols is its ability to function as a system of writing. One of the earliest western visitors to write about the Adinkra symbols was Bowdich (1819) in his book *The Mission from Cape Coast to Ashantee*. As many of the early studies of writing forms in Africa, no serious study was given to it, because the context of the times only considered classic Western print as writing, and no effort was therefore made to understand African graphic expression such as Adinkra symbols on their own terms (Martinez-Ruiz, 2013). This study is unique in that it seeks to capture the essence of the experience of educators embracive of Adinkra symbols in education while also investigating the transactional and transnational meaning making accorded by Adinkra symbols.

Scholarship on Adinkra symbols has tended to solely highlight its philosophical expressions. This perspective is depicted in the work of Christian (1976), whose writings sought to identify parallels between the philosophy expressed in Adinkra symbolism and biblical philosophy. Christian (1976), also expresses the notion that the attraction of

Adinkra symbols have far reaching implications for education. In the context of her writing, the meaning making limits of Adinkra symbols were identified to be foremostly local and transnational only to the extent of their parallels to biblical expressions.

Other scholars have focused on the design and its associated proverbs. In his writings on Adinkra and Agama symbols, Agbo (2006) delves into the philosophical, educational, historical and moral values associated with Adinkra and Agama graphic symbols. This author highlights meaning making as an emanation from the symbol's design and the proverbs associated with them. The extent of meaning making is limited to the local context, even though it is worthy to mention that the author expands the implications of such meaning making beyond the folkloric into contemporary educational settings. Quarcoo (1971), while focusing on the designs and proverbs associated with the Adinkra symbols, additionally brings to the fore the importance of the colors that are associated with the symbols and that express the mood in which the message is conveyed at varying times. Quarcoo (1971), posits that Adinkra symbols preserve and present aspects of Akan history, values, cultural, norms, and philosophy. He does not address transnational meaning making, the boundaries of meaning making are seen as being limited to the local.

Investigating Adinkra symbols from a functional perspective is the route that some scholars have taken in studying its meaning making properties. Author, Mato (1986), focuses on the various forms of Akan funerary arts and documents the proverbs associated with Adinkra symbols. While Mato (1986), discusses the multidimensionality of Adinkra symbols, the meaning making the symbols afford is contextualized locally. In this same manner, author, Page (1983) investigates the functions and interpretations of

Adinkra symbols and highlights their aesthetic preferences, social, and religious expressions. An important contribution is her identification that Adinkra symbols are always generating meaning in the contexts in which they are situated. Perhaps, Page (1983) was anticipating its potential for transnational meaning making.

In *"Adinkra,"* author Lopes (2009), explore Adinkra symbol meaning making transnationally within the context of Brazilian society and culture. They particularly discuss the transportation of Akan philosophy (of which Adinkra symbolism is an expression) to the diaspora and how they have meaning for the people of Brazil. Lopes (2009), expresses the meaning making of the symbols in the Brazilian context within the cultural framework and identity of Afro-Brazilians in particular. The authors posit that the meaning making that emanates from Adinkra symbolism has historical and educational implications for the entire Brazilian population. The importance of the transnational scope of this study cannot be underestimated. The Brazilian context and its implications in education and identity position it analogously to this study.

Boateng (2011) approaches the discussion on Adinkra symbols from a totally different angle. She investigates the intellectual property of Adinkra symbols. She postulates that Adinkra symbols originated with the ancestors but has assumed global dimensions now, and as such she focuses on how intellectual property law can be used to preserve traditional forms of knowledge. This study looks at the relationships between culture and power through the lenses of Adinkra symbolism.

In highlighting an aspect of the multimodal nature of Adinkra symbols, author, Kayper-Mensah (1976), draws our attention to how Adinkra symbols can be expressed through poetry with the intention of connecting to both traditional and contemporary

audiences. He also posits that Adinkra symbol meaning making is contextual and can be interpreted through poetry in a manner that makes meaning for the reader. Of importance here is Kayper-Mensah's identification of the educational implications of Adinkra symbolism and its relationship to identity development and knowledge of other cultures.

After observing how the knowledge associated with Adinkra symbolism has been retained in the memory and culture of the community of practitioners, authors Coppens, Verkoijen, and Rikers (2011), undertook a study to test the efficacy of the use of Adinkra symbols in aiding memory retention among students and how this can augur well for them when testing. They discuss Adinkra symbols and the testing effect by presenting a framework for using Adinkra symbols for long-term memory retention and testing. Their study also serves as an example of how multimodality, employed for communication by indigenous societies, can be revisited for the purposes of literacy learning today. They argue that the learning process can be greatly impacted by moving beyond the traditional mode - writing - into using other modes of communication, such as symbol-word pairs as found in Adinkra symbolism. Here, the focus is on memory retention which can potentially have global implications.

Poirier, Eglash, and Babbitt (2014), present a unique aspect of Adinkra design, specifically, the incorporation of elements of geometry. Meaning making from this perspective assumes mathematical proportions. The researchers developed geometry lessons and showed how they can be done for elementary and high schools from the basis of Adinkra symbols. This study provides an opportunity for students all over the world to interact with Adinkra symbols in the study of geometry. In a similar vein, researchers Babbitt, Lachney, Bulley, and Eglash (2015) undertake a study in which they investigate

Adinkra symbols entitled *Adinkra Mathematics: A study of Ethnocomputing in Ghana.* This study details students' meaning making processes as they relate to the mathematical aspects of Adinkra symbols. The study offers detailed information on the development and evaluation of software that provides opportunities for middle school students to explore the mathematical aspects of Adinkra symbols. The authors drew on the ethnomathematics tradition and combined it with an empirical exploration of the mathematics embedded in Adinkra symbols. The implications of this study are far reaching, beyond the local context.

The identification of geometrical patterns and symmetry provides an opportunity for the integration of culture into mathematics, or better still, the explanation of mathematical concepts from culturally situated viewpoints. Adinkra symbols provide such an opportunity. In discussing the necessity of the integration of culture into mathematics, Moyer (2001), concludes that such an undertaking serves to enrich the understanding of mathematics. The author posits that learners should take pride in the contributions of their ancestors to their learning. Moyer (2001) suggests that teachers and students can together investigate patterns and symmetry found in architecture, clothing, pottery, and basketry of cultures around the world. Adinkra symbols, while an expression of cultural values is also an expression of geometric skill (Zaslavsky, 1994). The shapes and patterns of Adinkra symbols depict bold lines of symmetry and rich design that can be appropriately used in mathematics instruction (Moyer, 2001). Educators can share and discuss Adinkra symbols that show repeating patterns and symmetry. Students can visualize the concepts of line and rotational symmetry by studying Adinkra symbols. Such studies also provide opportunities for discussion on how the patterns reflect the

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people responsible for their creation and the information that the patterns communicate to us about the culture.

Danzy (2009) and Arthur (2001), posit that Adinkra symbols should be considered as writing systems owing to the fact that they fall into the category of ideographic writing systems (Danzy, 2009; Arthur, 2001). In line with this mode of thought, Fraenkel (1965) defined writing as "an acquired arbitrary system of visual marks with which people who know the represented language can communicate" (Fraenkel, 1965). Hunter and Whitten (1976) also define writing as "communication by means of a system of conventional graphic symbols which may be carved, incised, impressed, painted, drawn, or printed in a wide variety of media" (Hunter & Whitten, 1976, p. 409). These definitions situate Adinkra symbols within the realm of writing systems. In addition to this, sociocultural theory perceives of writing as more of a mode of social action than mere communication (Prior, 2006).

Willis (1998), in the *Adinkra Dictionary* presents a detailed account and framework for understanding the language of Adinkra symbols. In this body of work, Willis (1998) asserts that it is imperative that Adinkra be appreciated not only for its aesthetic qualities, but also for its meaning-making functions. The author also notes that Adinkra as both an art form and a meaning-making medium continues to expand, and that multiple symbols are now being fused together to create new meanings. Meaning making with Adinkra symbols is thus evolving. The global dimensions and literacy implications of this study are of the utmost significance.

Arthur (2001) presents a framework for analyzing Adinkra symbols as a system of writing. This study serves as an example of how the material culture of the Akan people,

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specifically, Adinkra symbols, can be utilized as the context for both visual and verbal

language learning on an international level. This study is important to literacy programs

to the effect that the visual element, whether pictogram, ideogram, or phonogram is a

central part of complete literacy. Arthur (2001) presents the most comprehensive

collection of Adinkra symbols to date, over seven hundred of them, all with their

associated proverbs and contextual meanings. The scope of this study is international and

global in its reach.

Table 1 - Adinkra Symbols and Expressions

Adinkra Symbol	Name	Abridged Meaning	Expression
	Eban	Fence	Symbol of safety. Security, and love
	Fihankra	Compound house	Symbol of brotherhood, safety, security, completeness, and solidarity.
	Pempamsie	To sew in readiness	Symbol of preparedness, steadfastness, and unity of purpose.
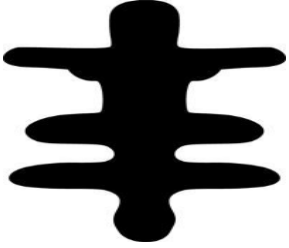
	Okodee mmowere	The eagle's talons	Symbol of strength, bravery, and power.

Table 2- West African Adinkra Symbols

West African Adinkra Symbols

Greatness   Vigilance   Courage   Mercy

Mother Earth   Endurance   Wisdom   Loyalty

Support   Perseverance   Mortality   Change

Initiative   Good Fortune   Unity   Commitment

Table 3 shows some Adinkra symbols and their simplified meanings. In its

original context, each symbol is associated with a proverb.

Takai J. *West African Adinkra symbols* (2008, January 11). Retrieved from

canstockphoto.com

In the article, *Adinkra Cultural Symbols for Environmental Sustainability Education in Ghana,* authors Adom, Opoku, Newton, and Yeboah (2018) discuss the implications of meaning making from Adinkra symbols for environmental sustainability, and as tools of instruction. To this end, they identified Adinkra symbols have philosophical intuitions and understandings that pertain to environmental protection and could be adopted for environmental sustainability education. In other words, to what extent can environmental sustainability education employ specific and identifiable Adinkra symbols as a tool of instruction?

In this study, the researchers identified a total of fifteen (15) Adinkra symbols as having philosophical insights and implications for environmental sustainability and education. These included the following Adinkra symbols: *Sankofa, Nkyimkyim, Gye Nyame, Bese Saka, Pempamsie, Ohene Tuo, Obi Nka bi, Aya, Duafe, Nkonsonkonson, Akoben, Fihankra,* and *Sunsum* among others.

While Arthur, Willis, and others have succeeded in expanding the scope of interaction with Adinkra symbols through their work, I seek to enhance and extend the study by focusing on educators' perceptions of the symbols from their experiences, interactions, and usage, as well as how derived meanings may be similar or different depending on the context in which the interaction takes place. By focusing on Adinkra symbols, I hope to provide an in-depth look into how meaning is made through interaction with Adinkra symbols in the United States. In so doing, I aim to provide a transnational framework and a composite of educators' experiences for the effective study of meaning making from Adinkra symbols in and out of their contexts of origin.

Adinkra symbols as a writing system

Several authors have defined Adinkra symbols within the framework of a writing system (Mafundikwa, 2003; Danzy, 2009; Arthur, 2001; Battestini, 2004; Bekerie, 1998). What is of interest to this study lies in the implications that these definitions have for the teaching of writing in particular and literacy at large. Writing is a conventional system of signs that may be employed for the purpose of transmitting specific content or information. Fraenkel (1965) defines writing as "an acquired arbitrary system of visual marks with which people who know the represented language can communicate" (Fraenkel, 1965). In line with this notion of defining writing, Hunter and Whitten (1976), have suggested a definition of writing as "communication by means of a system of graphic symbols which may be carved, incised, impressed, painted, drawn, or printed in a wide variety of media" (Hunter & Whitten, 1976). Writing systems of the world employ differing approaches. For instance, the Russian and English writing systems rely on alphabets while others such as the Japanese writing system relies on the use of visual marks that are designed to correspond to different segments of speech. The Chinese writing system on the other hand encodes meaning units or morphemes to make meaning. Writing can thus be said to be the "coding of speech into more or less permanent visual forms" (Arthur, 2001).

Danzy (2009) characterizes Adinkra symbols as an ideographic writing system (Danzy, 2009). Ideographs are representations of ideas and may be pictographic in origin but usually express broader ranges of meaning. Ideographic writing systems are more closely linked with language than other forms such as pictographic writing systems owing to the fact that the extensions of meaning that are assigned to the symbols tend to supervene the semantic domains of a language (Hunter & Whitten, 1976; Arthur, 2001).

Adinkra symbols situated as a writing system in a sociocultural framework has other implications for literacy. Sociocultural approaches to writing do not subscribe to the simple notion of equating writing with material texts or acts of inscription but rather see writing as "chains of short and long-term production, representation, reception, and distribution" (Prior, 2006). The implications that Adinkra symbols have for literacy and writing in particular "involve the creation of a synthesis of mind, language, epistemology, and learning that is based on recognizing the fact that cognition originates in social interaction and that it is influenced and continuously shaped by cultural and sociopolitical processes" (Watson-Gegeo, 2004 p.1). Thus, the development of cognition emanating from writing involves dialogic processes of interaction. Adinkra symbols, serving as texts in this context, are artifacts-in-activity that serve as the basis of interaction and the inscriptions of linguistic signs that are mediated and distributed, and are also multimodal forms of activity (Prior, 2006). The enhancement or not of an individual's cognitive abilities depends on the cultural practices within which literate acts are embedded (Scribner & Cole, 1981; Gavelek & Bresnahan, 2009). From the perspective of the sociocultural, writing should be situated within the substructure and mode of social action, one that is beyond communication per se. Writing therefore is participatory in the making of people, institutions, and cultures as well as in indexing them (Prior, 2006). Interaction with Adinkra symbols involves participatory meaning making processes. These are the meaning making that will be drawn from the experiences of the educators in this study and which will provide a basis for the descriptions in the study. Adinkra symbols draw from traditional expressive forms such as music and songs, poetry, oratory, stories, drum language/poetry, libation and prayer, oral history, funeral dirges, and

proverbs (Arthur, 2001). From which of these do educators draw from? Do they draw from a combination of these forms? This is what this study seeks to uncover by the development of textural and structural descriptions of educators' experiences and the essence thereof.

An aspect of the experiences that stem from interaction with Adinkra symbols falls in the realm of semiotics. Semiotics is the study of signs and symbols, and how symbols and signs are used and interpreted. Meaning making is fundamental to human activities. It is the most basic element in human social settings (Krauss, 2005). Meaning making is one of the characteristics unique to human beings. In his take on meaning making, Dewey (1933) suggests that it is only when things in the world have meaning for us, and only when they signify attainable goals that are able to be reached by their use in certain specific ways, is any such thing as intentional, deliberate control of them possible (Dewey, 1933, p. 19). Meaning making is an outcome of our interaction with objects that exist in the world (Gavelek & Whittingham, 2017). The transaction between the individual and the object, in this case, the Adinkra communicative device, makes meaning making possible. This meaning making interaction results in the construction of knowledge (Halliday, 1978).

In line with this mode of thought, I place agency with the individual making new meanings from their interactions with Adinkra symbols. The notion of placing agency with the individual as suggested by sociogenetic theoretical perspectives represents a strong form of constructivism (McVee, Dunsmore, & Gavelek, 2017). In the construction of meaning, the individual interacting with the text, in this case the symbol or communicative device, engages in centripetal and centrifugal ways (Bakhtin, 1994,

2010). Centripetal engagement with the symbols involves meaning making in personal and idiosyncratic terms while centrifugal engagement involves responsiveness to the particulars of the symbol being engaged (Gavelek & Bresnahan, 2009). This interaction with Adinkra symbols may be perceived as a transaction between the individual and the symbol. Meaning making from such a transaction will situate the meaning making to be occurring in the reader-text transaction.

Knowledge is located in the process of knowing (Cunningham & Fitzgerald, 1996). The outcome of the interaction between an Adinkra symbol and its associated activities can be perceived as transactions in which the individual interfuses meaning with social, cultural, and natural elements (Rosenblatt, 1988). The process of knowledge acquisition is a dialectical one, which in itself does not lead to knowledge, but rather is constitutive of knowledge itself (Cunningham & Fitzgerald, 1996). This is a form of structuralism that emphasizes creation and the process of creation as opposed to discovery. Knowledge from this viewpoint is a constructive process of transacting with ideas, ideas that can be situated in the individual context or social context. It is a two-way process, the knower constructs knowledge and is also constructed by knowledge.

Adinkra symbols and meaning making

Interaction with Adinkra symbols may be framed within the scope of semiotics. Meaning-making that occurs in social settings by using semiotic resources is a process referred to as multimodal meaning making. In this context, meaning making is situated and not abstract.

Adinkra symbols as a culturally-relevant multimodal form

One of the arguments I make in this study is that in the current wake of interest in multimodality in classroom teaching, looking at African modes of communication such

as Adinkra symbols, especially as it pertains to the education of students of African descent, will not only potentially provide them with an alternative mode of learning, but also situate their learning in social, cultural and historical contexts. This peaked interest has been brought about by changes in how information is disseminated (Kress, 2009). The literacy research landscape over the past two or so decades has reflected this renewed interest in multimodality (Kress, 2001, 2004, 2009; Jewitt, 2009; Bezemer & Kress, 2008; Bezemer & Jewitt, 2010). Concomitant with the interest in multimodal communication is the discussion and importance of multiliteracies to literacy and education writ large (New London Group, 1996; Cope & Kalantzis, 2000; Cope & Kalantzis 2005; Unsworth, 2001). Even though it is quite common among literacy researchers to refer to multimodal frameworks as theoretical constructs, they are actually constructs that are situated within the theoretical framework of social semiotic theory (Alvermann, Unrau, & Ruddell, 2013). The usefulness of social semiotic theory lies is in its ability to explain the ways in which humans play a central role in meaning making. This meaning making derives from the use of diverse resources (signs) by humans, in representing through modes such as oral, written, image, gesture, sound, and performance among others, the intended target of transmission to others. Such resources provide researchers and teachers with the ability to identify what matters to their participants and students (Jewitt & Kress, 2003; Alvermann, Unrau, & Ruddell, 2013).

There has been an emphasis on the screen, as has occurred a shift away from the book; in production terms, there is now an emphasis on the digital with a shift away from print media, and in representation, there is more emphasis on the image, with a shift away from writing (Jewitt & Kress, 2003). Kress (2009) suggests that human cultures "make

signs in which form and meaning stand in a motivated relation" (Kress, 2009, p. 9). There

is however the need to include culturally relevant tools of literacy which by essence

constitute a variety of signs and communication modes, such as is found in Adinkra

symbols, into the curriculum for the benefit of learners (Ladson-Billings, 1995; Myers,

1987, 1993). Looking at Adinkra symbols from this perspective, has possible

implications for instruction. This perspective falls in the realm of semiotics.

Semiotics is simply the study of signs and symbols coupled with their uses and

interpretation. Semiotics teaches us that reality is a system of signs. Social semiotics is a

theory that "deals with meaning in all its appearances, in all social occasions and in all

cultural sites" (Kress, 2009). The reality of the learner of African descent must therefore

be linked to one or several systems of signs. Semiosis is intrinsic to meaning making.

Meaning making is fundamental to human activities. It is the most basic element in

human social settings (Krauss, 2005). Meaning making is one of the characteristics

unique to human beings. In his take on meaning making, Dewey (1933) suggests that

"Only when things about us have meaning for us, only when they signify consequences

that can be reached by using them in certain ways, is any such thing as intentional,

deliberate control of them possible" (Dewey, 1933). The process of meaning-making in

social settings by the use of semiotic resources is a process referred to as multimodal

meaning making. In this context, meaning making is situated and not abstract. Ancient

forms of meaning making are able to be adopted and adapted to contemporary settings.

Adinkra symbols as ancient communication devices and semiotic resources fit the needs

of modern communication and is able to be so adapted. Stein (2008), in acknowledging

the relationship between past and modern forms of communication postulates that:

From a social semiotic perspective, meaning-making is always a process of transformation, in which cultural groupings transform the semiotic resources available to them to express their interests (Stein, 2008, p. 39).

Multimodality, refers to the various resources including images, sounds, document design and graphics that are employed by authors in the creation of meaning across diverse texts. It explores the design of a particular discourse by probing the contributions made by contributory semiotic resources deployed together across modalities. This is done in conjunction with a focus on how these resources interact and are integrated in the construction of a coherent text (O'Halloran & Lim, 2011; Jewitt & Kress, 2003). The present emphasis on multimodal communication in literacy has been spawned by the emergence of digital technologies. This focus on multimodality sheds light on the importance of other modes of communication besides writing such as the image, textual, gesture, aural, and linguistic modes in the literacy process. However, several scholars trace the origins of multimodal communication to periods long before the development of modern technologies (Finnegan, 2002; Stein & Newfield, 2006). Multimodality has been used since the earliest times when authors used multiple modalities in cave paintings such as those of Tassili mountains and Ukhahlamba-Drakensberg National Park (a World Heritage Site in KwaZulu Natal South Africa), where the focal modes were that of image, color, story, proverb and design; and also, in modern times when writers use tables and charts to share information (NCTE, 2014). In spite of the common claim that multimodality is new in terms of the literature, both children and adults have used it over millennia as a tool for learning and expression.

Multimodality, a theory of semiotics, "describes communication practices in terms of the textual, aural, linguistic, spatial, and visual resources - or modes - used to compose

messages" (Putz & Mundt, 2019, p 3). In the context of learning and education, semiotics teaches us that meaning is not something that is automatically transmitted to us, but rather created according to a complex interplay of codes and conventions of which we are normally unaware (Kress, 2000; Kress, 2009; Jewitt, 2008; Bearne, 2009; Bezemer & Kress, 2008). Indeed, literacy and literacy learning are multimodal events (Harste, Woodward & Burke, 1984). Literacy in contemporary education means more than the knowledge and reading of letters.

Multimodality provides reinforcement for the notion of multisensory perception. In contextualizing multimodality, it can be said that "the visual, the written, the auditory, and the haptic (sense of touch) are all interrelated and all contribute to meaning making" (Ajayi, 2009, p. 3). Print-based reading and writing have been multimodal from inception (Kenner, 2004). These modes require interpreting and designing of optical marks, font, color, space, or style, and, progressively image, as well as other communicational and representational modes. A multimodal approach enables these semiotic resources to be attended to, and moves them beyond being seen as decoration. It also provides recognition for the use of an array of modes. These modes may include speech, writing, image, music, gesture, gaze, and posture that are employed for communicational, representational and interactional purposes within a cultural grouping. Each culture has modal preferences (Hodge & Kress, 1988; Kress, 2009). The semiotic resources and organizing principles of each mode has both constraints and potentials for making meaning. (Jewitt, 2009). Kress (2009) posits that "Phenomena and objects which are the products of social work have meaning in their cultural environments" (Kress, 2009 p. 79).

Such specialized forms of communication have specialized and distinctive effects (Hull & Schultz, 2001; Scribner & Cole, 1981).

Multimodality is significant in that it emphasizes the richness of all forms of text, and the multiplicity of avenues that it opens up for meaning making. Innis, 1985 defines semiotics as a vast discipline that focuses on meanings and messages in all their aspects and all frames of reference (Innis, 1985). This makes semiotics an optimal medium for comprehending multimodality because it provides a pathway to thinking about meaning and text that does not advantage alphabet-based written language over alternative sign systems. Kress, Franks, Jewitt, and Bourne (2005) define semiotics in the following terms:

> Semiotics is the discipline that concerns itself with meaning of all kinds, in all forms, everywhere. Sign is the central concept of semiotics; it is an entity in which meaning and form have been brought together in a single unit – of signified and signifier, to use the technical terms – seen, always, as reflecting the meanings of those who make the sign (Kress, et al 2005).

Signs are thus an outgrowth of cultures and worldviews. Adinkra symbols is a sign system emanating from the African worldview. In this instance, it is a culturally situated and relevant system for the learning of students of African descent. From this point of view, learning is a process in which students are actively involved in 'reconstructing' the communication or complexes of 'signs' which educators exchange with them. Learning in this manner can be viewed as the students' 'reconstructing' of meaning ('signs') to develop new meanings ('signs') (Jewitt et al, 2001). This notion of learning as a dynamic process of sign making stems from the theories postulated in social semiotics (Halliday, 1985). The field of social semiotics views communication as an inherently social phenomenon (Hodge & Kress, 1988; Jewitt et al, 2001). This line of

thought suggests that "communicative systems have evolved to satisfy societal needs and that modes such as writing or gesture are organized to function with respect to these needs" (Jewitt et al, 2001 p. 6).

Multimodality in contemporary contexts emerged as a response to the dynamics occurring in the social and semiotic landscape (Kress, Jewitt, Ogborn, & Tsatsarelis, 2001; Kress & van Leeuwen, 2001). Central to multimodal perspectives on literacy is the basic supposition that meanings are made, and with it, its distribution, interpretation, and rebuilt. This is actualized by the use of many representational and communicational resources that also includes language (Kress & van Leeuwen, 2001). In spite of the common claim of the newness of multimodality, learners have always engaged in what we now refer to as multimodal practices. The most important idea stemming from semiotics is that it seeks to highlight how signs work (Siegel, 2006; Jewitt & Kress, 2003; Kress, 1997; Hodge & Kress, 1988). Kress and van Leeuwen (1996) posit that the idea of semiosis is linked to the idea of a metaphor and have suggested that "the process of sign-making is the process of the constitution of metaphor" (Kress & van Leeuwen, 1996). This notion suggests that semiosis is a metaphoric process, one in which meaning multiplies in a two-step process involving the transformation of meaning from one sign system to another. This transformation is linked directly to what Pierce (Hoopes, 1991) refers to as the interpretant. The interpretant is key in the understanding of how multimodal texts work in the meaning-making process. In highlighting the importance of the modes of representation to the learning process, Jewitt, 2008 suggests that:

> ".... how knowledge is represented, as well as the mode and media chosen, is a crucial aspect of knowledge construction, making the form of representation

integral to meaning and learning more generally. That is, the ways in which something is represented shape both *what* is to be learned, that is, the curriculum content, and *how* it is to be learned. It follows, then, that to better understand learning and teaching in the multimodal environment of the contemporary classroom, it is essential to explore the ways in which representations in all modes feature in the classroom. The focus here, then, is on multimodality, on the representations and the learning potentials of teaching materials and the ways in which teachers and students activate these through their interaction in the classroom" (Jewitt, 2008, pp. 241–242).

In situating the learner within a cultural and historical context, I draw upon Halliday's theories of social semiotics that emphasize how a sign-maker's choice and employment of modes materialize in a distinct sociocultural context. To this extent, an analysis of the text undertaken within the framework of social semiotics conceives of sign-making as a social process' (Pantaleo, 2015; Jewitt, 2009). The social, economic, and cultural worlds of contemporary learning "require interaction with texts and practices that involve the full range of representational modes" (Siegel, 2006).

Living in a world of increasingly visual signs, we need to ask the question 'To what extent does African multimodal systems like Adinkra symbols contribute to the learning of learners of African descent? Adinkra symbols as a multimodal form does some specific things: The symbol itself is an image that *shows* what may take too long to read (Kress, 2009), and the writing (in this case proverbs and meanings) associated with it *names* what will be difficult to show. Color, when used, highlights specific aspects of the overall message (Kress, 2009). All modes work to emphasize maximum effect and benefit.

This study investigates the experiences educators have had in their interactions and use of Adinkra symbols in instructional spaces. This study is important because African-Americans and Africans have for decades received an education that has

alienated them from their own culture and traditions, and have been fastened to the margins of European culture. This has resulted in an internal dislocation from themselves. In the context of American society, education can be meaningful and substantive for African-Americans only when the African's historical experiences and cultural practices in both America and Africa are addressed (Woodson, 1930). This centering does not equate to the displacement of the other, but rather the bringing to bear, the knowledge from diverse peoples to enrich the learning experience. In this regard, I agree with Kress and van Leeuwen (2001), who posit that the interest of a sign maker is at the center of the social semiotic theory of meaning, though mediated by the cultural, historical, social, psychological, and intellectual environments in which he or she lives (Kress & van Leeuwen, 2001; Ajayi, 2009). Uses in contemporary settings of an integrated visual and verbal accompaniment has resulted in the development of a new code of writing and image. The duality of this code allows information to be communicated by the two modes (Kress, 1997). Lemke, 1998, shares a similar perspective when he postulates that scientific texts, presented in the form of an image on one hand and a written text on the other generate meanings by deploying two modalities (Lemke, 1998b). It is this same manner of communication in dual and sometimes multiple modes that is afforded by Adinkra symbol usage. Are educators making use of this tool in instructional circles, and if so, how are they doing it?

Color and Adinkra symbols

The color scheme employed when displaying Adinkra symbols is important to the process of meaning making. Symbols set in a background of white (*fitaa*) are intended to communicate issues related to innocence, coolness, purity, peace, virtue, victory,

virginity, happiness, and joy (Antubam, 1963; Arthur, 2001). Ancestral spirits, death, night, and loss are represented by the color black (*tuntum*) and as such Adinkra symbols displayed in a background of black will be communicating both the message conveyed by the image as well as the background color in which the image is set. The color red (*kokoo*), the color of blood, is used to represent life, vitality (Hagan, 1970), or in other cases, heat, anger, danger, warfare, and the mourning of a close blood relation (Antubam, 1963; Hagan, 1970; Arthur, 2001). The use of image, text, and color make Adinkra symbols a truly multimodal communication device.

Adinkra symbols as curriculum

One of the main issues that have been identified as problematic with the school systems is their ignorance of the cultural capital that learners bring into the classroom (Shizha, 2014 in Emeagwali & Dei, 2014). The outcome of this is the failure in establishing a home-school learning environment (Gonzalez, Moll, & Amanti, 2006). This lends to a situation in which the failure of the learner to succeed in these educational institutions is blamed on the learner. It is in this regard that Lave and Wenger (1991) suggest the importance of the adoption of a framework that emphasizes the link between learning and the formation of learner identity. In researching and providing her account of apprenticeship, Lave (2011) observed the apprenticeship processes of the Vai and Gola tailors of Liberia. In her book, *Apprenticeship in Critical Ethnographic Practice* (2011), Lave fosters an appreciation and respect for indigenous modes of knowledge transmission. The reference to the apprenticeship processes of the Vai and Gola peoples of Liberia reflects the link between learning and learner identity development alluded to earlier. Any attempt at sincere education of learners of African descent should consider the role and value of indigenous African knowledge (Shizha, 2014; Woodson, 1933). The

incorporation of meaning making elements stemming from Adinkra symbols into the curriculum represents an intentional effort at creating a learning environment conducive to the needs of students of African descent. In so doing, the success, cognitive development, and academic achievement will be guaranteed for learners (Hilliard, 1997).

Issues related to curriculum can be approached in multiple ways. Processes of planning, implementation, evaluation, and procedures should be involved in spite of the approach. The curriculum of educational institutions must be decolonized in order to create social and academic excellence (Dei, 2014). The curriculum used in the education of students of African descent should be rooted in the histories, cultures, traditions, and sign systems of African people (Emegwali, 2014). By intentionally situating learning in these contexts, educators resist the hidden curriculum that so often adversely informs student knowledge and behavior. How can educators use Adinkra symbols in resisting the hidden curriculum?

Adinkra symbols and the hidden curriculum

The hidden curriculum describes the process by which implicit norms, values, and beliefs are transmitted to learners through the curriculum's underlying structure (Arnot & Whitty, 1982). The hidden curriculum is the teaching of social and economic norms and expectations to learners (Apple & King, 1977). The concept of the hidden curriculum refers to indirect but real outcomes and features of the schooling process (Apple, 1975, 1990a; Giroux & Purple, 1983; McLaren, 1989). Such a curriculum and its inherent values usually work against the interests of learners belonging to marginalized communities. They also produce knowledge that tends to instill a form of inferiority complex among learners (Giroux & Purple, 1983). In seeking to transmit values that stand to benefit learners from marginalized communities, the hidden curriculum has to be

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viewed in the context of educational knowledge, and more specifically what is taught in educational institutions. This should be undertaken within the framework of ideology. Educational institutions are responsible for the transmission of overt and covert forms of knowledge, particularly to students from marginalized communities. It is also worthy of note that these educational institutions are in large part highly patronized by learners of African descent.

The curriculla of educational institutions are not randomly designed, but rather purposefully designed to impact the selection, organization, and evaluation of the knowledge (Apple, 1996). These are all value-governed and so designed for the achievement of specific objectives including the maintenance of social classes (Anyon, 1980; Apple & King, 1977). Williamson (1974) asserts that educational attitudes of dominant groups in society and of bygone eras still exact historical impact and are reflected even in the historical and cultural forces responsible for the school buildings themselves as they stand in the modern context (Williamson, 1974). Indeed, the curriculum of earlier historical periods, steeped in the worldview of ideologies of dominant groups, is still prevalent in educational institutions today. The provision of an avenue by which the learner's identity will be affirmed rather than compromised is of the utmost importance, particularly as it pertains to the education of disenfranchised groups such as people of African descent (Larnell, 2016). Adinkra symbols and their concomitant historical and cultural milieu stand to potentially provide learners with such a curriculum that furnishes them with the necessary tools for cohesive identity formation.

Educators of students of African descent often use Adinkra symbols as a tool of reinforcement of the cultural continuum between the learners and the wider African

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culture (Temple, 2010; Dei, 1994). In specific cases, it has also been used to show for example that the origins of mathematics are to be found in Africa (Babbitt, Lachney, & Bulley, & Eglash, 2015), a way to disabuse the minds of students of African descent that mathematics is the purview of people of cultures other than their own. The creation of such mathematics experiences (Larnell, 2016) provides opportunities for learners to learn to think mathematically, a prerequisite for learning itself. Thinking mathematically is an outcome of culture, it is a situated practice. Interactions with Adinkra symbols have been shown to provide a host of opportunities for such interactions (Eglash 1999, 2003; Zavlasky, 1999; Babbitt, Lachney, & Bulley, & Eglash, 2015; Coppens, Verkoijen, & Remy, 2011).

The values enshrined in Adinkra symbols have the potential to serve as an alternative to the hidden curriculum which oftentimes works to the detriment of the learner (Arthur, 2001). These values can also be linked to the positive identity development among learners. An example may be found in the Adinkra symbol, *obra te se ahwehwe* (life is like a mirror), which admonishes individuals to engage in self-reflection thereby promoting the desire for high ethical standards (Arthur, 2001; Willis, 1998). Values promoted by interaction with Adinkra symbols include the importance of valuing life, other humans, and communal and social organization. Others are the value of hard work, virtue, truthfulness, obedience, respect, excellence, selflessness, honor, and the importance of unity (Willis, 1998). Dewey (1909) argued for the inclusion of moral principles in the education curriculum. To him, the foundations of educational thought had to be established on sound moral principles (Dewey, 1909). Dewey (1909) argued that instilling moral principles into learners stands to be of benefit to the society as a

whole. The value-laden Adinkra symbols have the potential to transmit such crucial values to learners. In so doing, the messages from the hidden curriculum being imparted to learners will be combated and replaced with values and messages of affirmation. The principles expressed in Adinkra symbols create an avenue for the teaching and imparting of ethical knowledge to learners.

Adinkra symbols as metaphor

Heshusius (1996) addressed the need for the adoption of new metaphors in pedagogy. In making this argument, Heshusius explains the meaning of metaphor as not merely in reference to an analogy of a likeness between things, but rather as a deeply creative act, one that prevails upon our assumptions about how reality fits together, and how we come to know what we know (Heshusius, 1996).

This creative act in this context lies in the importance of Adinkra symbols to the reality of people of African descent and how this provides a window into their epistemological understandings. Heshusius (1996) is expressing a thought based on the writings of Jones (1919), who describes a metaphor as an "evocation of the inner connections among things" that serves as an avenue for the creation of the "images that give rise to language, thought, and action" (Jones, 1919 p. 220). To this end, a metaphor may be seen as an "irreducible, primary function" (Johnson, 1991; Heshusius, 1996; Bishop & Glynn, 1999). Heshusius (1996) emphasizes that educators and learners alike can make sense out of reality and construct reality through their own metaphors, aligning her thoughts with those of Lakoff and Johnson (2008), who she asserts view metaphors as conceptual frameworks that define our everyday realities. Indeed, Adinkra symbols serve as conceptual frameworks that define the realities of those who interact with them. The

experience is tangible. The meaning making here is multi-faceted (Arthur, 2001; Willis, 1998).

Adinkra symbols inform several themes that in turn inform the assumptions of reality made by those who interact with them. In other words, it informs the ontology as well as the epistemology of its subjects. As symbols, they serve as a conduit by which people can interact in a meaningful way with their social and natural environments. In light of this, Adinkra symbols are important as they "create, change, maintain, and transmit socially constructed realities" (Arthur, 2001). As symbols, Adinkra symbols exhibit the functions of symbols as postulated by Charon (1985) and Ritzer (1992). As a function of their purpose as symbols, Adinkra symbols allow people to confront the temporal and social worlds by providing them the ability and power to categorize, designate, and recall the objects that they come into contact with (Charon, 1985; Ritzer, 1992). They improve a people's ability in perceiving their environment, and a people's ability to think as well as their problem-solving abilities. They also allow people to transcend time, space, and even their own person by the imagination of alternative realities. Adinkra symbols can therefore be used in the creation of social change (Charon, 1985; Ritzer, 1992; Arthur, 2001). Adinkra symbols as metaphor in this sense is much more than being defined within the confines of a figure of speech applied to an object or action to which it is not literally applicable. Feinstein (1982) describes metaphor as:

> An essential process and product of thought. The power of metaphor lies in its potential to further our understanding of the meaning of experience, which in turn defines reality…. the metaphoric process reorganizes and vivifies, it paradoxically condenses and expands, it synthesizes often disparate meanings
> (Feinstein, 1982, p. 45).

It is in line with this mode of thought that some researchers have concluded that metaphors are indeed the very vehicle for shaping the content of consciousness (Heshusius, 1996; Bishop & Glynn, 1999; Lakoff & Johnson, 1990). Elbaz (1981, 1983) suggests that the relationship between what teachers perceive as images of education and the practices and principles that they develop, lies in the metaphors that they use. In making this assertion, she suggests that images are the mental pictures of how we perceive relationships and interaction patterns and more often than not, these images are expressed through metaphors. These metaphors provide a basis for educators' practices.

In line with the sociocultural perspective of meaning making, Scribner (1984), expresses literacy in three metaphors; literacy as adaptation, literacy as power, and literacy as a state of grace. Literacy is a product of cultural transmission (Scribner, 1984). The acquisition of literacy abilities by individuals occurs through the participation in socially organized activities with a written language. As a metaphor, Scribner (1984) asserts that literacy is "a many-meaninged thing" (Scribner, 1984). As a metaphor, Adinkra symbols are an epitome of "a many-meaninged thing."

Importance and significance of Adinkra symbols to literacy and instruction

An important feature of Adinkra symbolism that has implications for literacy is in their association of image and text and the use of mental representation. A mental representation may be defined as a mental structure imagined and evoked to correspond to an idea, concept, object, collection of information, or other abstract or concrete things (Ericsson & Pool, 2016). An example may be found in the process of conjuring the *sankofa* symbol. The two versions of the Adinkra symbol sankofa are shown below.

Figure 10: Variations of the Adinkra symbol, *Sankofa* (Return to the past to acquire it).

The mention of *sankofa* will conjure one of the images above in the minds of many who are familiar with the symbol. In other words, they will "see" an image of *sankofa* in their minds. It does not end there. The information associated with the visual image of *sankofa* is also recalled simultaneously. The structure of the symbol is so designed and shaped so that its image and geometric structure enable the recalling of the concept that it represents (Williams III, 2002; Eglash, 1999; Willis, 1998). This makes Adinkra symbols a powerful tool for instruction and long-term information recall. The use of such a symbol encourages deliberate practice in the process of knowing the images and their associated informational texts. This repeated practice of engagement with the symbol and the associated information aids the development of more efficient mental representations that can be recalled and used in whatever activity is being engaged in (Ericsson & Pool, 2016). These mental representations are linked to pre-existing patterns of information. These patterns of information include facts, relationships, and rules among others, that are stored in long-term memory and can be instantaneously recalled

for the quick and effective response to particular situations. What mental representation like Adinkra visual symbols do is that they make possible the processing of large amounts of information at a very quick pace (Ericsson & Pool, 2016).

Sankofa, translated simply as "return to fetch it" as an Adinkra symbol is also associated with a proverb and poetry. Several modes of communication are accorded the person interacting with the *Sankofa* symbol. Ericsson and Pool (2016), have posited that indeed "a mental representation is a conceptual structure that is designed to sidestep the usual restrictions that short-term memory places on mental processing" (Ericsson & Pool, 2016, p. 61). Adinkra symbols as mental representations of texts, ideas, and facts have a greater capacity to provide learners with the ability to recall information on a long-term basis (Coppens, Verkoiejin, & Rikers, 2011). One of the major functions of the human brain lies in its ability to sustain complex structures of knowledge of the world and the purposes of the social world (Oatley, 1985). Fosnot (1984) postulates that all cultures have representations of the meaning of experience in one way or another, be it through music, myth, art, storytelling, film, language, mathematical forms, scientific models, or a combination of some of these forms. The process by which generalizations and abstractions as experiences are represented with symbols is in itself a constructive process that also allows for the creation of semiotic "spaces" in which meaning can be created and negotiated (Wertsch, 1991; Fosnot; 1984). By interacting with forms such as symbols emanating from one culture, we are provided with opportunities to probe other cultures as well as construct shared meanings (Blumer, 1969; Mead, 1934). The benefit of the construction of symbolic meanings like that which results from interaction with Adinkra symbols empower the learner to go beyond the immediate nature of the non-

abstract, and attempt to extend cultural barriers, tackle various perspectives that generate new ideas and possibilities, and become aware of how our actions affect the world in order to procure new knowledge that informs our actions (Fosnot, 1984).

One's ability to create mental representations leads to gaining expertise in the specific field of study; better mental representations lead to better performance (Ericsson & Pool, 2016). The primary benefit of mental representation lies in its ability to assist the learner in dealing with information by way of understanding it, interpreting it, storing it in memory, organizing it, analyzing it and using it in decision making (Ericsson & Pool, 2016). Multiple studies reveal that a key factor in a learner's comprehension lies in how much the person already understands about what is being taught. The learner has to be able to draw on culturally situated mental representations, their funds of knowledge (Gonzalez, 2006; Moll, Amanti, Neff, & Gonzalez, 2006; Razfar, 2012). It is imperative for all these interactions and actions to be situated in the cultural, social, and historical milieu of learners, in this case, learners of African descent.

African-centered theory as basis of education

The debate about the education of learners of African descent is one that has its antecedents in slavery and colonialism. The issue of whether or not slaves should be taught to read or write persisted throughout the entire slave period in the United States. In *The Education of the Negro Prior to 1861*, Carter G. Woodson (1919) traces the beginnings of the education of learners of African descent from the perspective of the African American and in so doing discusses education as an integral part of religious training, the view of people of African descent of education as a human right, the core essential for educating the rural and urban populations of African descent, their pursuit of higher education as promoted by the colonizers and how this prepared them for holding

offices in places far afield as Liberia and Haiti. In this book, Carter G. Woodson notes

that people of African descent realized (prior to 1861) that their education had not

equipped them to find opportunities for employment in the United States. Though they

had the necessary education, vocational or otherwise, they were met with stiff opposition

from the working classes and forces of labor. The prevailing social order in the United

States and how it informed the legal status of the person of African descent is brought

into the limelight by how in spite of the circumstances African American people strove to

educate themselves as a means to freedom.

In his more popular and highly touted book, Carter G. Woodson in the *Mis-*

Education of the Negro (1933) identifies the problem with the education of people of

African descent as one that is not designed to solve the problems of people of African

descent but rather one that prepares the educated population of African descent for a

cultural annihilation. Under this new milieu Carter G. Woodson posits that the "the

problem of holding the Negro down is easily solved" (Woodson, 1933, p. 2). In other

words, the education of people of African descent was usurped to perpetuate an existence

of servitude on the periphery of the dominant society. Indeed, the author elucidates

further:

> When you control a man's thinking you do not have to worry about his actions.
> You do not have to stand here or go yonder. He will find his "proper place" and
> will stay in it. You do not have to send him to the back door. He will go without
> being told. In fact, if there is no back door, he will cut one for his special benefit.
> His education makes it necessary (Woodson, 1933, p. 2).

What Woodson (1930) alludes to here is the product of the substandard education

accorded to learners of African descent. The author emphasizes what he considered to be

crucial attributes to the process of learning that includes the knowledge base, the

society's values, the subject matter, and the learner. Woodson surmised that learners of African descent were being 're-enslaved' by the system of education. Indeed, Woodson (1930) argued that the experiences of learners of African descent were totally disconnected from their education. He also contends in *The Mis-education of the Negro* that the kind of education received by people of African descent was imposed by the dominant culture and has thus resulted in the enslavement of his mind. This situation Woodson contends is not education but rather a system that informs learners of African descent about the world and what is in it.

In *Afrocentricity*, Asante (1988) contends that the psychology of the African that does not provide a foundation to be centered in the history, culture, and experiences of the African people (both in Africa and in the diaspora) results in a situation in which "the person's images, symbols, lifestyles, and manners are contradictory and thereby destructive to personal and collective growth and development" (Asante, 1988, p. 1). A point worthy of note made by Asante (1988) in this book is that the cultural system of African people both on the continent and in the diaspora are manifested in diverse ways yet are unified by common elements as "one cultural system manifested in diversities" (Asante, 1988, p. 2).

Asante (1991) builds upon the seminal ideas introduced in *Afrocentricity* in *The Afrocentric idea in Education* to emphasize that "Education is fundamentally a social phenomenon whose ultimate aim is to socialize the learner" (Asante, 1991 p. 170). He also asserts in this article that systems of education and schools in particular are a reflection of the societies that produce them. Again, he reemphasizes the importance of educating the learner of African descent from a center of African history, culture, and

experience. Asante (1991) also expresses the notion that African centered education is if against anything, the marginalization of the humanity and practices of non-White peoples in the education curricula. Three critical points of note advanced by Asante (1991) in this journal article are that:

a. African centered theory seeks to question the fact that Eurocentric views of the world are held to be universal.

b. African centered theory opposes racist theories that are opposed to pluralism in education.

c. African centered theory advances the humanity and viewpoint of African people as a valid perspective that should find space in a pluralistic model of education.

These points are all valid to this study as it is intended to validate the knowledge systems and practices of Africans in the diaspora and on the continent through instructional tools such as Adinkra symbols.

In *Afrocentricity: A Cornerstone of Pedagogy*, Dei (1994) asserts that there is no form of education that is objective or neutral. In other words, all forms of education are subjective and situated within historical and social contexts. They are also driven by the interests of the group. Dei (1994) contends that "Euramerican education continues to distort, misappropriate, and misinterpret many African peoples' lives and experiences" (Dei, 1994 p. 3). In this regard, the author positions African-centered theory in a manner that focuses on "what Africa's past, culture, and traditions have to offer the rest of humanity in general and people of African descent in particular" (Dei, 1994 p. 4). In this journal article, Dei (1994) posits that African-centered theory promotes the idea that "African indigenous cultural values, traditions, mythology, and history…be understood

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as a body of knowledge" (Dei, 1994, p 4). In this regard, it is a non-exclusionary, and

non-hegemonic system that is informed by the historical experiences of Africans both on

the continent and in the diaspora. In further advancing this notion, Dei (1994) asserts:

> "…[it] is about the investigation and understanding of phenomena from a perspective that is grounded in African-centered values. It is about the validation of African experiences, histories, as well as a critique of the continued exclusion and marginalization of African knowledge systems from educational texts…" (Dei, 1994, p. 5)

The intersection of culture and African-American learning

The nature of this study makes essential an understanding of how students of

African descent learn. In other words, it is essential to integrate a discussion on culture

and African-American learning. Madhere (1989) defines culture as "a group's preferred

way of perceiving, judging, and organizing ideas, situations and events they encounter in

their daily lives" (Madhere, 1989, p. 9). Every culture has a particular orientation that

may be steeped in the religious, communication style, or language, and may also have

specific preferences for the expression of their worldview (music and dance are examples

that may be used). The African-American culture is no exception to this. Culture is all-

encompassing and includes the values, customs, beliefs, communication patterns, and

aesthetics of a society or group and is passed down from generation to generation

(Parillo, 1990). The culture determines the guidelines by which information is selected,

attended to, and interpreted (Parillo, 1990). Culture therefore informs and affects the

learning process. Researchers have been highlighting the importance of the manner in

which children learn (Castaneda & Gray, 1974; Cohen, 1969; Shade, 1982, 1983). It has

been argued that African-American learning has been impacted and influenced by

cultural customs that have been transported from communities in Africa. The African-

American church and the family have been responsible for such continuities (Anderson, 1988; Hale-Benson, 1986).

In his review of African centered psychology literature, Willis (1989) categorized African American learning modes into the following four domains:

1. Social/Affective: people-oriented, emphasis on affective domain, social interaction is crucial, social learning is common.

2. Harmonious: interdependence and harmonic/communal aspects of people and environment are respected and encouraged; knowledge is sought for practical, utilitarian, and relevant purposes; holistic approaches to experiences; synthesis is sought.

3. Expressive creativity: creative, adaptive, variable, novel, stylistic, intuitive, simultaneous stimulation is preferred; verve; oral expression.

4. Nonverbal: nonverbal communication is important (intonation, body language, etc.), movement and rhythm components are vital (Willis, 1989, p. 54).
In addition to these, the process of learning has to be participative. It must also involve the adoption of holistic cognitive strategies that foster motivation from the perspective of needs, interest, talk, action, activity, and learning (Tschombe, 2011).

It is important to focus on an interest-driven strategy in the education of students of African descent. These interest-driven strategies are enshrined in the language of the Bamileke people of Cameroon. The language of the Bamileke is written on the basis of the Latin alphabet, hence its use of the Latin script. The first of these interest-driven strategies is referred to as *piifak wen* by the Bamileke people of Cameroon. This strategy posits that learners should play an active role in all activities. The focus of this strategy is not limited to the active engagement of the learner in the activities, but extends beyond

that to emphasize that the activities have to be of interest to the learners (Tschombe, 2011). Another important strategy is that of mediated mutual reciprocity, known in the Bamileke language of Cameroon as *faksi zhi-si-hi* and which espouses the notion that there must be a match, rather than a mismatch between the learner's knowledge and the cultural context of learning.

Polce (1987) offers a definition of learning styles that encompasses cognitive elements, affective correlates, perception, psychological and environmental factors. In a similar vein, Boykin (1983), and Nobles (1985) characterize African-American life as all-encompassing and holistic. From this perspective, the learning environment in which the student of African descent learns must also of necessity include the elements that are typical of African-American culture and life. Boykin (1983) identified nine elements of African-American culture that have their origins in African belief systems. These are spirituality, verve, movement, harmony, affect, expressive individualism, orality, communalism, and social time perspective. Of these nine, the only one that I raise a question about is expressive individualism. This is so because while the individual's expressive individualism tends to focus highly on individual expression, the expression of the peoples of Africa have generally and predominantly been communal and social in nature. This is not to say that there is no room for individual expression, the onus however is on communal expression. All of these elements are critical to learning situations of students of African descent. Every culture transmits its worldview to its members. The members of the culture assume the worldview and use it as a guide in informing their responses to learning situations and behavior (Oppong Wadie, 2004).

In concurring with Nobles (1997), the penultimate question in education, particularly for learners of African descent, hinges on how to educate learners become authentic human beings (Nobles, 1997). True education occurs when the teacher "touches the spirit" of the student and opens up the passion for knowledge thereby inspiring in him or her, a lifelong yearning for learning (Nobles, 1997).

Culturally relevant and sustaining pedagogies

According to Ladson-Billings (1992), while there have been attempts to match classroom culture with student culture in the quest for academic success, the research undergirding these attempts have not been applied to students of African descent (Ladson-Billings, 1992). This situation, she postulates, is the result of the persistent denial of the existence of a unique and distinct African-American culture that is not limited to the narratives of poverty and slavery. This viewpoint holds that African-American students are an integral part and adaptation of the dominant culture. This viewpoint is not supported by historical evidence (Holloway, 2005). Ladson-Billings (1990a, 1990b, 1991, 1992) coined the term "culturally relevant teaching" to describe teaching that is designed to use students' culture as the basis for assisting students to understand themselves and others as well as provide structure for social interactions and the conceptualization of knowledge. This mode of teaching stands in contrast to the kind of teaching designed just to match school culture to students' culture. In the context proposed by Ladson-Billings, the recognition of African-American culture as a foundation upon which the schooling experience is to be constructed ranks high in importance. Culturally relevant teaching takes an oppositional stance to mainstream monocultural teaching and recognizes and celebrates African and African-American culture (Ladson-Billings, 1992). Ladson-Billings (2000) outlines three propositional

notions that form the basis of culturally relevant pedagogy. These propositions are academic achievement, cultural competence, and sociopolitical critique. In addition to this, culturally relevant teachers see as part of their responsibilities the fostering and development of cultural competence among their student populations. This offers an opportunity for African-American learners to comprehend features of their culture that enhance their ability to liaise and relate to other constituents of their cultural group and constituents of other cultural groups (Gay & Baber, 1987). The onus is then on educators to equip themselves with a deep understanding of the culture. Educators using Adinkra symbols fall into this category of those educators who are in the quest to position their students in the use and application of cultural, historical, and social practices.

The provision of an avenue for the adoption of culturally relevant teaching and pedagogy aligns with the objective of achieving a pluralistic educational apparatus. The achievement of a truly pluralistic society cannot materialize without pluralism in education (Myers, 1981). The question that must be posed in the quest for pluralism in education is one that has been asked by scholars including Paris (2012) who asks, "What is the purpose of schooling in a pluralistic society? Such a system of education should be interested in the sustenance of the cultures of all communities, including the African-American community. This is so because the notion of pluralism requires the autonomous participation in and development of the traditional cultures and interests of members of diverse ethnic, racial and other groups within the limits of a common society. This goal requires special consideration for African-Americans (Myers, 1981). The traditional culture of Africa must be examined to gain an understanding of African-American cultural heritage as the African-American culture comes from traditional African culture

(Holloway, 2005; Thompson, 1993). In spite of the fact that Africa and its diaspora represent diverse peoples, certain ideologies, philosophies, and characteristics permeate all groups. It is the ethos that characterizes the traditional African culture and worldview (Mbiti, 1970). It is this unity in diversity that Mbiti (1970) refers to and that Myers (1993) describes as "the philosophical assumptions and principles serving as the foundation of the world view of ancient Africans" (Myers, 1993, p. 97). The African worldview does not suggest that it is the only worldview that adheres to these central tenets, it does however suggest the existence of worldviews that do not subscribe to these central tenets. These tenets are defined by Myers (1993) in the table below.

Table 3 – Alignment of African worldview with optimal conceptual system

Assumptions/Principles	Optimal	Sub-optimal
Ontology (nature of reality)	Combination of the spiritual and the material	Materially focused with aspects of spiritualism that is separate and secondary
Epistemology (nature of knowledge)	Self-knowledge through symbolic imagery and rhythm	External knowledge known through counting and measuring
Axiology (nature of value)	Highest value in interpersonal relationships	Highest value in material objects or acquisition of objects
Logic (reason)	Diunital –emphasizes union of opposites (both/and conclusions)	Dichotomous – emphasizes duality (makes either/or conclusions)
Process	Ntuology – all sets are interrelated	Technology – All sets are repeatable and reproducible
Identity	Extended self/multidimensional	Individual form
Self-worth	Intrinsic in being	Based on external criteria or materialism
Values guiding behavior	Oneness with nature, spiritualism, and communalism.	Materialism, competition, individualism.

Sense of well-being	Positively consistent outcome as an outcome of connection with source	In constant flux and struggle
Life - Space	Infinite and unlimited (spirit manifesting)	Finite and limited (beginning with birth and ending with death)
Time	Cyclical	Linear

Source: Myers (1993)

It must be noted here that the African worldview does not preclude the absence of diversity among African peoples, rather it emphasizes the commonality of thought that exists among the diverse cultures. The principles enumerated above may be embraced by other cultures but are in this case central to the African worldview in spite of the diversity that exists in and Among African sub-cultures much in the same way as there is a diversity among adherents of the Eurocentric worldview irrespective of location and hybridity, (e. g. Australia, England, Canada) but have a common overarching worldview. All learners, irrespective of cultural background can subscribe to the principles and assumptions of the African worldview. All learners can benefit from interaction with Adinkra symbols. In this study, the emphasis is on learners of African descent and how they can access and experience aspects of their history, heritage, and culture for their benefit in educational settings.

The implementation of a pluralistic model of education will require the catering to the student of African descent in specific ways. This may begin with an in-depth study on African heritage (Myers, 1981). Beginning here will be important for three reasons. This is because learning of and knowing the African worldview can provide a good balance for the examination of the level to which the learner is steeped in his or her own cultural

orientation, provide a basis for the interpretation of African-American student behaviors, and provide information on the learning needs and preferred cognitive styles of African-American learners (Myers, 1981). The acquisition of a holistic worldview of African culture has special significance in the educational environment as students of African descent respond to the totality of their environment. The physical nature of existence, the mental and emotional nature of existence are seen as aspects of the whole and are therefore inseparable in the eyes of African-American learners.

The true expression of pluralism requires the existence of both the many and one to be and remain vibrant (Paris, 2012). The quest for pluralism in education stands in stark contrast to the direction of the policies being presently pursued and implemented. The present direction is geared towards the creation and maintenance of a monocultural and monolingual society, one in which the cultures and languages of longstanding and newcomer communities are relegated to the periphery at best. The pursuit and implementation of such policies and the resultant teaching practices have the objective of an education system based on the entrenchment of European/White middle-class cultural expressions including language, values, and other such expressions of culture.

It is in response to such a climate that Paris (2012; 2014) calls for a "culturally sustaining pedagogy" as opposed to a culturally relevant pedagogy (Ladson-Billings, 1995). Such a pedagogy demands support for the learner in sustaining the cultural and linguistic tools of the learner in particular and competence in their communities. Culturally sustaining pedagogy thus promotes pluralism in practice and perspective for students and teachers. A pluralistic society requires the engagement of in-group cultural practices and across-group cultural practices to blossom (Paris, 2011).

There is yet an added dimension to the need for culturally sustaining pedagogies such as the engagement with Adinkra symbols and concomitant meaning making that result from the experience. The experience is "liberatory." Woodard and Coppola (2018) asserts that providing opportunities to explore the multiple, layered, and fluid dimensions of their respective cultures, identities, and linguistic/literate practices prove to be liberating for learners and educators alike (Woodard & Coppola, 2018). The importance and necessity of an education that is liberatory is in response to education policies that have largely emphasized the cultural practices of the dominant group. These emphasized practices tend to assimilate students of non-dominant groups into the cultural practices of the dominant group (Moll, 2011; Morales, 2016). It is also important for educators to take into consideration, the cross-cultural knowledge and skills in the learning process (Lee, 2005; Valenzuela, 1999).

The need for cultural emphasis and orientation in the pedagogy emanates from the link between the development of strong identities and academic success. Identity is central to everyday lived experiences and histories (Webb, 2014). A similar notion is expressed by Holland et al (1998), who suggest that identity formation is a continual long-term effort (Holland, Lachicotte, Skinner, & Cain, 1998). Identity is also symbolic and interpretive (Geertz, 1973). Nasir, Mclaughlin, and Jones (2009), suggest that the mainstream association between African-American students and underachievement in academic work is a dangerous stereotype that has the potential of being appropriated by African-American students themselves. These researchers found that students who associated knowledge of their history with their African-American identities were also of the view that being African-American meant the expression of behaviors and beliefs that

support academic success (Nasir, Mclaughlin, & Jones, 2009). Larnell, Boston and

Bragelman (2014), identify such stereotypes as threats to African-American identity and

academic success. Many researchers now view identity as an appropriate lens for the

examination of the character and impact of students' learning experiences (Larnell,

Boston & Bragelman, 2014). Teaching and learning may both be construed as political

acts, which may either be connected to the maintenance and preservation of privilege and

oppression (Larnell, Bullock & Jett, 2016), or directly undertaken to disrupt permanently,

the oppression and mental enslavement that has been experienced by students of African

descent for so long (Dei, 1994; Asante, 1991; 2011; Verharen, 2000; 2002; Myers, 1993;

Freire, 1979).

The dialogical interplay between Adinkra symbol use as public pedagogy and institutional practice

The emergence of Adinkra symbols as pedagogy in African American social and

educational contexts represents a phenomenon that is reflected in the dialogic interplay

between how cultural and community practices inform educational practices and how

educational practices in turn inform and strengthen cultural and community practices

thereby institutionalizing them in the process.

This interplay stems from the use of Adinkra symbols as cultural resources and

the affirmation and strength given it by Black Studies programs across the United States

(Temple, 2010; Mazama, 2003). Indeed, the discipline of Black Studies has prepared

many individuals who in turn have gone out into the communities to share their

knowledge (Temple, 2010). In this study, I include a good number of photographs

depicting the use of Adinkra symbols as cultural and educational resources. In the Black

studies discipline, the use of Adinkra symbols and the encouragement thereof, reflects an

intellectual fervor for accessing African cultural resources and projecting them into the

present and future (Gammage, 2004). Karenga (2001) further elucidates this point:

> This process of returning to the source in the constant quest for valuable and
> diverse knowledge of African peoples and African culture has become a central
> concept and practice in all fields of Black Studies (Karenga, 2001, p. 78).

Yet the community has also benefited from not only from the research and affirmation of

Black Studies programs but from recent immigrants from Africa who also serve as

resources for the uses, interpretations, and meanings of Adinkra symbols (Temple, 2010).

These cultural workers have brought Adinkra symbols into educational spaces and

continue to use them for the populations they interact with. In this instance, everyone is a

learner, both educators who are constantly learning to enrich their knowledge faculties

and the students who they impart what they have learned to.

Theoretical framework

For the purposes of this undertaking, I situated my study in African-centered

theory. Adinkra symbols are situated primarily in the culture and social concepts of the

Akan people of Ghana, and the wider African worldview. Owing to its assumption by

peoples and locales outside the immediate Akan area, values and concepts intrinsic to

Adinkra symbolism continue to make meaning in these locales. African-centered theory

seeks to highlight the importance of using pedagogy and modes of communication that

are culturally relevant to educators of students of African descent and the students alike.

African centered theory

African centered theory is "a frame of reference which affords phenomena to be

viewed from the perspective of the African person" (Asante, 1980, 1991; Verharen 1995;

Myers, 1987, 1993; Karenga, 1986; Keto, 1990). It provides a basis for investigation and

understanding from a point of view that is grounded in African values (Dei, 1994).

African centered theory urges people of African descent to,

> "have a strong sense of identity, history, and culture to deal with some of the
> problems of their existence today and in the future. It also embodies a struggle for
> the total liberation of the African mind from the effects of slavery, colonialism,
> and neocolonialism" (Dei, 1994, p. 5).

It is predicated on the African worldview which emphasizes the interconnectedness and
interdependence of natural phenomena. In actuality, African-centered theory as
expounded by Verharen (1995) "does not distinguish between animate and inanimate
reality because all reality is animated by laws or forces" (Verharen, 1995, p. 70). From
this point of view, all modalities and realities are viewed as integral to the whole. The
spiritual, material, substance, and form are all parts of the whole (Asante, 1980b; Schiele,
1998; Hamlet, 1998). All reality is viewed as a unity and that divisions placed on this
unity are the outcome of present limitations of knowledge (Verharen, 1995). Mazama
(2002) drives this point home when she says that, "When we study African culture and,
more particularly, African philosophy, it appears clearly that the fundamental African
philosophical principle is the principle of the unity of being" (Mazama, 2002, p. 2). In
this regard, the African-centered approach emphasizes the interrelationship that exists
between varying strands of knowledge; cosmology, medicine, biology, chemistry,
society, and spirituality for instance are all interrelated (Asante, 2003; Mazama, 2003).

African centered theory may be defined in terms of its historical, cultural, and
global perspective as a cultural expression of African people that has the African
worldview as its basis. It is not isolated from the events and dynamics of the world
(Shujaa, 1994). In alignment with this mode of thought, Mazama (2003) argues, "our

main problem is precisely our usually unconscious adoption of the Western worldview

and perspective and their attendant conceptual framework" (Mazama, 2003, p. 4).

African-centered theory is a "studied, vigorous, and creative elaboration of

African culture and ideology" (Shujaa, 1994, p. 321). Oyebade (1990) in expatiating on

the role and function of African-centered theory argues that:

"any perceived discontinuity in African-American history at any given time is a
myth. To be valid, the study of African-American experience must be rooted in African
culture" (Oyebade, 1990, p. 236)

The question that is asked by some is 'Is there an African culture'? In spite of the

geographical formations such as Zulu, Yoruba, Afro-Brazilian, and African-American

among many others, the ontological foundation remains constant (Madhubuti &

Madhubuti, 1994; Diop, 1979; Asante, 1988; Karenga, 1990; Warfield-Coppock, 1990;

Mbiti, 1970; Sofola, 1973; Stuckey, 1987; Nobles, 1980). Dei (1994) asserts that "there

are underlying commonalities or affinities in the thought systems of African peoples"

(Dei, 1994, p. 6). In this same line of argument, Mazrui (1980) affirms that there are

common themes that run through the cultures of Africa. As noted by Asante (1980), "the

unity of experience, struggle, and origin causes African culture to have an internal unity"

(Asante, 1980, p. 4) in much the same way as European culture does (Dei, 1994). The

African worldview is in this regard best suited for the wholistic education of learners of

African descent (Myers, 1993). Adinkra symbols, a product of the African worldview, in

its siting as a culturally relevant pedagogic tool, provides a fitting construct for use in the

education of learners of African descent.

The adoption and use of the African-centered approach are necessary in the

education of learners of African descent to provide support to a line of resistance against

Eurocentric biases. Its adoption is also vital to the production of an education that is

contributory to the achievement of pride, equity, power, wealth and cultural continuity

coupled with the fostering of an ethical character that is founded on African philosophical

thought and social practices (Shujaa, 1994; Mazama, 2002; Myers, 1987). The necessity

of the African-centered approach to the education of the learner of African descent lies in

the fact that all forms of education are neither neutral or objective; indeed, all forms of

education are historically as well as socially constructed and wholly interest-bound (Dei,

1994). Asante (1991) suggests that a vital aspect of African-centered theory lies in core

notion that suggests that interpretation and analysis be undertaken from the perspective of

African people as subjects and not objects existing marginally on the hem of European

experience (Asante, 1991; Dei, 1994). Malcolm X (1968) emphasizes the need for the

focus on the culture of African people when he posits that, "the language and logic of the

oppressed cannot be the language and logic of the oppressor" (Malcolm X, 1968, p. 133).

In addition to this, African-centered approach provides an avenue of resistance to the

distortions, misappropriations, and misinterpretations of the experiences and lives of

African peoples that have been prominent in Eurocentric education (Asante, 2007;

Verharen, 1997; Dei, 1994). There is a long and checkered history of Eurocentric

determination of what constitutes valid knowledge (Dei, 1994). African-centered theory

provides an avenue for "the introduction, validation, and interrogation of 'other' voices

and ways of knowing" in the sphere of education (Dei, 1994, p. 4). Dei (1994) succinctly

states that:

> "It is about the validation of African experiences and histories, as well as a
> critique of the continued exclusion and marginalization of African knowledge
> systems from educational texts, mainstream academic knowledge, and
> scholarship" (Dei, 1994, p. 5)

In defining the role of the African centered 'voice,' Morrison (1992) notes that the point is not to "alter one hierarchy in order to institute it another. It is true that I do not want to encourage those totalizing approaches…. which have no drive other than the exchange of dominations – dominant Eurocentric scholarship replaced by dominant Afrocentric scholarship." (Morrison, 1992, p. 8).

Additionally, African-centered theory views affect, rhythm, rituals, and symbols as well-founded determining factors of human reality and activity (Akbar, 1984; Fairfax, 2017). Nobles (1980), advances the basis of African centered theory when he asserts that in African philosophy and worldview, "the anthropocentric ontology was [is] a complete unity which nothing could destroy" (Nobles, 1980, p. 26). In this regard, the destruction of one part of the whole was the destruction of the entire universe. Indeed, Asante (1980b), asserts that, "the continuity from material to spiritual is the universal basis of the Afrocentric viewpoint" (Asante, 1980b, p. 50). The adoption of African-centered theory here is important on the basis that its underpinnings are predicated on the notion that African philosophical assumptions continue to play a major role in the African-American ethos (Schiele, 1998; Hamlet, 1998). Knowledge emanates from specific cultures and as such has cultural relevance and must be examined for its focus (Asante, 2003; Mazama, 2003). Mbiti (1969), identified eight principles that provide the foundation of the African worldview. These principles were categorized by Turner (1991) as follows:

    a) The interconnectedness and interdependence of all living things

    b) Mind, body, and spirit as parts of the whole

    c) Collective identity

    d) Extended family structure

e) Consequential morality

f) Analogue thinking

g) Time

h) Spirituality

These principles also provide the core tenets of the African-centered paradigm which are elaborated here by Schiele (1998) as follows:

1. Human beings are conceived collectively

2. Human beings are spiritual

3. Human beings are good

4. The affective approach to knowledge is epistemologically valid

5. Much of human behavior is nonrational

6. The axiology or highest value lies in interpersonal relations

   (Schiele 1998; Hamlet, 1998, p. 75).

The African worldview from which both the African-centered approach and Adinkra symbols emanate is a communitarian one (Gyekye, 1987). This worldview is imbued with "such social and ethical values as social well-being, solidarity, interdependence, cooperation and reciprocal obligations" (Gyekye, 1987, p. 157). In education, this communitarian view may be translated as "knowledge for humans' sake (Karenga, 2003; in Mazama, 2003).

The question may be posed as to why African-centeredness is essential to the learning and wholistic education of people of African descent. Centeredness may also be explained as place, location, and orientation (Karenga, 2003; Mazama, 2003). One's place in the world, one's location relative to others, and one's orientation to the world

provides the basis of an African-centered approach to learning in which the learner does not step outside his or her historical and cultural frameworks in learning or practicing but rather engages his or her historical and cultural frameworks in order to self-ground for the complete grasp of both the particular and the universal (Karenga, 2003; in Mazama, 2003; Verharen, 2002; Keto, 1991). Indeed, Asante (1990) argues that "One steps outside one's history with great difficulty" (Asante, 1990 p. 138). This notion was noted by Malcolm X (1965) when he stated that "of all our studies, history is best qualified to reward our research" (Malcolm X 1965 p. 8). In terms of the desired and appropriate orientation for learning, Asante (1990) again asserts that "there is no anti-place, since we are all consumers of space and time" and as such "the Afrocentrist seeks knowledge of this 'place' perspective as a fundamental rule of intellectual inquiry…" It is for these reasons that he posits that "All knowledge results from an occasion of encounter in place" and as such permits the African-centered theorist to highlight and place "African ideals and values at the center of inquiry" (Asante, 1990 p. 5; Karenga, 2003; in Mazama, 2003). This restoration that occurs by centering African people's experiences to the focus of their education permits African people to act with a sense of agency within the context of phenomena. To center one's experiences also allows for ones to be the subject rather than the one who is acted upon (Verharen, 1995; Asante, 1994). This centering in self, of self-knowledge is a primary principle in African-centered theory. Asante, (1990) asserts that "centrism [is], the groundedness of observation and behavior in one's own historical experience" (Asante 1990, p. 11).

As noted by Karenga (2003), "history is the central discipline of contextualization and orientation" and the need for this emphasis as desired in African-centered theory "is

both a historical and cultural concept" (Karenga, 2003; in Mazama, 2003). In so doing, African centered theory echoes the position of DuBois (1975) who proposed teaching by beginning from the particular experience of a people and expanding from there to the experiences of other cultures as opposed to what he referred to as "general and disembodied knowledge of science and human culture" (Dubois, 1975 p. 98). This is the basis of a quality education, which in accordance with the perspective given by Dubois (1975) pays attention to the process of "beginning with the particular and going out to universal comprehension and unhampered expression" (Dubois, 1975 p. 96). The purpose of this centeredness is to provide a foundation on which to study and interpret the history, culture, and social development of all mankind through the ages.

In the provision of formal education opportunities for people of African descent, there has been very little or no attempt to refer to the indigenous education and the depths of opinions that Africans possessed and used, and that shaped the thinking of Africans prior to European colonization (Mkabela, 2005). African centered theory considers the history and culture of Africans. The "concept of centricity in education specifically refers to a perspective that involves locating students within the context of their own cultural references" (Dei, 1994, 2000; Dei & Kempf, 2006; Asante, 1991, 1998, 2011; Verharen, 1993, 2001, 2002, 2003). Situating students within their own cultural contexts makes it possible for them to relate socially and psychologically to other cultural perspectives (Dubois, 1975).

The notion of centricity is one that is applicable to any culture. This centrist model and its applications have been supported by research that shows that "the most productive method of teaching any student is to place his or her group within the center

of the context of knowledge" (Asante, 1991 p. 171; 1980, 1990). The situation is

relatively less arduous to attain as it pertains to White students in America because most

of the experiences that serve as the focus in American classrooms emanate from the

White cultural viewpoints and history (Asante, 1991). The status quo in education is

Eurocentric (Woodson, 1930). This viewpoint results in non-White students being made

to see themselves and their groups as the "acted upon." It is very rare for them to read or

hear of non-White people as active participants in history. This is true in almost all

discussions relating to history. Most classroom discussions seldom focus on resistance

efforts of Africans to European enslavement. Contrary to this point of view, a person

educated in a centric manner comes to view the contributions of all groups of people as

significant and useful. Even a White person educated in such a system does not assume

superiority based upon racist notions. Therein lays the difference between a truly centric

education and non-centric education. African-centered theory provides a

> "frame of reference wherein phenomena are viewed from the perspective of the
> African person. The African-centered approach seeks in every situation the
> appropriate centrality of the African person. This means that teachers provide
> students the opportunity to study the world and its people, concepts, and history
> from an African worldview." (Asante, 1987, p. 171).

Educators generally agree that effective teaching requires mastery of content

knowledge and pedagogical skills. The non-centric perspective is alienating for the

student of African descent. It is conflicting for such students to be taught for example that

his or her heroes and heroines are the very same ones responsible for their plight.

African-centered education affords a situation in which African-American children are

not marginalized by lessons and teachers. In my experience, it may also provide an

opportunity for many teachers who complain that they are ignorant of African history and

culture to broaden their horizons for the purpose of ensuring that students of African

descent are properly centered and taught. Educators need to know what happens in the

world of the children with whom they work (Freire, 1998). This kind of culturally

responsive teaching occurs when teachers understand that the cultures of the students

they teach, are responsible for the communication of constructive notions about cultural

diversity, and support a host of instructional approaches that develops from students'

diverse cultures (Eggen & Kauchak, 2003; McDougal, 2009).

African centered theory stands out as both a philosophical perspective, and as a

theoretical perspective to the extent that when it is applied to research, it has the potential

to form the essential core of the idea (Mkabela, 2005). As a consequence of African-

centered theory, it is important for the researcher who adopts this framework, to situate

the participants as subjects and human agents rather than as objects in a European frame

of reference. This is important to the work of educators who focus on the use and

development of cultural tools for the learner of African descent. African centered theory

can serve as the framework within which educators interact with and experience Adinkra

symbols for the purpose of instruction.

Carter G. Woodson was one of the first people who espoused many of the

principles that are central to the African-centered approach in education with the

publishing of *The Miseducation of the Negro* (Woodson, 1933). In this book, Woodson

discusses the fundamental problems pertaining to the education of the African person in

America. Woodson asserts that African-Americans "have been educated away from *their*

own culture and traditions and have been attached to the fringes of European culture;

resulting in total dislocation from themselves" (my emphasis) (Woodson, 1933, p.7).

Woodson affirms that African-Americans often glamorize European culture to the detriment of their own heritage (Woodson, 1933, p.7). Woodson advocated for the situating of African-American education within the wider African cultural-historical framework. Woodson posited that African-Americans taught in the cultural context of Europe would suffer a psychological and cultural death. Kambon, (1998), espouses a similar sentiment. According to Kambon (1998), the questions of culture with regard to any cultural group, are rooted firmly in worldview. Worldview is a representation of a "racial-cultural group's natural conceptual orientation, outlook, or perspective on, and construction of reality" (Mcdougal, 2009, p. 2). This worldview is the determinant of the meaning one attaches to events that occur in day-to-day existence; it informs one's definitions, concepts, values, and beliefs. The worldview of a cultural group determines how individuals in that group perceive and respond to various phenomena that are characteristic of the ongoing process of everyday existence within one's culture, including learning (Kambon, 1998; McDougal, 2009).

For education to be meaningful within the context of the larger American society, issues pertaining to the historical experiences of the African must first be addressed, both in Africa and America. This is the reason for Woodson's emphasis on education, and particularly why he ascribes the burden of teaching African-Americans to the traditionally African-American colleges, and charges them to be responsive to the long traditions and history of Africa as well as America. Woodson's assessment of the situation, over eight decades ago, that something is severely awry with the way African-Americans are educated, provides the principal impetus for the African-centered approach to American education. This line of thought is in tandem with the African

notion of the education of the whole person. In order to achieve this, one must first be concerned, as well as guided by their culture of origin (Madhubuti and Madhubuti, 1994). This position is echoed by Nobles (1976) below:

> African centered multicultural education is driven by truth, respect for knowledge, desire to learn and a passion for excellence. In regards to "centric" education, the importance of culture is not simply relegated or minimized to the task of being sensitive to cultural differences or superficially appreciating or exploring the common ground for different people. As the foundation for multicultural education, culture, as both the process and the subject of education, will serve as the medium and mechanism for teaching, learning, counseling, and educational management/administration (Nobles, 1976, p. 5).

The identity of an individual is one that is directly linked and inextricably intertwined with the cultural identity of his or her people. To this end, the cultural identity of a people must serve as the basis of the definition of an individual's identity.

Teachers of African-American students should make it a point to contribute positively to their students' identity by centering them in their cultural and historical contexts. African-centered theory serves as a theoretical framework for this study in that it provides a context for the use of Adinkra symbols in classroom teaching.

African-centered theory as a culturally relevant framework works to reinstate that which has been lost by African peoples (Madhubuti & Madhubuti, 1994; Dei, 1994, 2000; Dei & Kempf, 2006; Asante, 1991, 1998, 2011; Verharen, 1993, 2001, 2002, 2003). Loss of culture, identity, worth, agency is all too often symptomatic of being Black in America. These very *losses* are undoubtedly reinforced through the traditional United States formal education system and have structurally made it difficult for the learner of African descent to transcend. To repeat the woes of the educational system is to continue to connect misery to schooling for the African child. To incorporate an African-centered education approach would only be to add to the education experience. To do so

would elucidate the perspectives and knowledge funds of a people that have shaped some of the longest histories of scientific, mathematical, political, and social advancements. Applying such a framework invigorates exactly what equitable education looks like and justly sets up Black students for academic achievement and global citizenship. In the words of Shockley (2011), it is "simply doing the job of someone who teaches Black children" (Shockley, 2011; Shockley & Cleveland, 2011).

CHAPTER 3: METHODOLOGY

In this study, I drew upon the lived experiences of educators who have interacted with Adinkra symbols and have integrated them in their canon of instructional practices. The emergence of Adinkra symbols in transnational contexts such as in the United States represents a phenomenon in the social and cultural ethos of people of African descent (Temple, 2010). Temple (2010), in discussing the use of *Sankofa* (an Adinkra symbol) situates it as a "diasporan phenomenon." This phenomenon of engaging Adinkra symbols as communication devices and instructional tools emerged with the intentional orientation towards African cultural practices among populations in the United States of African descent. Such populations are attentive and intentional about the use of Adinkra symbols as a cultural and behavioral practice. This orientation has been influenced by the legacy of documented practices of enslaved Africans who were brought to the Americas and as a tool of resistance to the monocultural model offered by Eurocentric education and its associated worldviews (Temple, 2010; Myers, 1981; Verharen, 2002; Dei, 1994; Watson & Wiggan, 2016).

Occurring simultaneously with this strong movement to culturally situated knowledge forms and practices has been the development of deficit models and theories regarding the education of African Americans in the mainstream educational institutions. Educator use and engagement with Adinkra symbols is part of resisting such narratives and associated outcomes. The creation and development of Afrocentric schools and other informally based cultural institutions are all attempts to combat these deficit models and associated outcomes. In their study, Watson and Wiggan (2016) harnessed the principle of *Sankofa* in investigating African-American student excellence in an African-centered

urban school. The study found that students who received a high-quality education performed at high levels and outperformed their peers in other schools in certain instances. What then is a high-quality education in this context? The participants defined a high-quality education as one that occurs in a nurturing environment, and utilized an African-centered curriculum (Watson & Wiggan, 2016).

Adinkra symbol usage by educators in contexts outside its place of origin represents a transnational phenomenon. The focus of this study is to shed light on the essence of the experience of such educators and how those experiences contribute to meaning making for them, and consequently the students that they teach. This study will also identify similarities in usage in these transnational contexts. This study will focus on research findings that contribute to or hinge on the following questions:

1. What is the essence of the lived experience of educators using the Adinkra symbols in their professional practice?

2. What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?

Objectives

The primary objective of this study was to ascertain the essence of the experience of educators who use Adinkra symbols as an instructional tool. As has been previously discussed, the meaning making interactions from Adinkra symbols are multidimensional and multidisciplinary. Associated with this desire is the need to determine the impact of the use of multimodal communication devices situated within a cultural framework to highlight the importance of cultural, social, and historical knowledge to literacy learning.

Research Design

The research design for this study utilized the phenomenological approach, meaning the focus of the study was on the experience of the participants (Vagle, 2018). The purpose of this approach was to explore how educators make meaning and experience their interaction with Adinkra symbols. The meaning making perspectives and experiences is at the core of this study as educators expatiate this phenomenon. The phenomenological approach was chosen to provide a navigational path for this investigatory undertaking. Carefully selecting and issuing a declaration of how I intended to frame the study, in terms of viewing knowledge and its acquisition, provided me with the requisite motivation for the research effort, as well as served as a guide for all aspects of the investigation, from questions to conclusion (Crotty, 1998; Broido & Manning, 2002; Vogt, 2007; Charmaz, 2006). The phenomenological approach allowed me to tap into the 'essence' of the experiences of the educators' interactions with Adinkra symbols. It provided me with a conduit through which I accessed and determined the commonality of the educators' experiences (Creswell, 2013).

Phenomenology

The crux of the phenomenological approach is the focus on describing the commonality of the experiences of the participants as they experienced the phenomenon that is the object of the study. Phenomenology has been prominent in the annals of philosophy since it took root (Jones, 2001). It is a method of discovering human experience that allows the researcher to dig deeper by moving past factual accounts into looking at the commonalities of life experiences (Jones, 2001).

The word *phenomenon* has its origin in the Greek *phaenesthai*, which may be

translated as to flare up, to show itself, or to appear (Moustakas, 1994). This idea directly

informs the motto of phenomenology, "*Zu den Sachen*" which has a dual meaning of

"*bringing things to themselves* and *getting down to what matters*"! (van Manen, 1990, p.

184). Crotty (1998) suggests that if we focus our immediate attention on phenomena

instead of on prevailing understandings, "possibilities for new meaning emerge for us or

we witness at least an authentication and enhancement of former meaning" (Crotty, 1998,

p. 78).

I selected the phenomenological approach with intentionality as I found it to be in

alignment with my focus on the meaning making experiences of educators in their

interactions with Adinkra symbols, the locus of my investigation. In aligning with the

definition given by Merriam (2002), a phenomenological inquiry "is an attempt to deal

with the inner experiences unprobed in everyday life" (Merriam, 2002, p. 7). The choice

of this method provided me with a basis to interrogate educators' interactions with

Adinkra symbols, a human experience related to a phenomenon (Creswell, 2009).

The phenomenological approach to research is attributed to the German

mathematician, Edmund Husserl and other pioneers like Heidegger, Sartre, and Merleau-

Ponty (Creswell, 2013). The initial idea postulated by Husserl is that objects have an

independent existence and that the experiences and observations that involve such objects

are reliable. This idea advances the notion that the perception an individual makes during

interaction with an object presents accurate descriptions of their consciousness.

Phenomenology asserts its philosophical assumptions on the grounds that they provide a

study of the lived experiences of a study's participants, that these experiences are

conscious ones, and the development of the essence of these experiences (Creswell, 2013). This is predicated on a notion in phenomenology, the idea that the relationship between consciousness and an object is a direct one. From this viewpoint, the reality of an object is inextricably linked to one's consciousness of the object. This notion is known as the *intentionality of consciousness*. Reality, as advanced by Husserl possesses a nature that is dual and Cartesian as it pertains to both the subjects and objects in the manner in which they appear in consciousness. The interaction with the object informs reality to the extent that the object is perceived within the meaning making experiences of the individual. While Husserl viewed phenomenology as purely descriptive, Heidegger emphasized the need for interpretation. Heidegger emphasized the embeddedness of the historical and cultural context of the researcher and its influence on interpretation. Reality as expressed by Heidegger emphasized an ontological perspective and asserted that the primary phenomenon that phenomenology is concerned with is the meaning of being (presence in the world), thus to seek the being of a phenomenon is to seek the nature of meaning of that phenomenon. His concern was with how we live in the world, and issues related to time and experience (Jones, 2001). The method proposed from Heidegger's ideas focuses on understanding and interpreting ways in which people experience life in the world. The possibility of ontology (philosophy as a science) is dependent on having a distinction between being and beings (an ontological difference). The nature of being, *Dasein*, must be first understood, so we must start from a being, *Dasein*. This being is one who understands that being is an aspect of its ontological constitution (Heidegger, 1962). Heidegger postulates that "understanding is a reciprocal activity and as such proposed the concept of the *hermeneutic circle*" (Dowling, 2007 p.134) to elucidate

further this reciprocal nature of understanding. The hermeneutic circle may be viewed as the interaction between pre-understanding and understanding (Dowling, 2007). The task of hermeneutics is thus to interpret the meaning of being and as such research must address *Dasein* (Jones, 2001). Some researchers have emphasized the position of hermeneutics in phenomenology by arguing that ''phenomenology without hermeneutics can become shallow'' (Todres & Wheeler, 2001, p. 6).

To arrive at the "essence of the experience" from interaction with Adinkra symbols, one has to extract and assemble textural and structural descriptions of the participants' experiences. The essence of an experience forms the core aspects of the commonly experienced and derived meanings by the participants of the phenomenon. Once ascertained, the experiences of the participants will be analyzed and interpreted.

The phenomenological process requires the full involvement of the researcher and is interested and open to what may be made evident (Finlay, 2008). The guidelines for assembling the textural and structural descriptions of a phenomenon as postulated by Moustakas (1994) and outlined in Creswell (2007, 2013) served as a map for this study. These guidelines are identified below:

1. A phenomenon of study is identified by the researcher.
2. The researcher determines if phenomenology is the appropriate approach for the investigation.
3. The researcher recognizes and specifies the broad philosophical assumptions underpinning phenomenology.
4. Data are collected from the individuals who have experienced the phenomenon.

5. The participants are asked two broad, general questions: What have you experienced in relation to the phenomenon and in what contexts have your experiences been influenced or impacted by the phenomenon?

6. Data analysis stem from meaningful themes that emerge from data collection procedures. This then forms the basis for the development of structural and textural descriptions from which the essence of the experience is developed (Creswell, 2007/2013).

Merleau-Ponty (1964) emphasizes four existentials that are important to this study using the phenomenological methodology. These are *lived space* (spatiality), *lived human relation* (relationality or communality), *lived time* (temporality) and *lived body* (corporeality). These are critical to the processes of phenomenological reflection, writing, and questioning (Dowling, 2007). These critical elements of phenomenological methodology will be integral to this study. Reflecting, writing, and questioning through a phenomenological lens are procedures that were undertaken in this study with the purpose of integrating the research into the education of learners. In highlighting the importance of such an undertaking, Van Manen (1997) posits that:

> ...as we speak or write (produce text), we need to see that the textuality of our text is also a demonstration of the way we stand pedagogically in life. It is a sign of our preoccupation with a certain question or notion, a demonstration of the strength of our exclusive commitment to the pedagogy that animates our interest in text (speaking and writing) in the first place. We tend to live the half-life, unresponsive to pedagogy, when our scholarly activities are cut off from the pedagogic reason for this scholarship. … And so, there seems to exist much theory in education that lacks education (van Manen, 1997, p. 138).

Van Manen (2001) suggests six research activities that are integral to the phenomenological methodology. These activities are in dynamic interplay with one another (Vagle, 2014). They are given here as follows:

1. Turn to a phenomenon that seriously interests you and commits you to the world.

2. Investigate the experience as it is lived rather than how it is conceptualized.

3. Reflect on the essential themes which characterize the phenomenon

4. Describe the phenomenon through the art of writing and rewriting

5. Maintain a strong pedagogical connection to the phenomenon

6. Balance the research context by considering parts and whole (Vagle, 2014 p. 57–60).

In consonance with the steps outlined above, I, in my capacity as the researcher turned to a phenomenon that seriously interests me, in this case the perceptions that educators have of Adinkra symbols. As mentioned at the beginning of this study, this is something that does not simply arouse my attention but that I have deep connections to.

In the chapters that follow, I reflect on the themes that emerged from the data that characterize the phenomenon of the lived experiences of educators who use Adinkra symbols in instructional settings. I have done so by first looking at how these educators familiar with Adinkra symbols, how and why they continued to engage them, and how they use them in formal and informal instructional settings.

Finally, I convey balance to the context of the research by taking into account the diverse aspects and the totality of the phenomenon. To this end, I provide an exposition of the historical background of transnational experiences of Africans transplanted to the United States in the era of slavery particularly in their use of symbols and signs. I set the tone of the study by highlighting the research approach and conceptual framework, discuss data collection and analysis, the findings of the study, and reflect on them. The totality of these aspects of the study constitutes the study as a whole.

Phenomenology as the study of lived experience is also structured through consciousness (Moran & Mooney, 2002; Friesen, Henriksson, & Saevi, 2012). Experience here refers to what the participant undergoes. The aim of phenomenology is to access this experience in a sense. For this phenomenological study I employed the approach of Hermeneutic Phenomenology. Hermeneutics refers to the art and science of interpretation and as a consequence, meaning (Friesen, Henriksson, & Saevi, 2012; Cohen, Kahn, & Steeves, 2000). The science and art of meaning in hermeneutic phenomenology is continuously open to new understandings and interpretation. One can therefore conclude that hermeneutic phenomenology is not only the study of experience in itself, but together with its meanings. Hermeneutic phenomenology, unlike some other phenomenological approaches does not require the isolation of 'bracketing' of the researcher's cultural and historical knowledge and observations (Friesen, Henriksson, & Saevi, 2012). Rather, hermeneutic phenomenology emphasizes interpretation of meaning. The perspective accorded here is that the study of experience occurs simultaneously with an inquiry into the meaning of the experience, coupled with the fact that an inquiry into meaning also requires experiential grounding (Ricoeur, 1991; Friesen, Henriksson, & Saevi, 2012). The purpose of using this approach was to allow for the study of the phenomenon to be meaningful. Levinas (1987) foregrounds this notion when he asserts that hermeneutic phenomenology does not seek to understand the object but its meaning (Levinas, 1987, p. 110). Aligning this with this study, the question can be posed, "What constitutes educators' experience of Adinkra symbol use, and what does it mean"?

In considering this viewpoint, one can surmise that the goal of phenomenological inquiry is to make the reader think and have a feel of the phenomenon "at the level of

sensory and pre-reflective awareness as well as at the level of reflective meaning that concerns our place in life" (van Manen, 1997, p. 238). The essence of the experience should speak to us in a manner that validates our experience, convey an understanding to us that stirs our sensibilities, and pull the strings of our unity of being (van Manen, 1997, p. 238).

Reconciling the phenomenological approach and African-centered theory as conceptual framework

While this study draws upon the work of Moustakas (1994) in elucidating the steps required in the phenomenological undertaking, I am also conscious of the fact that the roots and origins of this research approach (as with most research approaches) are steeped in a cultural ethos in which there is no consideration or room addressing the experiences of the African person worldwide. It is for this reason that I draw on the phenomenology of Africana scholars such as W. E. B. Dubois, Franz Fanon, and Steven Biko. The contributions of the aforementioned scholars constitute the field of Africana phenomenology which is directed at bringing the rational expositions of people of African descent to the fore.

The necessity to adopt Africana phenomenology lies in the exclusivity given to claims of reason as localized constructs of the Western world (Henry, 2005). Africana phenomenology thus seeks to articulate the descriptions that constitute the consciousness of Africans on the continent and in the diaspora. This orientation is an outcome of the relationship that exists between the phenomenology of the West as postulated by Husserl, Heidegger, Gadamer, and others on the one hand and non-Western cultures of the world on the other. While Eurocentric phenomenology focuses on reason as a constituent of the

West while at the same time according it universal status, Africana phenomenology engages the subject from a cultural dimension.

For W. E. B. Dubois, the history and culture of the African peoples (on the continent and in the diaspora) was distinct from that of Europe in terms of its experiences, discourses, and locations of primordial meaning (Henry, 2005). W.E.B. Dubois emphasized the notion of double consciousness that has become the reality of African peoples as a result of their colonization. This double consciousness referred to two separate but related problems. The first being informed by the impact of white stereotypes on the lives of people of African descent and the second having to do with the conflict of being an American and non-American simultaneously, a feature of lives of people of African descent. This resulted in an internal conflict in the African American person. This internal conflict is described in clear terms by Bruce (1992) when he states:

> …Du Bois referred most importantly to an internal conflict in the African American individual between what was "African" and what was "American." It was in terms of this third sense that the figurative background to "double consciousness" gave the term its most obvious support, because for Du Bois the essence of a distinctive African consciousness was its spirituality, a spirituality based in Africa but revealed among African Americans in their folklore, their history of patient suffering, and their faith (Bruce, 1992, p. 301).

This is the reason why Dubois called for education of people of African descent to be centered in their cultural and historical particulars first before the engagement of other cultures (Dubois, 1975). To this end, Dubois postulates that for people of African descent to have an effectual education, it must begin with "present facts and conditions about Africans and then expand towards conquest of knowledge…this will lay the foundation to interpret all history" (Dubois, 1975, p. 95; Karenga, 2003, p. 80). This position is in direct alignment with the core features espoused by African-centered theory.

Steven Biko, on the other hand espoused a phenomenological consciousness that was an outcome of social and political forces (Gordon, 2008). Fanon (2008) suggests that the primary goal of phenomenology is to consider the experiences of people of African descent particularly as it pertains to the double consciousness crises (Fanon, 2008). These crises are informed by a state of being imposed on people of African descent by colonialism and slavery that resulted in the loss of cultural identities and their redefinition on the basis of the color of their skins (Henry, 2005). Here again, there is a call for a cultural approach to the phenomenology of African people on the continent and in the diaspora. I draw on the works of these scholars of Africana philosophy to situate phenomenology as a viable approach to this study that is aligned with its conceptual framework of African-centered theory.

Ontology

In conducting this study, my knowledge development paradigm served as a guide by providing a basis and rationale as well as a springboard from which all decisions pertaining to the methodology, data collection, sampling and data analysis emanated. Creswell (2013) suggests that ontology is directly linked to the claim that researchers make regarding knowledge. The knowledge of the qualitative researcher is that which exists in multiple realities. As such evidence from these multiple realities included themes generated from the words of different individuals with multiple perspectives (Creswell, 2013; Moustakas, 1994). The ontological view informing this study is one that is steeped in the social and cultural practices of people and societies. The interpretation of basic essential structures of human experience is focal to Heidegger's perspectives on phenomenology. Heidegger expresses an ontological viewpoint that highlights the

'meaning of being' (presence in the world) as the central tenet of phenomenology (Cohen & Omery, 1994). Asking of the being of a thing to Heidegger is to ask for the nature of the meaning of the thing or phenomenon (Heidegger, 1962; van Manen, 1990; Dowling, 2007). Understanding is thus a reciprocal activity. To this end I agree with Crotty (1998), who postulates that "all knowledge and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (Crotty, 1998, p. 42). In the African worldview, the nature of reality is seen as being spiritual and material. The knowledge of oneself provides a foundation upon which all knowledge can be built, and "one knows through symbolic imagery" (Myers, 1987, p. 74). Axiology may be defined as the study of the nature of value. What is held to be valuable by educators in terms of their experience interacting with Adinkra symbols is informed by this symbolic imagery. Axiologically, the African worldview places the utmost value on people's interpersonal relationships. As a researcher, I hold the view that human experience and meaning making are steeped in the interactions of people with their society and the practice of culture (Scribner & Cole, 1981; Guba & Lincoln, 1994; Gee, 1989). These ontological assumptions provided a framework for emphasis of the experiences of the participants in relation to interactions with Adinkra symbols.

Epistemology

Epistemology "refers to a way of understanding and explaining how we know what we know" (Crotty, 1998). It involves the assemblage of subjective elements (Creswell, 2013). African epistemologies are defined in terms of African culture, traditions, theories, and philosophies (Akinsola, 2011). The understanding of such an epistemology requires knowing how African people extract and make meaning from their

experiences in their particular cultural environments. African epistemologies are a combination of the physical, natural, and spiritual aspects of the universe in combination with moral principles that inform and explain what is known, how it is known, and why they are known. The combination of experiences from all senses and reasoning puts self-experience at the center of African epistemology (Akinsola, 2011). In undertaking this study, I was guided by the epistemological perspective which posits that individual human subjects engage with objects in the environment and make meaning from the interaction. This epistemological outlook is transactional and subjectivist in nature. It advances meaning making and the construction of knowledge as its primary principles (Crotty, 1998; Fosnot & Perry, 1996; Phillips, 1995).

Constructivism postulates that knowledge is temporary, developmental, and non-objective and that it is constructed internally while being mediated by social and cultural factors (Fosnot & Perry, 1996). This viewpoint asserts the individual construction of meanings and understandings that stem from the interaction between the existing knowledge and new experiences of the individual (Richardson, 2003; Yilmaz, 2008). From this perspective, the investigator and the object of investigation are seen as engaging interactively throughout the process and as such "findings" are literally created as the investigation proceeds (Guba & Lincoln, 1994). According to Guba and Lincoln (1994), the aim of inquiry from the perspective of constructivism is 'understanding' and 'reconstruction' of the constructions that people (the investigator included) initially hold.

This understanding and reconstruction aim at a consensus but is also open to new interpretation as information and sophistication improves or changes. Although Adinkra symbols' point of origin is in Ghana, the way individuals construct meanings from them

in alternative contexts may yield new interpretations (Guba & Lincoln, 1994). Knowledge from the constructivist perspective emanates from constructions for which there is some movement towards consensus among experts able to interpret the substance of the construction. The coexistence of 'multiple knowledges' is not an anomaly when engaging this viewpoint. This epistemological perspective aptly fits with my study as it is structurally equipped to emphasize both the interaction between the investigator and the participants as well as the experience of the participant in the interaction with the symbols. The thick and rich descriptions (Geertz, 2008) that the participants gave formed the basis of the data that was analyzed. In my position as a researcher, I reflected on how I make meaning on the personal level, while acknowledging the possibility that participants may convey multiple meanings from their interactions with the Adinkra symbols. The intentional design of this study did not only permit me to highlight the experience of the participants but also strive to accurately portray the participants' interaction with Adinkra symbols. From this angle, phenomenology serves as an approach to decolonization and critique of the status quo. It questions what is taken for granted as normal. In confirmation of this perspective, Larrabee (1990) posits that "phenomenology is a reflective enterprise, and in its reflection it is critical" (Larrabee, 1990, p. 201).

Farber (1991), extends this by a more in-depth look at the value of the phenomenological approach when he asserts that

> "the value of phenomenology from a critical point of view is evident. The program of reflecting upon all knowledge and experience, with the ideal of the 'self-giveness' in experience is what is meant, may well have an emancipatory effect" (Farber, 1991, p. 234).

It is this emancipatory effect that we suggest as an outcome of situating student learning within their own cultural milieu.

Intentionality

In phenomenology, intentionality is used to refer to the inseparable connectedness between the subjects (human participants) and objects (animate and inanimate, in this case, Adinkra symbols). It is the principle that human mental acts are by essence related to one object or another (Moran, 2000) and extends this to imply that every perception has a meaning (Owen, 1996). The use of the word intentionality in phenomenological terms does not mean what we choose or plan to do (Vagle, 2014). Rather, it is used to refer to any action that we might want to take and how we are meaningfully connected to the world. Intentionality of consciousness refers to the notion that consciousness is always directed toward an object. The act of thinking is always connected to thinking about something (van Manen, 1990). As such, what one views as the reality of an object is inextricably linked to one's consciousness of the object (Creswell, 2013).

In Aristotelian philosophy, the term intentionality is used to refer to the manner of positioning of the mind to its object; the existence of the object in the mind in an intentional way (Moustakas 1994; Kockelmans, 1967). This notion of intentionality as suggested by Husserl is linked to the duality present in the Cartesian nature of both subjects and objects in the manner in which they appear in consciousness. The reality of an object is thus perceived as integral to the meaning of the individual's experience. Intentionality is thus the internal experience of being conscious of something (Moustakas, 1994). A study that is done using the phenomenological approach is undertaken by studying the phenomenon and the intentional relations that are associated with it. In so

doing, the researcher studies how people are meaningfully connected to the things in the world. Merleau-Ponty (1964), posits that intentionality is the invisible thread that connects humans to their surroundings meaningfully, be they conscious of the connection or not (Merleau-Ponty, 1964). Sartre on the other hand, describes intentionality as the manner in which we humans meaningfully find ourselves bursting forth toward the world (Moran & Mooney, 2002).

Freeman and Vagle (2009) suggest that while intentionality is a difficult concept to grasp, its strength lies in the image of the meaning making agent who is autonomous and orients to the world with purpose and intent (Freeman & Vagle, 2009). Intentionality is therefore the meaning making link that people have to the world. In relating intentionality to the 'essence' in phenomenology, it is important to draw on the wok of Husserl, who instead of seeking a final outcome as the 'essence,' was rather interested in what he referred to as "turning to the things themselves." By referring to the 'essence' of the 'things,' Husserl was postulating that the 'things themselves' possessed essential qualities that made them unique. While I turn to the essence of the things, I also particularly subscribe to the importance and necessity of interpretation.

In summary, phenomenology aims at the essence of the experience of the one who has lived it. The main proponents of phenomenology have variations in their perspectives but what is common to all of them is the manner in which a phenomenon is studied. The experience permits the phenomenon to be studied to unravel the essence of the phenomenon. There is also the notion of intentionality which purports the interconnectedness of the subject and the object. The understanding of the phenomenon must be found in the things themselves or in their interpretation.

Example of phenomenological studies informing the approach to this study

In undertaking to conduct a phenomenological study, I drew upon several exemplary studies to inform my approach. The first of such studies is entitled *Teacher Beliefs About Instructional Choice.* In this study, researchers Flowerday and Schraw (2000) conducted an investigation into teachers' beliefs about instructional choice in the classroom. The stated goal of this study was to "describe in teachers' own words, what type of choices they offer students' and how they decide when and to whom choices should be given, and why they offer these choices" (Flowerday & Schraw, 2000 p. 1). In conducting this study, the main goal was to primarily codify teachers' beliefs about choice, and secondarily to discuss the implications of the study for an emergent theory of choice. To do this, the researchers focused on the three aspects of teacher choice described above. This study included three main stages. These were semi-structured interviews that were part of a pilot study, a second interview protocol developed on the basis of feedback received from teacher participants in the pilot study. The revised interview questions were then used in the second phase of the study. This phase comprised written responses from thirty-six teachers to seven questions that were asked. This was in turn followed by one-on-one interviews of teachers responding to the same seven questions. In this study, the primary source of data collection was from the verbal responses accrued from interviews with participants. Responses were tape recorded, and transcribed into narrative text. The data was then analyzed using phenomenological methods. Responses to the interview questions were coded and themes were established. This resulted in the development of an interview protocol comprising seven questions. The notes of the participants together with their verbal responses were analyzed by using

qualitative methods that are consistent with phenomenological design. Thematic analysis was conducted that revealed three broad thematic topics. These are: The *types of choice* category that refers to six areas of choice that teachers often offer students, the *criteria-for-choice* category that refers to the characteristics of teachers and students that affect choice, and *rationale-for-choice*, a category that refers to affective, behavioral, and cognitive reasons for offering choices to students. The study found that teachers gave students choice for three main reasons.

The first reason was teachers' desire to increase student self-determination. Teachers were of the impression that self-determined and motivated students were more likely to be deeply engaged with the subject matter, in alignment with Deci and Ryan's (1987) self-determination theory. The second reason why teachers offered students' choice had to do with the desire to increase student personal interest, identified as a major catalyst for learning. Teachers were of the perception that personal interest was a necessary tool for total engagement (Deci, 1992). The third reason was the provision of opportunities for students to practice their decision-making skills.

The systematic and detailed phenomenological procedures outlined and undertaken by Flowerday and Schraw (2000) informed the approach of this study. This study drew from the Flowerday and Schraw (2000) study to inform educators on the need to understand how educators experience interaction with Adinkra symbols with the intention to improve understanding of these experiences. Phenomenologically, two distinct questions arise: What is the experience of interacting with Adinkra symbols? What is the experience of converting the ideas expressed by Adinkra symbols into learning experiences? Phenomenology posits, that "we can best understand human beings

from the experiential reality of their lifeworlds" (van Manen, 1997, p. 11). Using a phenomenological approach to examine the experience of interaction with Adinkra symbols from an educator's point of view is essential, as this viewpoint is markedly unique and quite often unemphasized.

In *A Literacy Lesson from an Adult "Burgeoning" Reader,* Saal and Dowell (2014), adopt a phenomenological study in examining how an adult became print literate. In analyzing the data, authors Saal and Dowell (2014) draw on Koro-Ljungberg, Yendol-Hoppey, Smith and Hayes (2009) who suggest that qualitative inquiry should be designed to align with the study's analytical processes, the researcher's guiding paradigms, and chosen methods. This study adopted this same approach by ensuring an alignment between the qualitative inquiry, the study's analytical processes, guiding paradigms and frameworks, as well as the methods of data collection and analysis. Analysis was also based on a constructivist paradigm (Denzin & Lincoln, 1994), using a phenomenological perspective (Moustakas, 1994). In this study by Saal and Dowell (2014), data was collected from five main sources. These were interviews, pre and post-tests, reflective dialogue interviews, observations, and film. Primary data was collected from interviews. The reflective dialogue was videotaped and presented to an empathetic audience (Fontana & Frey, 2000). Sources of additional data were formal and informal literacy pre-tests and an informal attitude and interest survey. Field notes were also gathered during lessons and observations. This study also utilized the alternate text method of film and its dissemination by social media for the accurate expression of the experience of the adult reader. This study found that on the basis of his experience, the participant initiated a literacy lesson for the class that his mentor was assisting in teaching. The initiation of this

literacy lesson resulted in the emergence of three themes from the data. These themes were: Entering print-literacy instruction, recognizing past educational injustices, and the print-learning experience of the burgeoning reader. From these and other additional sources of data, the phenomenon of the adult burgeoning reader was developed. Three implications emerged from these findings. They are: The importance of expanding the continuum of literacy skills with older students, the importance of utilizing prior knowledge, and the importance of fostering positive learning environments.

A third phenomenological study that I consider relevant to this study in terms of its approach is *"Oh, Those Loud Black Girls!" A Phenomenological Study of Black Girls Talking with an Attitude* by Koonce (2012). The focus of this study was the highlighting of the lived experiences of two African American adolescent girls in their usage of African American women's speech practice, "Talking with an Attitude" (TWA), with their teachers. In this study, the researcher, Koonce (2012) gathered data by conducting one in-depth and one follow-up interview with two participants. The researcher recruited the girls by distributing a flyer that provides information to the girls and their families about the research study. The researcher also participated in activities with the girls aimed at familiarizing themselves with each other. Koonce (2012) audiotaped the interviews and transcribed them verbatim. She then reread them several times in search of significant statements culminating in essential meanings in what van Manen (1944/1977/1982) refers to as the selective approach.

In developing the themes, the researchers determined their usefulness by questioning the extent to which they arrived at the meaning of the experience of the African-American adolescent girls (van Manen, 1990). These themes were developed to

get to the core of the "notion" while also understanding that "no thematic formulation can completely unlock the deep meaning, the full mystery, the enigmatic aspects of the experiential meaning of notion" (van Manen, 1990, p. 88). In accordance with van Manen's (1990) notions of capturing a theme perfectly, the researcher did her best to get to the core of the experience but also understood that her analysis could fall short of completely capturing the full mystery of the phenomenon. Van Manen (1990), postulates that "a so-called thematic phrase does not do justice to the fullness of the life of a phenomenon. A thematic phrase only serves to point at, to allude to, or to hint at, an aspect of the phenomenon" (van Manen, 1990, p. 92). The researcher proceeded to isolate thematic statements by identifying phrases that stood out. This process required identifying those phrases and sentences that were expressions of the experience of what she defined as 'talking with an attitude around teachers.' The researcher then transformed these sentences linguistically to develop a theme that pointed to the experience in a way that transcends "everyday talking and acting in that it is always arrived at in a reflective mood" (van Manen, 1990, p. 97).

I drew from this study the meticulous manner in which the researcher pursued the experience by the steps that she followed. These three studies described above served as guides in terms of their approaches to phenomenology and that in turn informed how this study was approached.

Participants and Setting

Sampling

The aim of qualitative research is to elucidate the particular and the specific as opposed to the making of generalizations (Pinnegar & Daynes, 2007). The size of the sample in phenomenological studies varies but is typically within the range of 3 to 10 participants (Creswell, 2013), the point where saturation is usually attained. In line with the study's interview design, I interviewed 11 participants, the point at which saturation was reached.

Purposeful Sampling:

I intentionally selected individuals and sites for the understanding sought to be gained in this study (Coyne, 1997). Purposeful sampling is "widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest" (Palinkas et al, 2015, p. 1).

Judgmental sampling:

Using this sampling technique enabled me to identify and select who in my judgement can be able to provide the best information in terms of fulfilling the objectives of this study (Ponemon & Wendell, 1995). With this method, the researcher is responsible for making the decision about what needs to be known, the research questions, and sets out to identify individuals who are capable and are disposed to furnish the information by virtue of their knowledge or experience (Etikan, 2016). This sampling technique was useful in so far as providing a rich and thick description of educators' experiences from their interactions with Adinkra symbols is concerned.

Expert sampling:

Expert Sampling requires the use of experts in a particular field to be the subjects of the purposive sampling. I identified respondents who are known educational experts in Adinkra symbol use and collected the necessary information from them (Etikan, 2016).

Snowball sampling

In snowball sampling, existing participants in a study recruit or assist with the recruitment of other participants for the study. There were instances in this study where participants assisted with the recruitment of other participants.

Participant profiles

Table 4 - Table of Participants

Participant	Professional role	Gender	Educational level (s) taught	Uses and applications of Adinkra symbols
P1 Raymond Eggleston	Professor/ Teacher	Male	Tertiary Secondary Elementary	STEM education Decolonization Culture and heritage Values Application to other contexts Visualization Software development Social Justice Empowerment
P2 Matthew Langston	Professor/ Teacher	Male	Tertiary Secondary Elementary	STEM education Decolonization Culture and heritage Application to other contexts Empowerment
P3 Mawusi Amewu	Teacher	Female	Elementary Community	Culture and heritage Decolonization Art/Aesthetics Values Empowerment
P4 Margaret Bates	Teacher	Female	Elementary	Culture and heritage Decolonization Art/Aesthetics Values Empowerment
P5 Mawere Ohemeng	Teacher	Male	Elementary Community	Culture and heritage Decolonization Values Empowerment Application to other contexts

				Empowerment
P6 **Adubea** **Ohene**	Professor/Teacher	Female	Tertiary Secondary Elementary Community	Culture and heritage Decolonization Art/Aesthetics Values Empowerment Visualization Application to other contexts Social Justice Empowerment
P7 **Baba** **Kumasa**	Professor/Teacher	Male	Tertiary Secondary Elementary Community	Culture and heritage Decolonization Values Empowerment Application to other contexts
P8 **Brian Yaw** **Lance**	Teacher/Administrator	Male	Elementary Community	Culture and heritage Decolonization Values Empowerment Application in other contexts
P9 **Dwayne** **Ferguson**	Professor/Teacher	Male	Tertiary Secondary Community	Visualization Culture and heritage Decolonization Values Empowerment
P10 **Millicent** **Hollande**	Teacher	Female	Elementary	Visualization Application to other contexts Empowerment
P11 **Bob Bryson**	Professor/Teacher	Male	Tertiary Secondary Elementary	STEM education Decolonization Culture and heritage Application to other contexts Empowerment

Raymond Eggleston

Raymond Eggleston is a professor of cybernetics and ethno-mathematician. His research and work focuses on the intersection of mathematics and culture. He has carried out extensive research into fractal patterns found in African architecture. He has written extensively on Adinkra symbols and mathematics, computing (STEM). I became familiar with his work years ago while researching Adinkra symbols and recruited him to participate in this study when it was initiated. Prof. Raymond Eggleston has published

extensively on Adinkra symbols and indigenous African mathematics. He has brought his knowledge into formal and informal educational institutions across the United States. He has traveled extensively in Africa and was very happy to participate in this study when I sought to recruit him for it. I recruited him on the basis of his extensive knowledge on indigenous knowledge systems particularly on the intersectionality of Adinkra symbols and mathematics as well as computing. Prof. Eggleston's use of Adinkra symbols is in the fields of STEM education, decolonization, connecting learners to their heritage and culture, transmitting values to learners, application of Adinkra symbols to other contexts, using the visual mode of Adinkra symbols, Adinkra symbols software development, Social Justice, and empowerment in elementary, secondary, tertiary and informal learning environments.

Matthew Langston

Mathew Langston is an assistant professor of educational technology. He is particularly interested in strengthening school-home relationships by way of technology. He has studied and published on ethnocomputing by focusing on Adinkra symbols and teaches educators how to implement practices that stem from Adinkra symbols in the classroom. He worked with Raymond Eggleston on designing educational software that uses Adinkra symbols for instruction. He was referred to me by Raymond Eggleston and was happy to participate in my study when I asked him to. Matthew is also an expert in critical race theory, ethnocomputing, and science and technology studies. I recruited him because of his extensive research into Adinkra symbols and the opportunities he has had for implementing related practices in educational spaces. Prof. Langston's use of Adinkra symbols is in the areas of STEM education, decolonization, culture and heritage,

application to other contexts, and empowerment in elementary, secondary, tertiary as well as teacher professional development.

Mawusi Amewu

Mawusi Amewu is a classroom instructor and community educator. A member of the Black Panther Party in the 1960s, Mawusi became familiar with Adinkra symbols from an aesthetic perspective. She soon realized that it was more than something that was simply fashionable. Mawusi uses Adinkra symbols in art instruction in the school she teaches at and also uses them in imparting values to young people. She is especially interested in imparting this knowledge to young African American girls and is the cofounder of a puberty rites group for African American girls that extensively studies Adinkra symbols. I recruited her to participate in this study because of her personal love for Adinkra symbols, extensive knowledge and many years of using Adinkra symbols in both formal and informal educational spaces. Mawusi Amewu engages Adinkra symbols to connect to culture and heritage, decolonize the content, produce and promote African-centered aesthetics through fashion and art, transmit values, and empower learners in elementary and informal educational settings

Margaret Bates

Margaret Bates is an art instructor, self-employed artist, and a graduate of the Art Institute of Chicago with a Master's degree in Art studies. She came into the knowledge of Adinkra symbols through a cultural program she participated in as a young woman. Her initial fascination prompted her to dig deeper and was acquainted with many more symbols beyond what she was familiar with. She decided to not only learn more but

incorporate them into her art instruction. She has done so for over eight years and I recruited her to participate in this study on the basis of her years of interaction and use of Adinkra symbols. Margaret Bates engaes Adinkra symbols in making connections to heritage and culture, decolonization of content, production and promotion of African-centered aesthetics through art, transmission of values, and empowerment in elementary and informal educational settings.

Mawere Ohemeng

Mawere Ohemeng is a Technology and African arts instructor at a private school. He is also a co-founder of a male rites-of-passgae group for adolescent African American boys. Mawere became familiar with Adinkra symbols through a cultural education program organized by his community elders. His interest was piqued and he continued to research and apply the knowledge he gained from his study of Adinkra symbols. I recruited him for this study because I was familiar with the work he was doing with Adinkra symbols in both the school and the rites of passage program. He was happy to participate when approached. Mawere Ohemeng's interaction, engagement, and use of Adinkra symbols are in the areas of making connections to culture and heritage, decolonization, transmission of values, application to other contexts and empowerment in elementary school and community education networks.

Adubea Ohene

Adubea Ohene is a professor of history and adult education whose research focuses on the history of the African diaspora. She is also the founder of a puberty rites program for adolescent African American girls. Adubea Ohene is also the founder of the

largest African American home-school group in the Chicagoland area. She became familiar with Adinkra symbols while studying at the University of Ghana during her time as a student there. She was excited when the Adinkra Dictionary was published immediately upon her return to the United States. This motivated her to further research Adinkra symbols and subsequently apply them in educational contexts. She has used Adinkra symbols in both formal and informal educational settings for over twenty years. I recruited her based on her extensive knowledge and years of Adinkra symbol application in educational contexts. Adubea Ohene's use, interaction, and engagement with Adinkra symbols are in the areas of making connections to culture and heritage, decolonization, transmission of values, empowerment and application to other contexts.

Baba Kumasa

Baba Kumasa is a professor of education and also the cofounder of a rites of passage program for adolescent African American boys. His research explores African and African diasporan social critique and activism. He became familiar with Adinkra symbols through a community-based education program he attended as a young man. Since then he has done extensive research into Adinkra symbols and their applications. He engages Adinkra symbols in both formal and informal educational contexts and is particularly interested in their applications for personal and group transformation. I recruited Baba Kumasa because of his extensive research and knowledge of Adinkra symbols and he happily obliged. Baba Kumasa engages Adinkra symbols and interact with them to make connections to culture and heritage, decolonization, transmission of values, applications to other contexts, and empowerment.

Brian Yaw Lance

Baba Yaw Lance is a former classroom teacher and current school administrator. He has researched Adinkra symbols extensively and has instituted a school discipline policy on its basis. He became familiar with Adinkra symbols when he attended a rites of passage program as a young man. He was so intrigued that he continued to research into them and apply them to his life. He continued to pursue his interest in Adinkra symbols when he became a teacher and introduced them and their applications to his classroom. He later extended it to his entire school and now to a cluster of schools. I put the word out in the community about my research interest and he was recommended to me. I reached out to him to ask him to participate in the study and he responded positively. I recruited him based on his extensive knowledge of Adinkra symbols and the extent to which he has brought them into instructional spaces. Baba Yaw Lance engages Adinkra symbols by making connections to culture and heritage, decolonization, transmission of values, empowerment, and application to other contexts.

Millicent Hollande

Millicent Hollande is an elementary school technology instructor who has found many uses and applications of Adinkra symbols in her classroom. She was recommended to me as a possible participant by Prof. Raymond Eggleston. I recruited her because of her knowledge of using Adinkra symbols in technology instruction. Millicent Hollande is particularly interested in engaging Adinkra symbols and their visual modes, apllying them to other contexts, and empowerment.

Dwayne Ferguson

Dwayne Ferguson is a part-time professor and doctoral student. He is also the founder of a community-based afterschool program. He became familiar with Adinkra symbols as he researched African American culture. The core principles of the program he runs are based on Adinkra symbols, their associated knowledge, and their instructional applications. I recruited Dwayne because of his knowledge of Adinkra symbols and how he has applied them in the afterschool program that he runs. Prof. Ferguson interacts and engages Adinkra symbols in their modes of visualization, making connections to culture and heritage, decolonization, transmission of values and empowerment.

Bob Bryson

Bob Bryson is a professor whose research interests include the intersectionality of culture, class, and cognition with Science, technology, engineering and mathematics (STEM) education. His expertise in Adinkra symbols comes by way of his research on ethnocomputing. Bob has conducted studies into Adinkra mathematics in Ghana and has applied his knowledge and research in classrooms across the United States. I recruited Prof. Bryson because of his extensive research into Adinkra symbols. He was very interested in this study and obliged to participate. Prof. Bob Bryson engages Adinkra symbols for STEM education, decolonization, making connections to heritage and culture, application to other contexts and empowerment.

Procedures

The study involved the recruitment of 11 educators who use Adinkra symbols in instruction to serve as participants for the study. The sample size of 11 was reasonable and justifiable on the basis that it allowed for an in-depth look into the educators'

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interactions with and use of Adinkra symbols. This study involved interviewing educators who use Adinkra symbols to discover why and how they use them in their instruction and the benefits or issues they perceived to accrue from their use.

The educators were recruited using a flyer. I invited them to participate in the study after initial contact was made and a letter of consent was given. The recruits participated in interviews that lasted for approximately thirty minutes to an hour each.

I employed the descriptive or psychological approach espoused by Giorgi (1985, 1994, 2009) and Moustakas (1994). In this approach, the word "description" is used to communicate both what the researcher collects in terms of data from those who have experienced the phenomenon, and the description crafted by the researcher in communicating the invariant meanings emanating from data analysis (Vagle, 2014). The interviews that I conducted with the participants, having drawn from their experiences were critical to the overall description provided. The major steps that I took in alignment with this approach are as follows:

1. The determination of the appropriateness of the phenomenological approach to this research problem. I made the determination that the phenomenological approach is best suited for this study as it is one in which understanding the participants' individual and shared experiences is paramount. The understanding of these shared experiences is crucial to the development of a deeper understanding of the features of interaction with Adinkra symbols.

2. The phenomenon to be studied was identified as educators' perceptions of Adinkra symbols based on their experiences through their interaction with them.

3. As the researcher, I do recognize the importance of specifying the broad philosophical assumptions underlying phenomenology. In this study, the lived experiences of the interactions of the participants with Adinkra symbols and the meaning making that result was focalized.

4. Data was collected primarily through in-depth interviews of participants.

5. The questions that were posed to the participants elucidated their experiences with Adinkra symbols and the contexts in which these experiences have occurred. The outcome of the data analysis led to the development of textural and structural descriptions of the participants' experiences. In analyzing the data, I sifted through the transcripts of the interviews and highlighted "significant statements," sentences, or quotes that yielded information on understanding participants' interactions with the phenomenon, in this case, their perceptions of Adinkra symbols. This provided me with an opportunity to develop 'clusters of meaning' by the identification and categorization of these clusters into themes.

6. I then used these themes in writing a description of the participants' experiences. This description constitutes the textural description of the participants' experiences. The themes were also employed in the writing of descriptions of the context that influenced participants' experiences of the phenomenon in question. This constituted the structural description or the imaginative variation of the participants' experiences with the phenomenon in question.

7. The development and writing of the textural and structural descriptions afforded me, the researcher, the opportunity to write a composite description that constituted the 'essence' of the phenomenon, otherwise referred to as the invariant

structure of the experience with the phenomenon under investigation (Creswell, 2013, p. 81).

Data Collection

This study collected data from in-depth interviews. I entered into dialogue with each participant, gathered the necessary information, reviewed each for clarity, and checked for accuracy of the information relayed through. Interviews were audio recorded, and then transcribed into narrative text and analyzed based on the phenomenological methods presented by Moustakas (1994).

This strategy contributed to the overall strength of this model. The sources of data collection have limitations when used in isolation. Secondly, the use of more than one method in most situations provided a better and more complete picture of a situation or phenomenon than a single method by itself (Kumar, 2019). My reasons for adopting multiple sources lies in the fact that doing so set the tone for the study to be of high quality, provided me with the wherewithal to explain my findings, and make assumptions related to the essence of the experiences of the educators serving as participants in the study. The audio recordings were carefully transcribed after I conducted the interviews. I then read the transcripts and listened to the recordings multiple times, after which I identified statements of significance shared by the participants that were at the center of their experiences with Adinkra symbols.

I coded the statements and established categories for them. The outcome was the development of non-repetitive themes arrived at through a data horizontalization process. By identifying these themes, I was able to develop the textural and structural descriptions of the interactions from which the themes emerged. The textural and structural descriptions were interpreted to provide a composite description of what constitutes the

essence of educators' perceptions of Adinkra symbols. In-depth interviews offered me insight into how the participants engaged Adinkra symbols and what the implications of such interactions are for literacy. Participant interviews were crucial in eliciting the meanings they derive from, and attach to their interactions with Adinkra symbols. It also affirmed the importance of other modes of communication to instruction.

Collecting field notes and observations

I recorded audio interviews of participants' interactions to determine possible emergent themes, categories and patterns. I made notes of keywords used by the participants and gave names to themes in the data. Identifying categories, themes, and patterns also brought forth the connections and meaning making that participants derive from interacting with Adinkra symbols. The interviews provided me the opportunity to record information about participants' experiences and meaning making transactions with Adinkra symbols.

Interviews

Interviews of participants formed the core of the process of ascertaining the essence of the educators' experiences with Adinkra symbols and the meaning-making that stemmed from their interactions. Interviews included face-to-face, and telephone interviews. By so doing, I was able to access historical information, and maintain control over the questioning and interviewing process. The questions asked sought to unravel how participants used Adinkra symbols in their professional practices, when they began using them, and what they found interesting and creative about using them (see Appendix II). I conducted the interviews by using an interview protocol with open-ended questions like 'Tell me about your use of the Adinkra Symbols,' 'What is particularly interesting or

creative about your use of the Adinkra Symbols?' 'How did you start using the Adinkra Symbols?' and 'Tell me about your central concerns in using the Adinkra Symbols in your professional practice, among others. Probing questions were also asked, for example, 'Can you tell me more? Can you expand on that a little?' During the process I strived to maintain a stance that was both open and reflective and sought clarification from interviewees when necessary. The interviews were audio recorded and transcribed by a web transcription service. The interviews were characterized by an atmosphere that was receptive and open and usually lasted between 30 minutes to 60 minutes.

Data analysis

The data analysis process was initiated during the data collection phase. The audio from the interviews were first transcribed and then coded. The initial coding yielded a total of 234 codes. These codes were then grouped into 13 different categories. Process coding (the use of gerunds) was used. The codes were then linked based on their relation to other codes, for example; codes such as 'decolonizing modalities' and 'decolonizing education' were linked on the basis of decolonizing modalities being *a part of* decolonizing education. The codes and their associated quotations were at this point revisited to determine which of the research questions each one of them answered. The 13 groups or categories formed the basis from which themes were developed. Closely related groups were merged into a single group. This process of analyzing the data involved "the movement from narrow units of analysis such as significant statements to broader units of analysis such as units of meaning, and the giving of detailed descriptions" (Creswell, 2013, p. 187). Data analysis was conducted simultaneously with the data collection (Miles, Huberman, & Saldaña, 2014). In analyzing the data collected, I reduced the information gathered from the interviews into significant statements after

which I categorized them into themes. As such, the collected data was first assembled, and then reduced to identifiable patterns, categories, or themes. The themes that emerged provided a basis for a detailed description of the phenomenon. Upon completion of this phase of data analysis, I developed a textural description of the experiences of the participants in their interactions with Adinkra symbols, as well as a structural description of their experiences in terms of how they interact with the Adinkra symbols and in which contexts. Finally, a composite of the textural and structural descriptions was developed to relay the general 'essence' of the experience of the educators' interactions. Five themes emerged that constitute the 'essence' of Educators' perceptions of Adinkra symbols.

Coding Procedures and quantifications

I utilized the ATLAS ti program for coding. This enabled me to identify themes, categories, similarities, differences, and patterns in participant interactions with Adinkra symbols. I also used memoing which permitted me to make conceptual leaps from the raw data to the abstractions that explain the Educators' perceptions of Adinkra symbols as a phenomenon within the contexts of meaning making and experience. The use of memoing also provided me an opportunity to use as an analytical strategy throughout the research process (Charmaz, 2006; Glaser & Strauss, 1967). Memoing enhances data exploration, enables continuity of conception and contemplation, and also facilitates communication. An advantage of the use of memoing to the research process lies in its flexibility as a strategy in the construction of content that is determined by the researcher's objectives and aims for the study. In addition to the procedures outlined above, I developed *a priori* codes from the theoretical framework for deductive and inductive analyses performed during data analysis. The theoretical framework guiding this study is African-centered theory. Some *a priori* codes from African-centered theory

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are as follows: socially constructing, historicizing, experiencing, creating, self-reliance, self-determining, liberating, decolonizing, indigenizing, non-hegemonizing, grounding, marginalizing, centering, developing, connecting, philosophizing, orienting, perceiving, dislocating, respecting cultural integrity, communalizing, and Africanizing. These a priori codes, together with emergent codes served as guides for interpretation and the analysis of the data collected.

Thematic analysis

Thematic analysis refers to "a method used for identifying, analyzing, and reporting patterns or themes within the data sets" (Liamputtong, 2009, p. 1). It involves performing searches across the data set to find repeated patterns of meaning.

I performed a thematic analysis to identify and analyze themes and patterns that emerged from the data. I did this by first reading through each transcript and trying to make sense of the interview data. I then examined the data to determine what was being said by each of the participants first, then as a group. This was done with the purpose of finding repeated patterns of meaning. The coding process played a major part in the thematic analysis. In performing the thematic analysis, I performed initial and axial coding to allow for the deconstruction of the data, putting the data into codes, and finding links that exist between them. This also permitted me to determine the codes that emerged as the more dominant and as such more representative ones in relation to the less dominant codes. The performance of axial coding (Strauss & Corbin, 1990, 1998) permitted me to connect the different codes that were identified in the initial coding into main categories and sub-categories. This afforded me the opportunity to identify themes in the data. After this, the initial codes were collated into tentative themes. The data was

examined at the individual level for the performance of structural, textural analysis, and thematic analysis. The textural description sought to find answers to the question "What happened"? or "What aspect of the use of Adinkra symbols do you focus on"? The structural description sought to draw from educators' answers to the questions "How did it happen"? or "How do you use Adinkra symbols"? The identification of textural and structural themes provided a basis for the development of a composite overall description.

Table 5 - Representing Data in Phenomenology

Data Analysis and Representation	Phenomenology
Data Organization	Create and organize files for data
Reading	Read through text, make margin notes, form initial codes
Describing the data into codes and themes	Describe personal experiences Describe the essence of the phenomenon
Classifying the data into codes and themes	Develop significant statements Group statements into meaning units
Interpreting the data	Develop a textural description, "what happened"? Develop a structural description, "how" the phenomenon was experienced Develop the "essence"
Representing, visualizing the data	Present narration of the "essence" of the experience; in tables, figures, or discussion.

Source: Creswell, 2013

Table 6 - Coding and Memoing Procedures chart
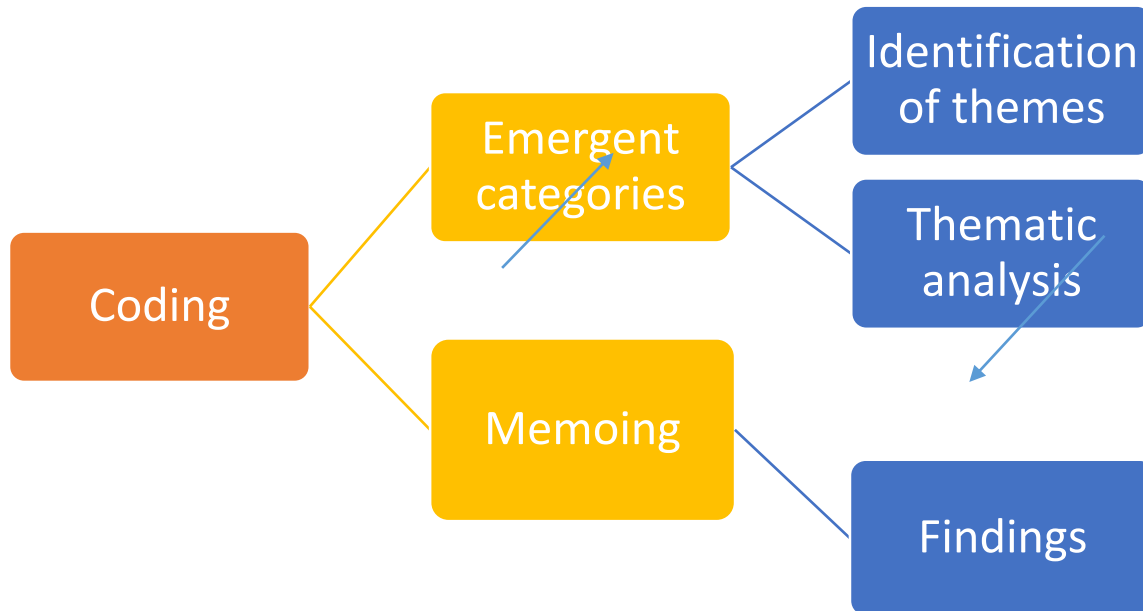
Validity and Reactivity

        I identified two issues that potentially posed a threat to the validity of the study. These issues are researcher bias and reactivity. In maintaining the integrity of the study, the position of the researcher and its attendant bias vis-a-vis the study must be declared. I was born and raised in Ghana and as a result is very familiar with Adinkra symbols. I have also taught in the U.S. and witnessed first-hand Adinkra symbols being used in classrooms and other educational settings. I have identified bias as a potential validity threat particularly as it pertains to the possible development of spurious associations and premature theories from this study. This is partly owed to the familiarity that the researcher has with Adinkra symbols from having connections with its locus of origin. In seeking to significantly reduce the effect of bias and its possible threat to the validity of

this study, I opted for the collection and production of rich data. In this regard, I transcribed interviews verbatim (Maxwell, 2013; Emerson et al, 1995; Becker, 1970) and buttressed that with a 'thick and rich description' (Geertz, 1973, 2008) of participant cases and themes that emerged from the data.

Secondly, I proceeded to analyze the data collected with as much of an unbiased mind as possible. I consistently re-evaluated participant responses and also asked questions of a general nature first and then followed them with more specific questions, and refrained from using leading questions so as not to prompt the interviewee in any particular direction. I also attended to the analysis of participants' experiences and refrained from making judgments during the process. Finally, I asked for confirmation of data from interviewees to ensure that I understood and was conveying what they had expressed. This approach referred to as 'member checks' allows for systematic feedback about the data and conclusions are sought from the participants (Maxwell, 2013). This greatly aided in ruling out any possibility of misinterpretation of the participants' meanings and actions, as well as their perspectives of their meaning making experiences. Participants confirmations are given in the section entitled 'member checks' in the next chapter.

In combating possible threats to the validity of this study, I requested peer reviews of the methods and analysis used in the investigation. This was beneficial to the goal of giving an accurate interpretation of the data (Lincoln & Guba, 1994). In line with this mode of action, I held discussions with my advisor, committee members, and colleagues and a compilation of the resultant commentary was employed.

In dealing with the possible threat of reactivity, I communicated (either in person, by phone, or email) with the participants prior to interviewing for the purpose of familiarizing myself with the participants and vice-versa. This was to enable the interviews to be conducted in an atmosphere in which the participant felt comfortable and unhindered in any way by the presence of the researcher.

Summary

In this chapter, I have described the intentionality with which I constituted the design of my research. To this end, I have discussed the ontological and epistemological perspectives that informed this study. The situatedness of meaning making within social and cultural contexts is emphasized and discussed within the framework of African-centered theory, as well as a justification to pursue a phenomenological study that involved an inquiry into the lived experiences of the participants as they pertained to their interactions with Adinkra symbols. The methodology of choice, the conduct of interview, was discussed as being an apt choice for data collection along with considerations in dealing with potential threats to the study's validity and reliability.

CHAPTER 4: FINDINGS

Key Findings for Research Question 1

What is the essence of the lived experience of educators using the Adinkra symbols in their professional practice?

The interviewees were asked questions pertaining to how they became familiar with Adinkra symbols and how they use them for imparting knowledge to their students. This permitted each interviewee to express (a) how they experienced interacting with Adinkra symbols, (b) what they valued about them, and (c) why they found Adinkra symbols important for their instructional delivery. Additionally, the contexts in which they were used, that is both formal and informal educational settings, were discussed. Central to the discussion was the educators' recognition of the relevance of cultural grounding for "real" education. Real education occurs when the individual is educated as a 'whole.' To do so, the cultural and historical experiences of the learner have to be taken into account (Bruner, 1996; Ladson-Billings, 2000).

The phenomenon "the experience and use of Adinkra symbols in professional teaching practice" was expressed in an essence comprising five emergent themes. These themes are:

1. Decolonizing content (Challenging Eurocentrism)

2. Empowering learners through Adinkra symbols

3. Bridging culture and education

4. Connecting the visual mode of Adinkra symbols to learning, and

5. Transmitting values through Adinkra symbols.

Each theme is discussed below using de-identified participant quotes to illustrate and elaborate on the emergent themes.

The participants identified the need for situating their learning in the cultural setting from which their learners of African descent come. There were some participants who became familiar with Adinkra symbols because they sought to ground themselves in an African cultural framework, and consider using Adinkra symbols as a means for situating students' learning in a culturally grounded way. In expressing how he grounds his students in African culture by using Adinkra symbols, Raymond Eggleston (in interview # 1) said,

> I continue to use them in my own teaching to talk to graduate students about ethno-mathematics and ethno-computing, and to give that example about how we can introduce African mathematics to young children here in the United States. At one time we wanted to teach mathematics and computing in culturally responsive ways that can speak to where students are coming from. We also wanted to introduce students to African mathematics. We wanted to show students that mathematics was not something that was invented or discovered by Europeans but has African origins. So, I would say that at one time we are trying to show that, embedded within culture are mathematical and computational concepts but you know, the other part of it, and this was probably a little less explicit, showing that computing which is often framed as neutral and apolitical is also cultural. So, you know, for my own work I'm interested in not only how culture is computational, but how computing and computer science is cultural.

In this quote, Raymond Eggleston (in interview # 1) also shows how he has intentionally moved beyond just discussing the importance of culturally responsive teaching to showing the African origin of mathematics and the cultural basis of computing (Bishop & Glynn, 1998; Lave, 1988). One way that he does this is by using Adinkra symbols to show the mathematical concepts embedded in them, and how cultural forms inform the basis of computational and computing systems.

Using and Interpreting Adinkra symbols in context

The original makers and designers of Adinkra symbols were very intentional about what they are and what they represent. Adinkra symbols are dynamic and the ones highlighted in the various contexts by the educators using them are dependent on the context in which they are used. Adinkra symbols, having been introduced into the cultural landscape of people of African descent in the United States, particularly by way of the practice of *Sankofa*, serve as a tool of cultural literacy in their own right. These symbols are frequently used in African high ceremonies across the United States. High ceremonies include college and other graduations, funerals, weddings, and other such events of importance. The use of Adinkra symbols among people of African descent in the United States reflects the thirst of the community for culturally relevant philosophies that characterize the diverse elements of Black life in the wider society (Temple, 2010). This notion of the thirst for culturally relevant philosophies characterizing elements of African-American life came up during my interviews. In the words of Mawere Ohemeng (in interview # 1),

> I think the diaspora and especially in the United States context, when you talk about people who've been stripped of that, and unfortunately because we'd been stripped of this for so long, we were hungry for anything, … and so for me as an educator, as a Pan Africanist, whatever term you want to use, like, hey, we have our own thing that we can pull from. Why not use this? Why not? I mean, it's a simple question, why not? … Now let's dig deeper… Now let's talk about what does this really mean? So, the Adinkra symbols in that same regard serve that same purpose, that's returning back to the source and we might find new interpretations based on the new situations that we find ourselves. But it's rock solid. It's actually supposed to be.

In the quote above, Mawere Ohemeng (in interview # 1) explains his use of Adinkra symbols as a response to the hunger for cultural representation in the African-American community. He continues by making the point that the symbols may have new

interpretations in new contexts but it does the job of connecting the people to their

cultural and historical source, in this case, the African worldview.

Decolonization

Visualization

Culture

Educators'
perceptions

Values

Power
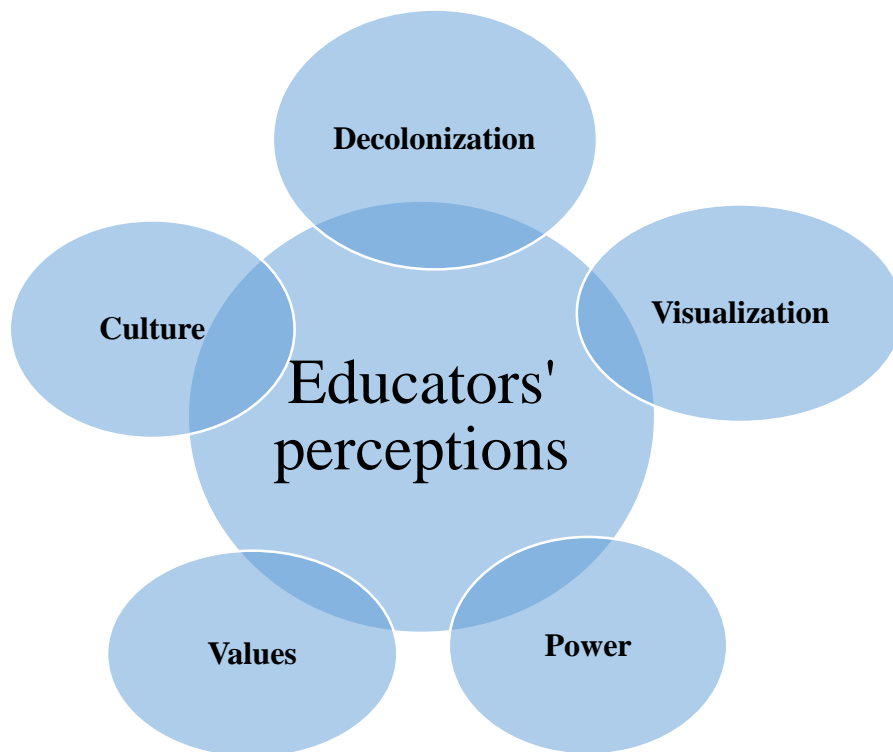
Figure 11: The figure above depicts the themes emerging from Educators' perceptions of Adinkra symbols.

The figure above depicts the relationship and inter-relationships that exist between

educators' perceptions and use of Adinkra symbols and the themes that emerged from the

data. These themes are not mutually exclusive. By that I mean that even though an

educator may choose to use Adinkra symbols with the sole purpose of decolonizing the content of the curriculum, he or she may end up empowering the learners by so doing, and transmitting the values that are integral to Adinkra symbolic expression to them as well. At the same time, the learners will interact with a visual symbol which is culturally situated and affirming. What is at the core of the diagram above is educators' use of Adinkra symbols. The focus of this study was on the perceptions educators who use Adinkra symbols have of them. The five themes that form the outlying circles in figure 11 are themes that emerged from the analysis of the data collected. I put this in visual form to aid the reader in comprehending how these themes are interrelated and how they all stem from participants' perceptions of their interaction and use of Adinkra symbols.

Emergent Themes

Challenging Eurocentrism by Decolonizing content

Decolonization refers to the actions and processes needed to withdraw from what was imposed by colonial masters on our populations with the aim of becoming independent. This independence includes that of thought and ideas. Wiredu (1998) defines decolonization as "divesting African philosophical thinking of all undue influences emanating from our colonial past" (Wiredu, 1998 p. 1). In as much as colonialism (slavery included) was a political imposition, it was also a cultural one (Wiredu, 1998). The impact of colonized narratives has severely limited the onto-existential locations and outcomes of colonized peoples (Abdi, 2012). This form of education is deformative in that it offers primacy to European epistemologies while at the same time inferioritizing the African worldview, epistemologies, styles of expression and forms of description (Abdi, 2012; Achebe, 2000; wa Thiongo, 1986, 2009).

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Decolonization thus seeks to problematize and interrogate vestiges of colonial education in contemporary teaching and learning spaces.

Eurocentrism on the other hand may be defined as "the proclivity to perceive, construct, and understand phenomena such as reality, behavior, and theory from a predominantly Euro-American or white cultural perspective" (Naidoo, 1996, p. 3).

The intentional use of Adinkra symbols by educators hinges on their pursuit of decolonizing curriculum content and challenging the notion of Eurocentrism by providing culturally situated instructional tools for use by the learner in an African cultural and historical context.

In this book, *The Miseducation of the Negro* (Woodson, 1933), Woodson discusses the fundamental problems pertaining to the education of the African person in America. Woodson asserts that African-Americans have been educated away from *their own culture and traditions* and have been attached to the fringes of European culture; resulting in total dislocation from themselves (my emphasis). Woodson affirms that African-Americans often glamorize European culture to the detriment of their own heritage. Woodson advocated for situating African-American education within the wider African cultural-historical framework. Woodson posited that African-Americans taught in the cultural context of Europe would suffer a psychological and cultural death. By this he means that they will become a people living on the margins of European experience and devoid of original thought. This lack of original thought will produce an outcome of a cultureless people (Woodson, 1933). Kambon (1999), espouses a similar sentiment. According to Kambon (1999), the questions of culture with regard to any cultural group, are rooted firmly in worldview. Worldview is a representation of a racial-cultural group's

natural conceptual positioning, standpoint, or perspective on, and construction of reality

(Ibrahim & Heuer, 2016; Kamalu, 1990; Gyekye, 2010). This worldview is the

determinant of the meaning one attaches to events that occur in day-to-day existence; it

informs one's definitions, concepts, values, and beliefs. The worldview of a cultural

group determines how individuals in that group perceive and respond to various

phenomena that are characteristic of the ongoing process of everyday existence within

one's culture, including learning (Kambon, 1999; McDougal, 2009). The participants

expressed that their choice of using Adinkra symbols in their instruction stemmed from

their desire to pose a challenge to the dominant Eurocentric content and to eventually

decolonize it. Words directly related to *decolonization* (including decolonization,

decolonize, and decolonizing) were used 36 times by participants. One such use by

Raymond Eggleston (interview # 1) is reflected in the quotation below:

> So, I wanted an alternative way to be able to think about that. I think if you try too
> hard to fit your mathematics into current classrooms, you're not really making any
> change… And when that happens, I get this picture in my mind, I'm kind of a visual
> thinker, I get this picture in my mind of one of those mazes that they run in my
> school in psychology experiments, and there's cheese at the end of the maze.
> There's a little reward, right? … There's an old movie about an English nanny
> called Mary Poppins, are you familiar with that movie? So, there's a song she sings
> in there, 'a spoonful of sugar, helps the medicine go down'… that you could
> sprinkle a little sugar coating on things that are bitter. So, whether it's thinking
> about culture as the cheese at the end of the maze or thinking about it as the sugar
> coating of the lesson, I feel like that's a very thin use of culture in the classroom. I
> don't want to use culture to trick the kids into learning mathematics… What I want
> to do is decolonize mathematics.

In this quote, Raymond Eggleston explains that even though he is in agreement with the

notion that a subject like mathematics needs to be decolonized, what he does not want to

do is to use Adinkra symbols as a bait for getting students to like mathematics and having

it end there. Cultural tools, in his perspective, must be employed to their fullest extents,

and in this case be used to decolonize the subject mathematics. Decolonization here means looking at mathematics through a specific cultural lens concomitant with the historical background of the learner, and with the emergence and development of mathematical concepts in that culture and its contemporary applications.

Attempts at decolonization were also seen as an integral part of the *anti-racist stance* of the educators who use Adinkra symbols in instruction. Matthew Langston (in interview # 1) expresses a similar view in the following quote,

> I often explain as a part of an anti-racist agenda to show that mathematics is not a European invention or discovery depending on your epistemological orientation. …but as something that is rooted in how humans think and build the material world around them.

From the perspective of Matthew Langston, all humans think in mathematical ways and as such one will find mathematics when one delves into a culture. In other words, mathematical concepts can be explained through cultural artifacts, one just has to look for them.

One factor determining educators use of Adinkra symbols in instruction has been the intentional combatting of prevailing stereotypes. Here, educators use Adinkra symbols to demonstrate to students that subjects such as mathematics are embedded in their cultural expressions. Matthew Langston (in interview # 1) expresses the intentionality and purpose of such actions in the quote below.

> There are stereotypes that African American and Black Children are not good at mathematics. And the history books where we ground the history of mathematics in Europe doesn't help with that. So, one of the goals of the project we have making the Adinkra software is to, one, challenge the Eurocentrism of mathematics, historically, and two, provide students with a glimpse into non-European mathematics… and so this, the stereotype that I mentioned earlier is rooted in discourses of Primitivism, which, not only have contributed to colonialism and settler colonialism, and the erasure of physical culture, but have contributed to the erasure of epistemology. I want young African American

children to recognize that mathematics is part of their heritage. So, that challenges the myths of genetic determinism.

Matthew Langston, in this quote not only emphasizes the need to challenge prevailing stereotypes on the inability of learners of African descent to learn mathematics but also to decolonize the notion of Europe as the historical home of the development of mathematics. Other prevailing stereotypes that Matthew Langston challenges with his use of Adinkra symbols are discourses that have their origins in the notions of "African Primitivism" and colonialism. These stereotypes have led to the inability of people of African descent to leverage resources such as their sense of cultural agency (King, 2004, 2015). The participants of this study use Adinkra as symbols to highlight for learners of African descent their multifaceted character and to reflect the intelligence of African people prior to colonization, slavery, and in contemporary times. In discussing the importance of such an engagement and use of Adinkra symbols, Matthew Langston (in interview # 1) explained his motivation for using Adinkra symbols in educational settings in the quote below:

> Ultimately the importance of showing African mathematics in US schools through Adinkra is to challenge myths of primitivism, then challenge the myths of genetic determinism, this idea that your race or ethnicity is linked to some genetic determinant of intelligence. So, I think challenging primitivism, challenging the myths of genetic determinism…these are high level motivations for bringing Adinkra as a form of African mathematics into the classroom.

Here, Matthew Langston also seeks to express his rationale for using Adinkra symbols as an instructional tool. He uses Adinkra symbols to show students that they do not belong to a racially inferior or unintelligent culture.

In challenging these myths of primitivism and genetic determinism by positioning the use Adinkra in an anti-racist stance, participants pointed out that one does not use

culture simply to bait students into engaging subjects but to intentionally decolonize

education in all its aspects. The idea of genetic determinism is one that held sway for a

while. It proposes that genetic factors (otherwise referred to as 'race') are alone

responsible for the outcomes and behavioral traits of human beings. The idea of African

primitivism, the notion of an unintelligent people, unsophisticated and operating at the

most basic level of human ability was espoused by many historians and academicians,

including Hegel's *Philosophy of History* (1956) in which he describes African people as

"childish," and as displaying "the most reckless inhumanity and disgusting barbarism"

(Hegel, 1956, p. 92). These are the kinds of ideas that educators who use Adinkra

symbols challenge. Raymond Eggleston (in interview # 2) expressed this notion in this

way:

> The lessons that we gained from Adinkra is not just a matter of reducing this to
> mathematics and saying, oh, look, now we're making culturally relevant math
> lessons as if it's cheese to lure the kids through the maze. It's really a far-reaching
> critique of how contemporary industrialism has been set up…and then asking how
> do you decolonize that at every level and in every modality, not just decolonizing
> in terms of a very surface, a trick so to speak…

Raymond Eggleston, in the quote above expresses his perception of Adinkra

symbols as not being limited to doing culturally relevant mathematics per se but also as a

critique of the development and establishment of contemporary industrialism while

simultaneously seeking solutions that will result in the decolonization of Eurocentric

mathematics and contemporary industrialism in all modalities.

Adinkra symbols, in the expression of these educators who use them, is a tool that

is purposefully used in the decolonization of educational content and curricula.
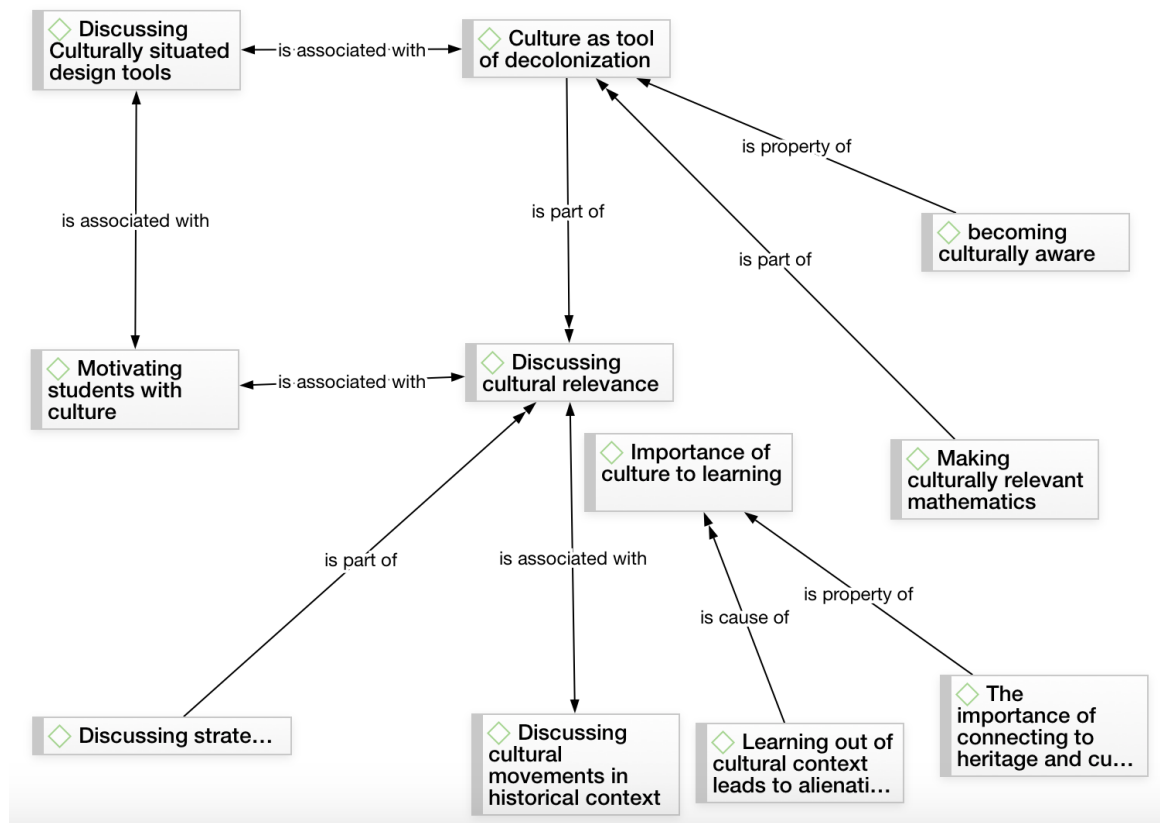
Figure 12: The figure above was created using ATLASti and it links connected codes that emphasize the relationship between culture and education.

The figure above depicts the role of culture in the education. All of these links

stem directly from data collected from participants in this study. The Image was created

from codes developed from participant data. The initial and secondary coding was done

using the software program ATLASti. Process coding was first used. These codes were

then grouped into categories and linkages between them established on the basis of the

data. The links to the codes were established through the Relationship Manager feature of

the ATLAS.ti program. At the center of this figure is the relevance of culture to

education. Culture is relevant in educational spaces when it is imparted through historical

and social lenses hence the association between "discussing cultural relevance" and

"discussing cultural movements in historical contexts." In both mainstream and informal educational settings, the relevance of culture can be effectively actualized when educators are intentional about it and as such apply strategies that ensure desired outcomes. All the participants in this study were of the view that such strategies must be integral to culturally relevant pedagogies hence the linkage between "discussing strategies" and "discussing cultural relevance." The question that needs to be asked is "what are some factors that actuate educators to use the cultural lens in instruction"? One of such factors that emerges from the data is the need for motivation (Desi, Koestner, & Ryan, 2001). Learners can be motivated by cultural tools like Adinkra symbols. These same cultural tools may be used as tools of content decolonization as emphasized by Raymond Eggleston (in interview #s 1 and 2) and Matthew Langston (in interview #1). They explain the mathematics behind Adinkra symbols and how they use this to connect their students to their mathematical heritage and culture. Teaching mathematics through a cultural lens is also an intentional effort at deconolization of not only the content but also the mind (Chinweizu, 1987) of the learner. The learner is thus made "culturally aware" by the intentional situating and use of cultural tools that connect him or her to his or her heritage and culture. It is for this reason that culturally situated tools are depicted as being directly linked to "Culture as a tool of decolonization" in Figure 30 above. It is also worthy of note that culture is relevant to education also because when learning occurs outside the cultural context of the learner, it leads to alienation, alienation of one's self and also from one's culture (Shizha, 2005). This point was made by Baba Kumasa (in interview # 1). In the figure above, this discussion on alienation is linked to the importance of culture to learning because when the cultural lens is used, opportunities are

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provided for the learner to connect with his or her heritage thereby erasing the outcomes

of alienation associated with learning outside one's cultural context. The figure above is

thus a summation of the different emanatory aspects of culture in education and how

these are connected.

Empowering learners through Adinkra symbols

Centuries of acculturation (the intentional and methodical assimilation into a

different culture, usually the dominant culture) and cultural deprivation (the outright

banning and discouragement of use of cultural expressions other than those of the

dominant culture) have resulted in a situation of alienation in terms of the content as well

as the concepts taught to learners of African descent (Dei, 1994). Adinkra symbols

present a source of empowerment for both educator and learner (Dei, 2015; King, 2015).

This is the premise of African-centered theory which argues that educating a learner by

situating their learning experience in cultures other than theirs is disempowering (King,

2015; Verharen, 2003; Ladson-Billings, 1995). In the words of Mawere Ohemeng (in

interview # 1);

> Liberation has to start where we start developing [and] start using our own
> concepts… [concepts] that speak to us.

Mawere Ohemeng expresses here that education is a part of the struggle for freedom and

that one way to actualize this is to use artifacts and concepts that are rooted in the African

experience both culturally and historically, and more specifically in its epistemology,

ontology, and axiology.

Educators are here being urged to pursue a model for truly educating the learner

of African descent by using cultural concepts that affirm their humanity. To do this, there

must be a deliberate effort at decolonizing not only the curricula but also education writ

large (Abdi, 2012; Chinweizu, 1987; Chinweizu & Jemie, 1987). Decolonization is a

principal endeavor in the education of marginalized peoples because colonization was

first and foremost a psycho-cultural and educational undertaking. It was an organized

mental de-patterning, and to rectify its effects, an organized re-patterning in the form of

decolonization must take place in educational settings. The epistemic perspectives and

philosophical constructions of the different peoples of the world should be used as tools

in the deconstruction of colonial philosophies and in the affirmation of the identities and

existentialities of the population of learners of African descent (Abdi, 2012). Education is

a social activity that always has a social purpose (Nyerere, 1975). It is for this reason that

Nyerere (1968, 1975) defines the purpose of education as the transmission of a culture's

wisdom and accumulated knowledge from one generation to the next as a means of

preparing the oncoming generation for their future membership into the society and their

active participation in its development and maintenance (Nyerere, 1968, 1975). The

thrust of the decolonization effort is therefore predicated upon the overthrow of the

authority exercised over the African mind by alien traditions. This effort requires the

dismantling of structures that uphold colonizing worldviews in the educational sphere as

well as in all aspects of life (Chinweizu, 1987; Fanon, 1967). The primary purpose of

education for marginalized, oppressed, and colonized people is their liberation (Fanon,

1967; Nyerere, 1975; Freire, 1968). A person can be physically free but still be unfree

because of limitations to his humanity placed on his or her mind as a result of the

acquisition and maintenance of attitudes and habits that stem from colonization,

oppression, and marginalization. Education must liberate both the mind and body of a

person, it has to enable an individual to break free from the obstacles to his or her full

mental and physical development (Nyerere, 1975). According to Nyerere (1975), "education has to liberate the African from the mentality of slavery and colonialism by making him aware of himself as an equal member of the human race, with the rights and duties of his humanity" (Nyerere, 1975, p. 5).

It is only then that the learner will be able to function in society as a truly liberated person, free from the dominance of the worldview of other cultures. Mawere Ohemeng (in interview #1) emphasizes the importance of being intentional about using culturally situated learning tools, Adinkra symbols in this case, as artifacts of decolonization (Donald, 2009) and the empowerment of learners that occur through such an act.

> So, if we're going to continue to use these other symbols, we're not working towards liberation…you're working towards our continued slavery and oppression because of using their symbols or deciding to do so. Yes, by definition, because they're ours and they come from our perspective, our multi-verse view, by their very nature, they are revolutionary. "I think, I see." To be an advocate is the most revolutionary act. It has to be intentional.

The point being conveyed by Mawere Ohemeng here is that the symbols of one's culture are intrinsic to one's learning and must be part of one's education (Milner, 2010), these cultural symbols must serve as artifacts of decolonization in contemporary education settings (Donald, 2009; Abdi, 2012; Dei, 2016). An example is given below about how Dr. Karenga, to whom the origin of the Kwanzaa holiday is attributed by historians and culture pundits (Karenga & Karenga, 1998; Hoyt-Goldsmith, 1993; Mayes, 2009) about his intentionality in setting and aligning an Adinkra symbol with each day of the seven-day holiday. Using symbols from the African cultural milieu to bring meaning to principles of Kwanzaa for the holiday celebrants is a deliberate act of empowerment. In the quote below, Mawere Ohemeng explains how the use of cultural symbols in general

and Adinkra symbols in particular are acts of empowerment. Mawere Ohemeng continues in the following quote as he makes a case for the empowerment of learners through the use of cultural artifacts like Adinkra symbols. He came to this realization through his experience with Adinkra symbols, an experience that he draws on in instructional spaces.

> So, my example is based on the fact that, maybe people who disagree with Dr. Karenga, as interesting as he is as a character, is a part of our history. I think he saw the writing on the wall because he developed the principles back in the 60s, right…and kind of just put it together from what he understood then, but then he revised it and put an Adinkra symbol with each one. So, my point is that he saw that there's power in it and that he, I don't know if he admitted it or not, but he basically said by reissuing it, he saw the connection that can be made using something. He didn't have to reinvent the wheel.

Mawere Ohemeng (in interview # 1) who expressed this sentiment makes it a point to show how Dr. Karenga revised the principles of Kwanzaa and deliberately aligned an Adinkra symbol to each principle. This act, according to him, was to situate the principles directly in African cultural expression and to empower Kwanzaa holiday observers in that way. At a time when cultural expression was being emphasized for the living and future generations of African-Americans, Dr. Karenga found it necessary to use affirmative Adinkra symbols for the principles that informed a holiday that affirmed the humanity of the African-American people. This was an act of empowerment and education.

Adinkra symbols have also been adopted by educators to exercise the agency of leaners and in so doing they are taking an anti-racist stand. As an educational strategy such an approach targets the marginalized group, in this case, learners of African descent. This demonstrates the power they possess by means of their cultural capital. Dwayne Ferguson (in interview #1) explains this in the following way;

> The origins of it all still come from Africa…and I think that's important for folks to always recognize [that]. And because of that, the diaspora needs to exalt the indigenous practices as much as we can that come from there. And I think Adinkra

symbols, in the copying of it, and the different way you can like draw and express Adinkra with all the different ways, it allows a certain type of communication that spans across the diaspora… Right, without even having to speak English language. I think that if folks brought that more to the collective consciousness, it would have extreme power.

Dwayne Ferguson here makes the point that there is a connection that all users of Adinkra symbols across the African diaspora have. This connection is made manifest in their understandings of the messages conveyed by the Adinkra symbols and their language functions (Arthur, 2017).

In expressing the connection between power and the use of cultural symbols like Adinkra symbols, Margaret Bates (in interview # 1) asserts;

So subliminally, …it does something to the psyche. It's very powerful…it really talks to the empowerment of Black folk.

Empowerment, in the expression of Margaret Bates, begins in the mind and the use of cultural tools like Adinkra symbols pave the way for those who interact with them to be empowered (Boateng, 2011).

Bridging culture and education

Culture is all-encompassing and includes the values, customs, beliefs, communication patterns, and aesthetics of a society or group and is passed down from generation to generation (Parillo, 1990). The culture determines the guidelines by which information is selected, attended to, and interpreted (Geertz, 1973). Culture therefore informs and affects the learning process (Chita-Tegmark, Gravel, Maria De Lourdes, Domings, & Rose, 2012; Darling-Hammond, 2019). Culture, when defined by an emphasis on its influence on learning may be viewed as being conceived of as inclusive of all of human activities acquired by learning or in other words, "the acquired activity complexes of human groups" (Wissler, 1916, p. 195). In the same vein, culture may be

defined as inclusive of "all behavior patterns that are socially acquired and socially

transmitted" (Hart & Pantzer, 1925, p. 705). Steward (1950) gives an expansive

definition of culture in the quote below as:

> "…learned modes of behavior which are socially transmitted from one generation
>
> to another within particular societies and which may be diffused from one society
>
> to another" (Steward, 1950, p. 98).

While the definitions above highlight culture's impact and influence on learning, Park

and Burgess (1921) give a definition of culture as:

> "…the sum total and organization of social heritages which have acquired a social
> meaning because of racial temperament and of the historical life of the group"
> (Park & Burgess, 1921, p. 72).

Yet, culture is informative of our funds of knowledge (Gonzales, Moll, & Amanti, 2006)

that inform how we learn and the foundation upon which our learning is built and

developed. This notion is expressed by Groves and Moore (1940) in the quotation below:

> "Culture is thus the social heritage, the fund of accumulated knowledge and
>
> customs through which the person "inherits" most of his behavior and ideas"
>
> (Groves & Moore, 1940, p. 14)

From the definitions above, I surmise that the culture of a people, includes its artifacts,

accumulated knowledge, customs, and traditions, and that all of these inform the

worldview of the learner which in turn informs their learning. Culture can be said to be

the foundation of all learning.

The relationship between culture and education is also important in so far as it

reflects the relationship between culture and the socioeconomic conditions related to the

culture of the learners of African descent. The so-called at-risk conditions associated with

learners of African descent will continue to persist until this relationship is recognized (Grande, 2015).

Researchers have been highlighting the importance of the manner in which children learn (Castaneda & Gray, 1974; Cohen, 1969; Shade, 1982, 1983). It has been argued that African-American learning has been impacted and influenced by cultural customs that have been transported from communities in Africa (Anderson, 1988; Hale-Benson, 1986). The African-American church and the family have played a role in ensuring such continuities (Hale-Benson, 1986).

The importance of culture to the education of learners of African descent was cited as one of the principal reasons why Adinkra symbols is being used in education. To this end, participants discussed the essentiality of culture to the education of the whole learner. There were 42 mentions of words related to culture (These terms are 'cultural,' 'culturally-responsive,' culturally sustaining,' and 'culturally relevant') by participants during interviews. Ten participants expounded on the necessity of using African cultural symbols and artifacts in the education of the learner of African descent. More specifically, they highlighted the use of Adinkra symbols as an integral part of the role that culture plays in education. In the words of Mawere Ohemeng (in interview # 1) quoted below, the use of Adinkra symbols has an effect on the development of the learner of African descent. This effect is directly aligned with the identity of the learner and is a direct outcome of the perception of the educator interacting with Adinkra symbols.

> So, we've developed our own paraphernalia that has been front and center saying this is who we are and this is what we were trying to be about, and this is the way that we're going to practice. So, in other words, the more they see the symbol, the more they develop mental concepts and the more they develop themselves as opposed to outside of themselves.

The quote above expresses the notion that Adinkra symbols as a cultural tool aids the learner to develop mental concepts that are steeped in their culture and that is directly linked with their identity.

In expressing a similar sentiment on why it is important to use cultural tools such as Adinkra symbols in the education process, Mawere Ohemeng (in interview # 2) expresses that there is the need, to align the culture of learners of African descent with African symbols.

> Again, going back to the point we made earlier, is that we need some, we need things that represent us. We need to be able to see ourselves and the things that we do in all aspects of life. So, a symbol that represents us and who we are…and that's important.

All of the eleven participants in this study emphasized the importance of culture in the process of learning and for education generally. The use of cultural symbols was expressed by the educators interviewed as an *intentional pursuit* for combating the lingering effects of the colonization enterprise. It is important to point out that the education system as it exists is steeped in the history of the colonization of non-white peoples and is burdened with its legacy (Dei & Kempf, 2006). The intent of the educators who participated in this study was to simultaneously instill cultural pride in their students and to establish for them a connection with their pre-colonial African heritage. As Matthew Langston (in interview # 1) suggested,

> We're looking at culture as a way to undo some of the effects of colonization. Well, I mean like teaching math and science, but we're also so hopefully pulling out the pride in and heritage…to reacquaint kids with their heritage.

The objective according to Matthew Langston in using cultural tools such as Adinkra symbols is to decolonize not only content but the general effects of colonialism on the individual and the impacted group. The experience and interaction with the Adinkra

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symbols also provides an avenue for learners to be immersed in their African heritage (Chinweizu, 1987).

The importance of the conveyance of the tenets of the African worldview (The African worldview refers to the perspective of African peoples of the world that expresses and informs their ontology, epistemology, cosmology, and axiology) to learners of African descent through the use of Adinkra symbols was referenced by educators as a constituent aspect of their interaction with them and their use of them. The African worldview emphasizes the interconnectedness between natural elements and a cyclical as opposed to a linear relationship. In contrasting the African and European worldviews, one can surmise that whereas there is an emphasis in the African worldview of an unbroken link between the living, the dead, and the unborn, the European worldview makes no such emphasis. Secondly, the African worldview expresses the notion that humans are directly linked to all elements of nature (Kamalu, 1990), be it on earth or in the universe, whereas the European worldview positions humans as independent of nature and the need for humans to conquer nature and its element (Fu-Kiau, 2001: Gyekye, 1995, 1996). Additionally, multilayered levels of meaning may be gleaned from Adinkra symbols (There are surface meanings and deep meanings (Arthur, 2001). Indeed, they were intentionally designed to be multilayered (Arthur, 2001). This feature is illuminated by Baba Kumasa (in interview # 1) in the following:

> That on one hand we have a world where we have a way of seeing the world, but also our knowledge base is interconnected with them. So, how we understand the world is informed by a worldview and our knowledge and the cyclical relationship between the two…when we talk about our perceptions of the world, that there are degrees of knowledge, and then based on the depth of our knowledge, it dictates the depth of perception. So, say somebody may be looking at Adinkra symbol and they may recognize it as an African symbol. On the second level, they may look at it and they may recognize it as an Adinkra symbol

and they know it's the symbol Sankofa, right? On the third level, they recognize it, they know that it's Sankofa and they know the proverbs associated with it. And then on a deeper level, they know all that other stuff and they know what it looks like in terms of the application.

Baba Kumasa, in giving the quote above gives an example of the multilayered meanings that may be gotten from one Adinkra symbol, Sankofa. There are other layers that may be gleaned as well, for instance, the Adinkra symbol *Boa me na me mmoa wo* may literally be expressed as "help me and let me help you," a symbol of interdependence. On the deeper level, this symbol may be applied to the cause of environmental sustainability to the extent that humans stand to accrue benefits from the natural environment if they make it a priority to protect it. Sharing a similar view, Margaret Bates (in interview # 1) states,

> The imagery itself, [that's] the other piece that's always been part of my understanding of Adinkra is that there's always much more behind it.

In the quote above, Margaret Bates expresses his perceptions of Adinkra symbols in their ability to highlight imagery by the provision of a visual element in a manner that is multilayered in terms of the meanings that emanate from them. One of the strengths of Adinkra symbols is in their multidimensionality, an outcome of their adaptability (Arthur, 2017). These multiple dimensions afford educators the opportunity to identify what and how they can use them in instruction. In expressing a perspective that emphasizes the multifaceted nature and adaptability of Adinkra symbols to a variety of academic pursuits, Adubea Ohene (in interview # 1) explained that,

> Every discipline will find merit in it. You know, whether you're a psychologist, you're a mathematician, you're an artist, you're a dancer, you are a literature person every day, everything. These are, they're not single layered. They're multilayered, they're multidimensional, and they offer wisdom on all those levels to the scientist, to the mathematician and to the artist all at the same time... I am saying that it has that value. ⌞SEP⌟

The multilayered nature and multidimensionality of Adubea Ohene's perception of

Adinkra symbols are expressed in the above quotation. They are by the same token cross-

disciplinary and can serve as the basis for interaction in all disciplines. Such cultural

nuances are critical to the understandings and the identities of learners of African descent.

These understandings gained from interaction with Adinkra symbols and the worldview

they express have the ability for application in a variety of settings. In the perception of

Baba Kumasa (in interview # 1) who described how he applied the knowledge and

understandings gained in real-world situations,

> It requires understanding, it requires a conception of both a beginning point and some conception, even if it's vague, of end point… and so, because it's what I love about the symbol, called *Sesa wo suban* in particular, is that, it looks like a motion sensor spine. So, whenever they did that, they were like, 'we're going to make this thing look like it's moving.' So, this idea of movement is embedded in a process. Process is implicit within it…that's how I've attempted to apply that.

Thus, from the perspective of Baba Kumasa, the notion of transformation itself is

expressed not only by the associated text but also in the design of the Adinkra symbol

itself which incorporates movement, transforming from one level to another. In Baba

Kumasa's application of the Adinkra symbol *Sesa wo suban* (Transform your character)

he has explained to learners how personal transformation leads to group transformation.

In other words, if everyone interacting with the *Sesa wo suban* Adinkra symbol

internalized its message and decided to embark on a personal transformation, what would

happen is that the many personal transformations will result in group transformation.

Group identity is also central to cultural expression.

This relevance of culture to education is also at the same time a basis for cultural

revival. For people of African descent, such connections are requisite for restoring what

was lost during the period of colonization and slavery. Adinkra symbols, in the words of

Baba Kumasa (in interview # 1) quoted below, contain the essence of the African

worldview to which the education of learners of African descent should be aligned. The

perception of Adinkra symbols as a cultural expression is a notion that was expressed by

all of the participants engaged in this study. Baba Kumasa (in interview # 2) expresses

this perception here:

> In many ways you sit back and think about it almost in a way, anticipating the
> possibility that we can be diminished in the world… if a people face a calamity
> and they know that they cannot retain the totality of their culture, is it all lost? No.
> The way that you preserve one's culture in the face of calamity is you assure that
> the essence of the culture survives. So, things will be lost. Loss is inevitable. But
> if you retain the essence of the culture and the capacity for people to produce new
> things based on the old and maybe even to discover some of the things that almost
> had been lost. … I think the greater extent to which we're able to utilize Adinkra
> symbols in the work of education, the greater we're able to anchor people to an
> African worldview.

In the words of Baba Kumasa, not only is culture important to education but also to its

preservation as well. The perception of Adinkra symbols as expressed by this educator is

that the essence of the culture that will ensure its preservation is captured in Adinkra

symbols. Thus, the use of Adinkra symbols as an instructional tool also makes it a tool of

cultural preservation.

Yet again, the alignment of culture with education provides an avenue for African

cultural practices that have been retained in the Americas (Holloway, 2005; Thompson,

1981; Woodson, 1968) to be expressed and engaged in both formal and informal

educational settings. This is desperately needed since, according to the Cooperative

Children's Book Center of the University of Wisconsin-Madison (Cooperative Children's

Book Center – University of Wisconsin-Madison), less than 3% of children's

literature is about people of African descent. Only 2% are by authors of African descent.

This, coupled with the aesthetic qualities of Adinkra symbols serve as the focal point in

the assertions of Adubea Ohene (in interview # 1) in her discussion on the value of culture to education,

> We don't have the zillion children's books out on the use of it and its implications for life. It needs to get to that level though, right? Because the Africanisms that have been there since 1619 in the United States and elsewhere in the Americas earlier, we'd never get to visit them if we don't funnel them through the excitement and the artistic-ness of Adinkra symbols today. We've got to [be] like, yeah, that's what your ancestors were telling you about. That's what they were coding!

All of the participants in this study expressed the view that being steeped in a culture other than your own results in estrangement from one's self. This estrangement results in cognitive dissonance and perpetration of oppressive beliefs that lead to self-hatred (Adams, 1978; Moreau, 1990). Cognitive dissonance refers to a situation of mental discomfort in an individual and is typified by conflicting attitudes, beliefs, and behaviors (McLeod, 2018). The internal and external estrangement in the mind of the affected also do not provide the necessary foundation in terms of the education of the whole person (McFalls & Cobb-Roberts, 2001). In the words of Baba Kumasa (in interview # 1),

> I think some people would say that one can learn without that [culture] …that [one] can learn outside of the context of one's culture. To me, what has to be attended to is this idea of what we mean by learning… because I would argue that whenever we learn things outside of the context of our culture, there's always the danger of alienation… and I'm not sure if the process of alienation could be equated with learning.

In the expressed view of all the eleven participants in this study, a culturally aligned education guarantees an education that will not perpetuate the legacy of the colonial and slavery enterprises but rather ensures the development of learners with a strong sense of identity and the ability to understand things from the perspective of the African worldview. The use of Adinkra symbols serves such a purpose.

Connecting the visual mode of Adinkra symbols to learning

A feature of Adinkra symbols that made them attractive to the participants of this study is its association of visual and text. This is an important feature owing to its ability to aid in the recollection of information (Coppens et al, 2011). Coppens et al (2011) concluded in their study that the use of Adinkra symbols aided in the long-term memory retention of information. In that study, they used symbol-text pairing as learning materials to demonstrate the generalizability of the testing effect to symbol learning. There was a total of 44 uses in the data of words directly related to visual (including visualizing and visualization) used by interviewees during this study. In describing the importance of the visual/image as a critical aspect of Adinkra symbol usage in instruction, Mawere Ohemeng (in interview # 1) expressed his personal connection and emphasis on thought process (in this case the mental images that we develop when thinking) by highlighting the role that the visual/image plays in it.;

> One of my teachers used to tell me that the reality is [that] we think in images anyway. When I'm listening to you talk or people listen to people talk, they don't see the words, they see the images that are created by those sounds. And so why not? Why not, for lack of [a] better term, cut out the middleman. Right? Why can't we express ourselves with those images? I think the Europeans are finally catching on to that... wow! We could teach a whole bunch of stuff!

Expressing a similar view, Dwayne Ferguson (in interview # 1) posits,

> So, the word, the word is cool, but I think that the Adinkra symbol [the] visualization of it… It gives it more power, it has more weight, and it allows us to communicate right easily. You know what I'm saying? With the symbol! I think that's kind of awesome!

By expressing that "we think in images," Mawere Ohemeng not only highlights the importance of the visual image to thinking and therefore teaching and learning, but also aligns the imagery presented in Adinkra symbols directly to the culture of origin and its position vis-à-vis the use of words. Dwayne Ferguson connects the imagery in Adinkra

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symbols to ease of communication and power. Being able to facilitate communication through the use of culturally developed and relevant symbols is empowering (Paris, 2012; Ladson-Billings, 1995).

The value in the visual/image, as mentioned, lies in its ability to aid learners in the recollection of information. An educator who uses Adinkra symbols in both formal and informal educational settings shared her experiences and highlighted the role that the visual provided by Adinkra symbols played in learners' information retention and recollection. This connection between Adinkra symbol usage and memory retention emerged in the analysis of the data collected. In the words of Adubea Ohene (in interview # 1),

> I used Adinkra symbols like that [as a visual] when my children were younger to introduce ideas about sharing because the Adinkra symbols are very, very much about how things are shared and justice and how we live communally and not really how we pursue life as an individual only… it's about how groups of people work together and what values hold them together [These values] are very much enshrined in those symbols. So, we had those taped up all over the house and would revisit them regularly. Now, in terms of teaching puberty rights education, I found that students could hold [onto] an idea, really hang onto an idea, when I associated it with one of the symbols. So, in terms of teaching girls, it became very, very important for me to introduce a symbol that talked about what I meant for them to get out of the program.

The emphasis on long-term memory is made by Adubea Ohene in her intentional association of ideas she wanted her students to latch on to and to remember with specific Adinkra symbols. Learners are able to recall the ideas associated with the symbol by simply recalling the symbol (Coppens et al, 2011).

The visual or image as a feature of Adinkra symbols is also an aspect that is crucial in combatting the genetic determinism that has been unleashed on the African historical and cultural milieu over centuries. Genetic determinism may be defined as the

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belief that human behavior is an outcome of the genes of an individual or group of people (or other component of their physiology), be it in their learning or embryonic development. Educators experience of using Adinkra symbols presents them with opportunities to show their learners that historically African people have engaged in literacy practices by the use of pictograms and ideograms as in Adinkra symbols that are also able to be applied and used in contemporary settings. Adubea Ohene (in interview # 1) explained that,

> The whole idea that they had a pictogram and ideogram that they were encoding language into these images becomes extremely important as we are trying to retrieve the intellectual history of African people.

Adubea Ohene in this quote coveys the notion that being able to demonstrate African people's usage of artifacts that may be classified as pictograms and ideograms is principally important to the recovery of the intellectual history of African people that was compromised by the threats of slavery and colonialism.

In accentuating the importance of the visual image in Adinkra symbols to learners, Millicent Hollande (in interview # 1) summarizes in the following manner:

> I think visualizing something…makes it more concrete.

The association of text and image makes Adinkra symbols a very good instructional tool according to Miilicent Hollande.

Transmitting values through Adinkra symbols

According to the eleven participants, Adinkra symbols can teach a lot about ethical and upright behavior. The word "values" (and related words such as value and valuing) were used 43 times by participants in this study. For this reason, some participants have employed them as a model for imparting values and ethical behavior to

learners. Educators and two participants in this study have used Adinkra symbols to direct the discipline in institutions of learning. In the words of Brian Yaw Lance (in interview #1),

> …those are the personal characteristics that we tried to encourage in our young people and that's how we try to teach them to interact with one another based on those virtues. Those are the type of character traits that we try to model for them. Based on the fact that it's easy to find Adinkra symbols that speak to all of those different [values and virtues], we use Adinkra symbols…. That way, I think I challenge our students and help them to engage in that metacognition that makes them look at things a little deeper. Especially like with proverbs [associated with Adinkra symbols] because there's the surface meaning and there is the [deeper meaning] and we try to help them see in real life and in real time these things as they play out. So, like say for instance our discipline policy may look a little different from that of a typical elementary school because one of the first questions that we present to the, [offender]…to ask them to reflect on the situation, is well, 'in which of the virtues did you violate in this action'?

Brian Yaw Lance provides an example and a model for how Adinkra symbols can be used to transmit values to learners. In the expression of Brian Yaw Lance in the quote above, students are instructed to internalize the values promulgated by Adinkra symbols and made to understand that a violation of them is a violation against oneself, the school community, and the community at large.

All eleven participants in this study also emphasize how Adinkra symbols serve as a model for personal and group transformation. The use of Adinkra symbols requires being intentional. The educator learns the symbols and what they represent. The educator then creates situations and environments conducive to the character transformation they desire to see in learners. In describing how such a model may be used, Baba Kumasa (in interview # 1) asserts,

> What about [how] we can transform ourselves. It's not just an interesting idea, but it's a model, a [model of] personal transformation. And so, for me, as I think about [Adinkra symbols] and the connection that I make with respect to this formula

that Shujaa laid out… is that to transform one's character [one] requires intent.
⸤SEP⸥

Baba Kumasa emphasizes the intentionality required in the use of Adinkra symbols to

transmit the necessary values to learners that ultimately results in personal transformation

of character and the concomitant transformation of the character of the group.

In another instantiation, Dwayne Ferguson (in interview # 1) expresses the view

that a culture's values may be recognized by a study of its symbols.

> And so mainly it's just to try and help them understand some different aspects of African culture. But more importantly, I think that one of the best ways to find out what a culture holds important or what they value is through their symbols…take for instance in the United States [culture], there's a symbol for money, right? But there's no symbol for God. So that lets you get a better understanding of where they place their priorities.

In the view of Dwayne Ferguson, experiencing Adinkra symbols through interaction and

use exposes one to different aspects of African culture. He does not end there, however.

He goes beyond that to address issues of axiology, in other words, he addresses how we

know what a culture values through its symbols. Whereas there is a symbol (indeed

several) in Adinkra symbols that are directly linked to the creator, there is nothing like

that in the context of the United States culture. Rather there is a symbol for money and as

such the observer is made privy to what the culture values. Adinkra symbols in this

context becomes a tool for expressing the axiology of African people to African learners.

There is also the personal connection that educators make with Adinkra symbols.

This is important because the educators just do not use Adinkra symbols as an

instructional model for the sake of being a model. According to them they have an

ongoing and continued connection and interaction with the symbols. In describing such a

connection, Dwayne Ferguson (in interview # 1) states,

When I was thinking about certain values that I felt like spoke to me, I always looked to see what Adinkra symbol represents that value so that the word is always cool, but to have like the visualization that connects also to what the word means [is invaluable].

In other words, he reflects on the values that he wants to connect to, looks for a symbol that expresses those values, and then connects learners to the symbol. This kind of interaction was expressed by all of the eleven participants. Once that personal connection is made, learners are also provided opportunities to engage in the process of making connections too. These connections, span a broad spectrum, from historical to cultural connections and beyond. In assisting learners in making these connections, Baba Kumasa (in interview # 1) explains:

It's a pretty simple bridge to establish… they [learners] know what symbols are, they know what the purpose of symbols are. So, then when they see these symbols and they attach these meanings, it gives them some insight into who we are as a people and what we were like before other people came and interfered with who we are. ⌐L⌐SEP⌐

The values expressed in Adinkra symbols are not limited to any particular aspect of academic endeavor. The participants report that they inform all aspects of life. They inform the identity of both the educators and learners who interact with them. The quote below was given by Margaret Bates (in interview # 1) who expressed the importance of the values that are transmitted to the individual interacting with Adinkra symbols.

Adinkra symbols speak to the principles by which you should pretty much live by. Right… to start off with that in your psyche as a little kid and then grow up with [Adinkra symbols], you know what I'm saying? Growing up with it, …it does something, it really does. … it grounds you in your identity, your true identity.

Margaret Bates in the quote above makes a direct connection between young learners grounding in the values inherent in Adinkra symbols and the development and formation of their identities. The beliefs, ideologies, ways of knowing, preferences, and practices of

both the educator and learner are shaped by the culture from which they come (Milner,

2010).

Table 7 - Table of Central Themes

Research Question 1 What is the essence of the lived experience of educators using Adinkra symbols in their professional practice?

Research Question 2 What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?

Emergent Themes	Sub-Themes	Research Questions
Decolonization/Challenging Eurocentrism	For the participants, the essence of the experience of using Adinkra symbols to challenge myths of primitivism, then challenge the myths of genetic determinism.	Answering Research Question 1
	All of the participants were of the view, through their experience with Adinkra symbols, that the African-American cultural mission stands to benefit from its culture of origin. Adinkra symbols should thus be applied to African-American contexts.	Answering Research Question 1 Answering Research Question 2
	Seven participants were emphatic that their perceptions of Adinkra symbols resulted in their purposeful use of Adinkra symbols to decolonize the content and to challenge Eurocentric assumptions.	Answering Research Question 1
The importance of the visual image to learning	All of the participants expressed that giving students a visual is to give them something that they can attach information to and say, this is how it's connected and this is the deeper meaning of it as well.	Answering Research Question 1
	Learners associate concepts associated with the symbol mentally the more they see it.	Answering Research Question 1
	All participants expressed their perceptions of Adinkra symbols highlighting its association of text and image. The image has many layers of meaning behind it.	Answering Research Question 1
	African-American learners think in terms of images so that should be part of the learning process.	Answering Research Question 1
The importance of culture to education	Adinkra symbols are relevant because of the cultural perspective it offers. All participants expressed this notion.	Answering Research Question 1
	Symbols that represent African-American people are important to the education of African-American people. All participants expressed this notion.	Answering Research Question 1 Answering Research Question 2

Adinkra symbols and power	Using Adinkra symbols is empowering to the learner of African descent. It is a celebration of their worldview and contributions to humanity. All participants expressed this notion.	Answering Research Question 1 Answering Research Question 2
	Using Adinkra symbols to connect learners to their culture is to empower them.	Answering Research Question 1
	Adinkra symbol use enables the adoption of an anti-racist stance in alignment with contemporary theories and affirmation of human agency.	Answering Research Question 1
	Adinkra symbol use provides learners with a means to be grounded in an African identity as opposed to an existence of marginalization.	Answering Research Question 1 Answering Research Question 2
Adinkra symbols and Transmitting values	Adinkra symbols serves as a model for the development of positive character traits as well as the inculcation of values related to social justice. Eight participants stated this directly. It could be inferred from the statements of three other participants.	Answering Research Question 1
	Adinkra symbols serve as a model for a discipline policy that is steeped in the African worldview. Two participants expressed this perception.	Answering Research Question 1
	Offers opportunities for personal and group transformation. Two participants expressed this perception.	Answering Research Question 1

Key Findings Research Question 2

During the interviews with the educators, it emerged that each one of them had a unique path to becoming familiar with Adinkra symbols, subsequently studying them, and employing them as a tool for instructional delivery. It emerged from this study that commonalities exist in how educators who use Adinkra symbols experience and perceive them. Themes that were common to all eleven participants and were expressed in their interviews include "Bridging culture and education," "Empowering learners through

Adinkra symbols," "Challenging Eurocentrism," "Transmitting values through Adinkra symbols," and "Decolonizing content." These themes include the fact that they were motivated to use Adinkra symbols because of what they viewed as the need for the decolonization of the content taught by way of the curriculum in both formal and informal settings. Associated with decolonization was the need for empowering learners. This motivating factor was also common to all the educators interviewed.

Secondly, educators saw the use of Adinkra symbols as a means for transmitting values to learners. Another theme expressed by almost all eleven participants hinged on the necessity to connect learners to their heritage and cultural practices. These connections were all made in different contexts and as such affirmed the adaptability of Adinkra symbol use to and in various contexts.

Introduction to deep case studies

In order to further explore the research questions in an in-depth manner, I undertook two case studies of participants' interactions and experiences with Adinkra symbols in educational and instructional settings. These case studies provide a lens into educators' use of Adinkra symbols. In each of these cases, I got to experience first-hand how and why these educators have chosen to use Adinkra symbols in their instruction. The fields of experience are wide and varied, from Science, technology, engineering and math (STEM) to discipline programs, educators' perceptions of Adinkra symbols are wide-ranging. I present here two case studies that give an in-depth look into what goes into the planning of such programs and their implementation.

Deep Case #1

Case studies of select participants – Raymond Eggleston

Raymond Eggleston is a professor who works in cybernetics and has published widely in the field of ethnomathematics, which aims at studying the diversity of relationships that exist between mathematics and culture. In highlighting the relevance of ethnomathematics to the learning of students of African descent, Jama (1999), suggests that ethnomathematics can be employed as a "special language" to aid learners recognize themselves as historical and political actors by engagement and interaction with the mathematical heritage of their culture (Jama, 1999; Babbitt, Lachney, Bulley, & Eglash, 2015).

Raymond Eggleston was raised in California in the 1960s where he was impacted and influenced by the Civil Rights movements of the time.

> During the 1960s… that was the time of the civil rights movement. So, I think that was quite an influence on me, that climate of interest in social justice and sort of questioning, … the way that mainstream society had looked at things. Then, in high school I read a book by Norbert Weiner called *The human use of human beings* and Weiner was a very prestigious scientist. He was also thinking a lot about the social dimensions of science and technology. So that's why I majored in Cybernetics as an undergraduate student [it] was because it seemed to me that he was somebody who was really putting these things together in this interesting way.

The mix of bohemian scientists present during his upbringing and his interactions with social activists inspired him to pursue a degree in cybernetics. He went on to pursue a graduate degree in systems engineering, and a doctoral degree in the history of consciousness. It was during this time that he began studies in fractals that are expressed in African architecture and other forms of expression. This peaked interest earned him a Fulbright scholarship that saw him traveling through west and central Africa, engaging elders and people of knowledge on topics related to ethnomathematics.

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I stumbled across this observation that if you look at aerial views of photographs of African villages, they look like fractals. African fractals are a signature of self-organization, things that are organized from the bottom up rather than top down. That's why you see so many fractals in nature because nature is using that self-organizing system. So, I got, I got a Fulbright and was able to spend a whole year just traveling around Africa, interviewing people, asking them why they were creating these shapes and what they were doing with them.

This culminated in a book that highlighted the intersections between modern computing, mathematical concepts and indigenous design. The central tenets of his book were elucidated in a TED talk that has over 1.6 million views to date. Raymond Eggleston's work on African fractals has provided inspiration for works in black literature such as Nnedi Okorafor's *Binti*; in AfroFuturist arts, as well as in contemporary African architecture. His research continues to highlight the use of fractal patterns in African religion, art, and architecture and how these relationships inform modern technology. Raymond Eggleston further expanded his work into the formation of the discipline of "ethnocomputing". Armed with over $7 million in NSF funding, he developed his suite of simulations, and aptly named it "Culturally Situated Design Tools." Raymond Eggleston has applied the concept of ethnocomputing to STEM education, and in this regard, he posits that teaching learners to create designs with heritage designs such as those found in Adinkra symbols draw out and generate a level of creativity and interest among learners that is rarely seen in mainstream math or computing classroom settings. These cultural tools have been used in US schools from Alaska to Florida, as well as international locations including Ghana, to allow students to learn math and computing through "heritage algorithms" that include Adinkra symbols.

Raymond Eggleston has conducted studies into teaching children mathematics and computing through simulations of indigenous and cultural practices. His rationale for

taking this route hinges on the fact that such simulations translate mathematical ideas that are already present in students' cultural practices as opposed to an external imposition of mathematical concepts. This is where his study and use of Adinkra symbols come in, as a tool for teaching mathematical concepts to students of African descent. Among the concepts that he teaches using Adinkra symbols are transformational geometry, scaling, spiral arcs, and analytic geometry. Raymond Eggleston 's approach is designed to motivate as well as inspire students to learn from and out of their own cultural settings.

Raymond Eggleston also sees the adoption and use of Adinkra symbols in instruction as a matter of enacting social justice, particularly how such social justice issues are manifested in science and technology environments. These issues usually have to do with the ethnic identity of students and how it impacts their access to science and technology environments. Closely related to this is his research and use of "bottom-up" (as opposed to top-down) principles expressed in Adinkra symbolism. The bottom-up principle refers to self-organization as opposed to a top-down approach that suggests hierarchical organization. Contemporary instantiations of bottom-up approaches include peer-to-peer production outfits such as Wikipedia and music file sharing software that have challenged the traditional mode of production.

> So, nature has this other way of organizing things from the bottom up rather than the top down. So, I'm interested in that from a scientific point of view and I'm also interested in that from a political point of view.

In his most recent undertaking, Raymond Eggleston oversees the development of an alternative economic theory titled "Generative Justice." In this area, he examines the possibilities of using digital fabrication, Artificial Intelligence, among other innovations

in the nurturing and sustenance of generative justice. Raymond Eggleston has worked as a senior lecturer in comparative studies at several universities across the country.

Raymond Eggleston delivers instruction using Adinkra symbols across the country in primary, secondary, and tertiary educational settings. He does so directly in classrooms, online and a combination of both. His website provides students opportunities to learn about the origins of Adinkra symbols, their meanings, and how to identify the mathematics of Adinkra. Students are initially taught a simple computer programming language that enables them to simulate traditional Adinkra shapes as well as create their own Adinkra-based original designs. In discussing the importance of physical rendering, Raymond Eggleston posits:

> I think it's very important because for the kids, you know, a lot of times when folks talk about the importance of culture in STEM education, they make it sound like the children are little rats going through a maze and culture is the cheese.

Motivating students may be one of the primary reasons for Raymond Eggleston's engagement with Adinkra symbols. It does not end there however. It goes beyond motivation into empowerment and ownership. He explains his objectives in the quote below:
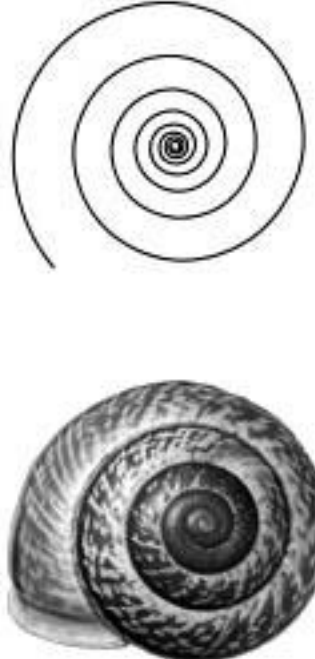
> You know, that somehow this is going to motivate the kids or trick them into learning STEM, which is not at all the way we want to think about it, right? It's really about how do you empower these kids. So, helping them see how these mathematical and computational ideas can be physically rendered as something that's relevant to them…something that can be worn around the neck, like a little pendant or it could be stamped onto a shirt or something. It sorts of opens up the world to them, right? So now suddenly they're involved with three d printers and, when we look at how ink is created in Ghana, we're very careful to explain to the kids that this is done in a very sustainable way. It's not like the dye industry in the West and America.

One of the primary mathematical concepts explored using Adinkra as the basis is geometry. Embedded in Adinkra symbolism are traditional African expressions of

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geometrical ideas. These expressions feature two main kinds of spirals. The first of these, linear spirals, are explained by Raymond Eggleston as being akin to a rope or a hose (see Figure 13). The space between each curve's revolution remains the same with each coil. This is because ropes are inanimate and do not have the power to grow. Such spirals are known as 'linear spirals.' In contrast to linear spirals, the second kind of spirals discussed by Raymond Eggleston are based on objects that have the ability to grow, such as those spirals found in the shell of a snail (see Figure 14). The shell grows larger as the snail grows. These are known as 'logarithmic' spirals. In his explanation of the extracting deeper meanings from Adinkra symbols, Raymond Eggleston says:

> When you look at Adinkra symbols there are, are certain visual relationships that are quite striking. So I mentioned the logarithmic spirals as one of those… but you can go a little deeper. So, you might approach the logarithmic spirals. And I think there is a kind of interesting idiosyncrasy, a little quirk isn't, isn't that a funny characteristic that they have? And that's a very shallow, that's a very shallow response. You're really not catching on to what's really at stake at the heart of those. So what's really happening with the logarithmic spirals is that they are taking some pattern that occurs in nature, and they're creating an abstraction of that right now.

In a lesson based on Adinkra spirals, Raymond Eggleston presents some Adinkra symbols and asks learners to identify the kinds of spiral that they observe in Adinkra symbolism. Some of the references made by Raymond Eggleston are found in the diagrams below:

Figure 13: The Adinkra symbol *Adinkrahene* here depicted in the shape of a rope coil as a linear spiral, and an example of it in nature. The image depicts the Adinkra symbol in the shape of a rope coil as a linear spiral.	**Figure 14:** The image depicts the Adinkra symbol in the shape of a snail shell as a logarithmic spiral.	**Figure 15:** *Dwennimen* (The ram's horns). On the bottom are the horns of a ram as they naturally are, and on the top is the Adinkra symbol *Dwennimen* depicting the ram's horns.

The image (Figure 14) depicts the Adinkra symbol in the shape of a snail shell as a logarithmic spiral. Raymond Eggleston then asks the question, "What kind of spiral can you identify in the Adinkra symbol in figure 14"? The correct answer is a logarithmic spiral.

Dwennimen (The ram's horns) (See Figure 15) is yet another Adinkra symbols used by Raymond Eggleston in instruction. The Adinkra symbols depicts four spirals.

These are paired spirals representing two rams butting heads. The proverb associated with this symbol reads "It is the heart, and not the horns, that leads a ram to bully." While emphasizing the geometrical concepts embedded in the *Dwennimen* symbol, students also receive values such as taking responsibility for one's actions. It is important to note that the Adinkra symbol, *Dwennimen* makes use of the logarithmic spiral in much the same way as the ram's horns do.

Throughout his work, Raymond Eggleston espouses and studies mathematical ideas expressed in different cultures. This field is referred to as "ethnomathematics." The Sankofa Adinkra symbol is also used by Raymond Eggleston in highlighting mathematical ideas expressed therein while at the same time making a connection for the students to their own heritage and culture. Sankofa means "You can always return to the past to retrieve," in this case, retrieve knowledge and cultural traditions. In the context of Ghanaian society, it is invoked when urging audiences to recover knowledge and traditions that were lost as a result of colonialism. In the African-American context, it is invoked as an exhortation to recover cultural knowledge that was lost to the enterprise of slaving and more importantly to connect to the African cultural ethos. There are two ways in which the Adinkra symbol Sankofa is represented. The first is represented by a bird looking backwards (see Figure 16).

Figure 16: Sankofa - Adinkra symbol.	Sankofa - Adinkra symbol showing added curve.

Raymond Eggleston added the curve to the image on the right to show how the artisans moved from the concrete form of the bird to its abstract form.

The second way of representing Sankofa is of a vividly abstract nature to the extent that it may seem unrepresentative of a bird unless explained. Depicted below in Figure 17 is the abstract version of the Sankofa Adinkra symbol:

Figure 17: The abstract version of the Adinkra symbol *Sankofa*	**Figure 18:** *Akokonan* Adinkra symbol.	**Figure 19:** *Akoben* Adinkra symbol.

Raymond Eggleston explains to his audiences that in much the same way as contemporary scientists use logarithmic curves to model nature's shapes on computers, African artisans like those who originated Adinkra symbols used logarithmic curves to model nature's shapes in Adinkra symbolism a very long time ago. Raymond Eggleston explains that what the original designers did here was to combine the spiral with another geometric idea known as 'reflection symmetry.' Reflection symmetry as a concept in geometry, and as expressed in Adinkra symbols is discussed later on in this chapter. Other Adinkra symbols that use logarithmic spirals to represent nature's shapes are *Akokonan* (The feet of a chicken), whose image depicted in Figure 18 and is associated with the proverb "The hen treads on her chicks, but does not kill them," an admonition to those in authority to nurture their subjects.

The *Akoben* Adinkra symbol (see Figure 19) is representative of the horn that is sounded to call warriors to battle. It is a symbol of readiness and alertness, as well as of loyalty and devotion to the cause. Adinkra symbols with logarithmic spirals represent nature's shapes and as such, the logarithmic spirals in the *Akoben* symbol is based on the horns of a bull.

Raymond Eggleston also explains that many Adinkra symbols do incorporate elements of transformational geometry in their design. Such elements include translation, reflection, dilation, and rotation.

> "…There's a couple of different directions you can go with that. So, you could say, well, I teach transformational geometry in the classroom. There are four different transforms. There's dilation, there's reflection, there's rotation, there's translation. We can find all four of those in these Adinkra symbols."

The manner in which Raymond Eggleston uses Adinkra symbols in teaching reflection in geometry is given in the exposition that follows. He explains that in mathematics, reflection refers to a scenario in which half of the image appears to mirror the other half of the image across a line. In other words, the symbol on the right-hand side reflects across the X-axis, the Y-axis, as well as both diagonal axes. The image in a reflection appears identical though opposite. An Adinkra symbol used by Raymond Eggleston in the teaching of the concept of reflection is *Funutunfunefu Denkyemfunefu*. It depicts Siamese crocodiles conjoined at the stomach. It is emblematic of the need for diversity in unity and based on the proverb "They share one stomach but fight over food," reflecting the needlessness of squabbles for people with the same goals. Pictured below are images depicting how the Adinkra symbol, *Funutunfunefu Denkyemfunefu* uses the concept of reflection. Raymond Eggleston is thus able to explain this concept to learners of African descent using a symbol that connects them to, and is reflective of their cultural heritage.

Figure 20: The Adinkra symbol Funtunfunefu Denkyemfunefu (in Figure 21) is used by a participant in teaching the mathematical concept of reflection.
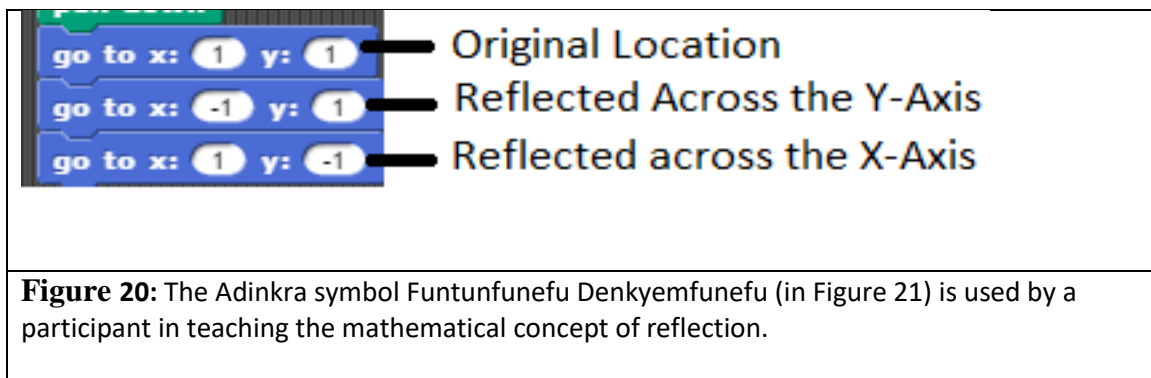
Figure 21: The Adinkra symbol *Funtunfunefu Denkyemfunefu.*
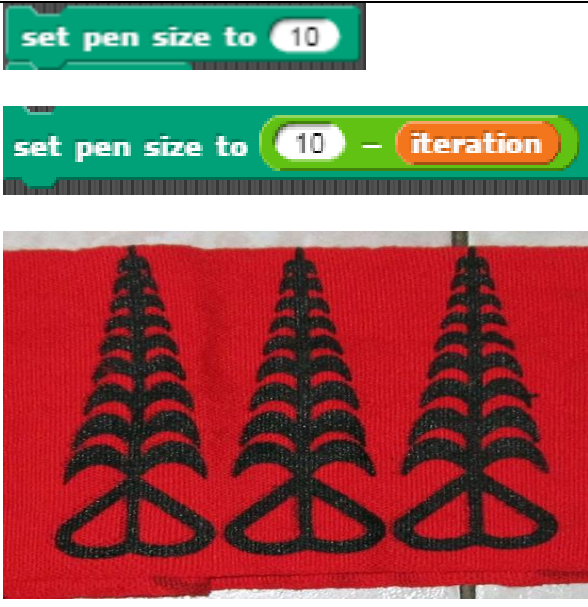
In much the same way, Raymond Eggleston uses an Adinkra symbol, *Mate Masie* (see Figure 22) and other Adinkra symbols to teach the geometrical concept of 'translation.' Using the image below (Figure 22), translation may be explained as one of the circles with a dot in the center having been initially created and multiplied by repeated copying.

The symbol in the image is *Mate Masie* (also referred to as *Ntesie*), translated as "I have heard and kept it." It is representative of learning, knowledge, prudence, and wisdom and it is associated with the proverb "*Nyansa bunu mu ne mate masie*" which may be translated as "The habitation of wisdom and knowledge lies in one's ability to listen and to keep what one has learned." To have a good ear and the ability to retain information is a mark of excellence in learning (Arthur, 2017, p. 182).

Raymond Eggleston simulates this symbol to explain the concept of translation, and this is depicted in the images (Figures 21 and 22) below:

	Ntesie/Mate Masie Adinkra symbol
Figure 22: The mathematical concept of translation is taught by participants using Adinkra symbol software and specifically the Mate Masie symbol.	

The concept of dilation hinges on the changes in scale that occur when a shape it altered. When dilation is repeated on each copy of the shape (also referred to as an "iterative loop"), the outcome is known as a scaling sequence. The Adinkra symbol *Aya* (see Figure 23) provides the perfect model for Raymond Eggleston to teach and explain the concept of dilation to learners. *Aya* is the symbol of the fern and it is representative of resilience, defiance, endurance, and resourcefulness. These qualities are so attributed owing to observances of the fern which has the ability to grow in the harshest conditions, such as on rocky cliffs. Raymond Eggleston teaches dilation by showing learners the image and asking them to simulate it on computers. In every iteration, the size of the leaf is altered by the creation of a variable. By adding the number 1 to the iteration variable each time, the resultant image is reduced in size in each iteration. This provides a perfect hands-on visual activity for learners to comprehend the concept of dilation.

| **Figure 23**: The Adinkra symbol *Aya* is seen here being used by participants in teaching the mathematical concept of iteration. | The Adinkra symbol *Nkotimsefoo Pua.* |

The geometrical idea of rotation may also be taught using Adinkra symbols. Raymond Eggleston explains that an image may be said to have rotation when it has the ability to repeat itself at different angles around one point. From the image in Figure 23, it is evident that one arm of the spiral is copied and then rotated around the central point. The Adinkra symbol in the image is known as *Nkotimsefoo Pua* or *Nkotim* for short. It is integral to the hairstyle of the queen's attendants. It is representative of loyalty, devotion to duty, and distinguished public service. It signifies one's readiness to serve.

Raymond Eggleston has also designed Adinkra-based teaching materials for the use of both teachers and students. These include detailed instructions on how to make three dimensional Adinkra stamps, how to make Adinkra stamps from foam cutouts, 3D

Adinkra stamps for sale to teachers, computational thinking with Adinkra, and evaluations of Adinkra computing in the classroom. Raymond Eggleston also tutors students in the design and creation of Adinkra-based designs. To do this, learners must be well-versed in computational thinking. Computational thinking is developed on the foundation of the learner's knowledge of algorithms. Raymond Eggleston explains how he equips students develop computational thinking below:

> At some point, the kids need to learn what an algorithm is, right? … it's not a very complicated idea. You know, we have algorithms in cooking recipes, right? It's just a, a set of procedures, a sequence that you go through. But once kids have grasped that, how do we now test the presence of that concept or see how well they can handle that concept … that idea of computational thinking as a kind of a framework for categorizing these different modes of knowledge that come into play in computer science. I think one of the challenges for me is that when you go to an indigenous culture, it's not like they have within it the department of Chemistry and the Department of Biology and the Department of mathematics, right? Those, those things are all integrated together.

In agreeing with Raymond Eggleston, it is important to note that the African worldview from which Adinkra symbols was borne expresses knowledge as an integrated whole, as opposed to stand-alone subjects. It is this same worldview that informs the learning and social practices of the learner of African descent (Woodson, 1933; Asante, 1991; Verharen, 2002). In adopting Adinkra symbols in teaching, Raymond Eggleston not only teaches mathematical concepts but values and knowledge that go beyond motivation to empowering them. In empowering such leaners, the questions may be posed, 'Who is represented in the curricula and why? Who is hidden in the curricula and why? (Babbitt, Lachney, Bulley, & Eglash, 2015).

Conversations pertaining to issues of social justice are raised on a much deeper level from such interactions. In Raymond Eggleston's words,

An interesting way of thinking about it is asking, um, who, who gets the fruits of the science labor, who benefits from science and technology? And the answer is typically people who are millionaires or billionaires, you know, science technology is helping rich people become even richer…. The discoveries are being made with a tax funded research, right? So, in thinking about, how do we reroute the pipeline, we want to ask not just how do we diversify the input to the stem pipeline. Not that that's a trivial thing to do. It's very good to do that. But we would also like to change the diversity of what comes out of the stem pipeline.

In other words, the desired outcomes from the knowledge gained from learning from Adinkra symbols should in the end be utilized to the benefit of the marginalized and disenfranchised communities from which the learners come.

In the photos that follow, Adinkra software (designed by Raymond Eggleston) is used by an educator to teach computer programming and mathematical concepts.

Figure 24: 3D computer designed Adinkra stamps. Stamps such as these are being used by participants in teaching a wide range of subjects and concepts.

Figure 25: Student work created from software designed by Raymond Eggleston is displayed here.

Figure 29: The T-shirts displayed here were designed by students using Adinkra symbol software that was used to design 3D Adinkra stamps which were used in imprinting the images on to the T-shirts.

Figure 30: Students use Adinkra symbol software to work on mathematical concepts.

Figure 31: Students use Adinkra symbol software to work on mathematical concepts.
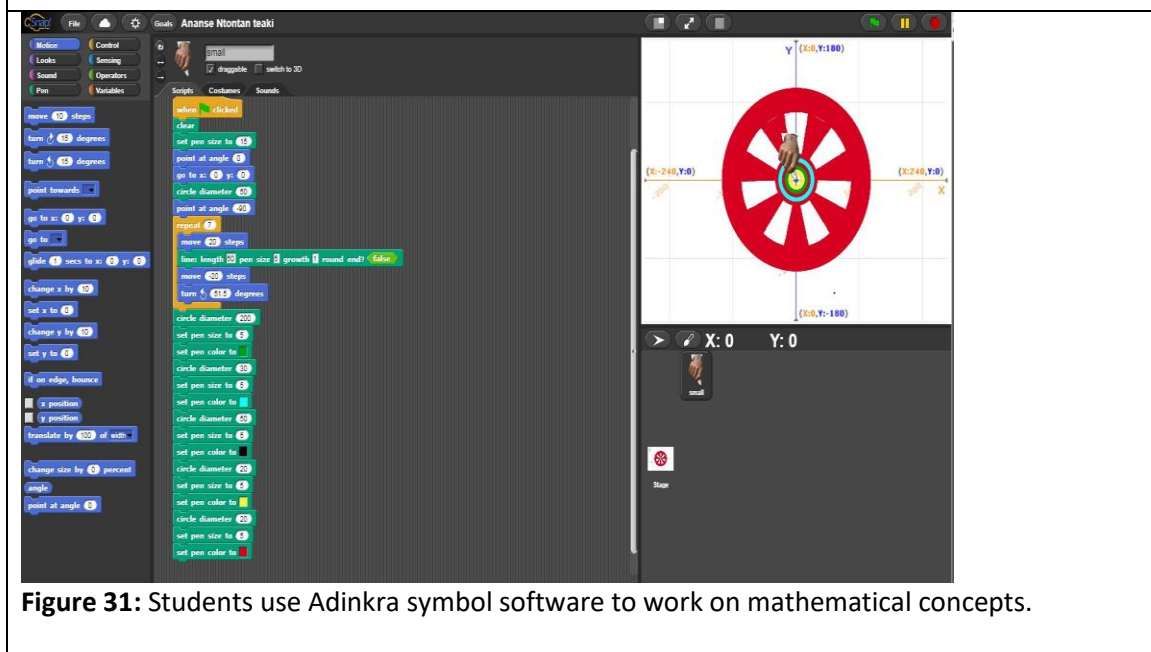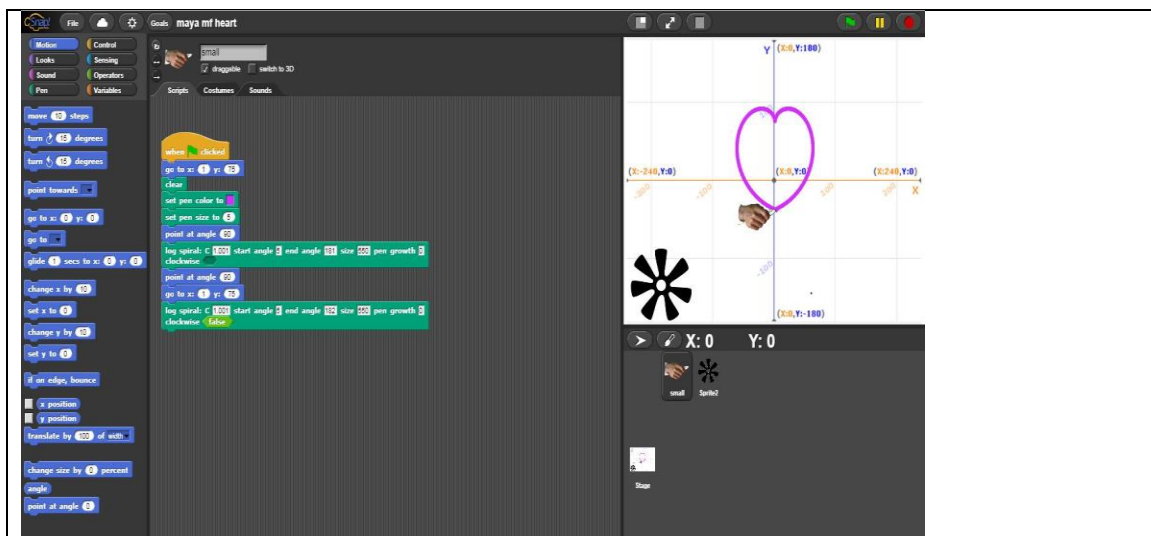
Figure 32: Participants teach learners in the use of computer programming language and software to explore the mathematics in Adinkra symbols. Students are seen making Adinkra stamps out of foam which are then used in transferring the symbols onto T-shirts.

Deep Case #2

Case studies of select participants – Brian Yaw Lance

Brian Yaw Lance is a school administrator tasked with student development and management of student affairs, including their behavior. Brian Yaw Lance works in an elementary and middle school setting in Chicago. He was born and raised in Chicago and considers his upbringing to have been very normal for boys of his caliber. He attended what he refers to as an "inner city school" and attended church occasionally, being exposed to African culture by his mother at an early stage in his life.

> My connection to African heritage was not something that I was really exposed to. It wasn't something that was taught in the public schools. It wasn't something that was emphasized in the communities where I grew up. So, it was something that I was not really in tune with aside from the exposure I gained from my mother… [my mother] wasn't really into religion per se, well now she is [it] seems like as we get older, that becomes more a part of who we are. But at the time when I was coming up, her focus was more on the culture…I mean African culture in general, but African-American, oh, that's true! Particularly right… and my role in this African American culture or as an African American male. So, trying to prepare me the best she could, she would give me books [such as] the autobiography of Malcolm X and Chancellor Williams, all the people she felt I should read and know about the culture, but not so much the traditional culture, in and of itself, but just that as a foundation for me understanding who I was as a black man in America. So, she sparked the interest.

Brian Yaw Lance enlisted in the army upon graduation from high school but the foundation he had received from the exposure given to him on African culture remained with him. This exposure to African culture laid the foundation for his later development that saw him gaining membership into a rites of passage society. It was during his early days of membership in the rites of passage organization that he was exposed to Adinkra symbols. This initial exposure has had an impact on him to this day, an impact that directs the vision that he has for the school and the development of its students.

> After high school, I joined the army. When I came home from the army, I went to school and I joined an organization that was [called], 'Veterans Helping Veterans

Outreach Associates.' So, it was a veteran's association, but in that association, I met a brother who introduced me to an organization called 'Ntu Rites of passage institute'… it was through that organization that I was first introduced to Adinkra symbols. This was like around 1995, 1994 sometime around there.

This exposure led Brian Yaw Lance to incorporate Adinkra symbols into all aspects of his life. This initiative would later translate into his use of Adinkra symbols in the educational settings in which he works. The walls of the whole school where he presently works are emblazoned with Adinkra symbols. The inherent spiritual dimensions of the African worldview that informs Adinkra symbols are reflected in the values that are associated with them. In a very real sense, Brian Yaw Lance sees Adinkra symbols as text. In this regard, he has made this effort at decolonizing the media by which students' identities are formed and their values transmitted.

Figure 26: The Adinkra symbols *Nyame Dua*, *Adinkrahene* and others feature prominently in the hallways of Brian Yaw Lance's school.

Brian Yaw Lance not only uses Adinkra symbols to instruct students in values, but also in behavior control, and in the development of their identities. Every class is associated with an Adinkra symbol.
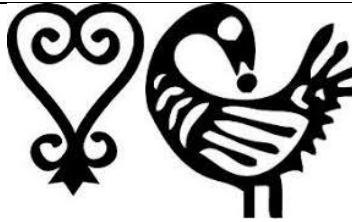
> Our school here, well both of the schools in our network are, instead of having first grade, second grade, third grade, each grade level is an Adinkra symbol… So, we have a *Gye Nyame* class, they have a *Pampanua*, we have a *Sankofa*. So that's another way to make the children more familiar with the different symbols and what they represent… and based on those symbols, the classes will come up with their class creed and be able to define themselves and how they intend to uphold virtues of that particular symbol.

Some of the classes and their associated Adinkra symbols and core principles are given in the table below:

Table 8 - Class Identification with Adinkra Symbols

Traditional Name	Adinkra symbol Name	Meaning/Purpose
Kindergarten	Akokonan	Nurturing/discipline
6th Grade	Sankofa	Learn from the past
7th Grade	Gye Nyame	The Power of God

In Brian Yaw Lance's school, owing to the work that he has done over the years, some classes have been named after Adinkra symbols. Three of such classes are identified in the chart above. The kindergarten class is identified by the Adinkra symbol, *akokonan* (see Figure 27)*,* whose image is depicted below.

Figure 27: The Adinkra symbol *Akokonan.*	**Figure 28:** Two configurations of the Adinkra symbol *Sankofa.*	**Figure 29:** The Adinkra symbol *Gye Nyame*.

Akokonan is a symbol of the necessity of coupling nurturing with discipline. As an Adinkra symbol, it is borne out of the proverb *Akoko nan tia ban a enkum ba*, translated as 'The hen may step on its chicks with its feet but does not kill them.'

The 6th grade class in Brian Yaw Lance's school have for their symbol, the *Sankofa* Adinkra symbol (see Figure 28). Sankofa is a symbol of learning, history, and the importance of remaining connected to one's heritage. It stems from the proverb *Se wo were firi na wo san ko fa a yen kyi,* translated as 'It is not a taboo (indeed it is encouraged) for one to return to the past and get it when one has forgotten.' The word *san* means 'to return,' *ko* means 'to go,' and *fa* means 'to get or fetch something.' *Sankofa* may therefore be translated directly as "return to fetch, take, or seek." The students in this 6th grade class have developed a creed based on their symbol, *Sankofa*. The symbol is often depicted in two formats. These forms are found in Figure 28.

The creed developed by Brian Yaw Lance 's 6th grade class is found below:

> We are the Sankofa Class. Sankofa means to learn from the past. We stand on the shoulders of Gods and Goddesses, and in knowing so, we reclaim what is good from the past. It is in understanding why and how we came to be who we are today, which ignites us to move forward and create successful futures for

ourselves, for our children, and for our children's children. We are the Sankofa Class.

The 7th grade class has the Adinkra symbol *Gye Nyame* as its motif (see Figure 29). Gye Nyame is the symbol of the omnipotence and omnipresence of the supreme being. It is based on the aphorism, *Abode santann yi firi tete; obi nte ase a onim n'ahyease, na obi ntena ase nkosi n'awiee.* The translation may be given as "This great panorama of creation is from time immemorial. There is no one alive who saw its beginning, and no one will live to see its ending except God" (Arthur, 2017). This symbol reflects the priority of place given to spirituality in the worldview of the Akan people who originated the Adinkra symbols. The symbol Gye Nyame is depicted in Figure 29.

In a similar vein, the 7th grade class has also developed a class creed on the basis of the *Gye Nyame* symbol. The creed developed by the 7th grade is posted below:

> We are the Gye Nyame Class. Gye Nyame means only God. We believe that we are blessed with divine potential and Only God knows the limits of our greatness. We are the Gye Nyame Class.

Brian Yaw Lance 's use of Adinkra symbols does not end there. In actuality, the entire behavior control system is based on it. When a student errs, he or she is not sent to the detention center but quizzed on the principle or principles that have been violated and how that impacts the school community as well as the wider community.

> Our system of virtues here at the school is based on Kemetic culture. So, they would choose Maat, right? So we have seven…which are harmony, balance, order, truth, justice, propriety reciprocity, right?... those are the personal characteristics that we try to encourage in our young people and that's how we try to teach them to interact with one another, based on those virtues, right? Those are the type of character traits that we try to model for them, right? And so based on that fact that it's easy to find Adinkra symbols that speak to all of those different [virtues], … so we use Adinkras… for instance our discipline policy may look a little different from that of a typical elementary school because one of the first questions that we present to the person who has [violated], to ask them to reflect

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on the situation is, well, 'which of the virtues did you violate in this action'? So it's not just wrong because it's against the rule, right? It is inappropriate because it violates the virtues that this institution is established upon.

Brian Yaw Lance in the quote above presents and explains dimensions of the African worldview. Kemetic culture is representative of the philosophy and culture of Ancient Egypt. In Ancient Egyptian cosmology, Maat is the goddess who embodies the virtues of truth, justice, harmony, balance, order, reciprocity, and propriety. Brian Yaw Lance is intentional about instilling these values in his students. He has identified Adinkra symbols that espouse each of these values and after much inculcation into his students will pose the question that seeks to determine which of the values have been breached when there is a vilation. It is also noteworthy here that because both Kemetic culture and Adinkra symbolism are both products of the African worldview, Brian Yaw Lance is able to find a perfect alignment between Adinkra symbols and the principles of Maat. The entire behavior and discipline system of Brian Yaw Lance's school is based on this.

The photo below depicts such an alignment of the bathroom expectations with the Adinkra symbols and the values that they project. The principle of harmony is in alignment with the Adinkra symbol *Bi nka bi*. In accordance with the principle of harmony enshrined in the symbol, the students are admonished to use and treat the bathroom in a harmonious manner. Similarly, the principles depicted by the Adinkra symbol, *Denkyem* are propriety and prudence. The principle of order is enshrined in the Adinkra symbol *Epa*. These principles are all associated with values of Adinkra symbols employed by Brian Yaw Lance in his approach to connect students to their cultural heritage in varying spheres of life.

Figure 30: Key principles associated with Adinkra symbols form the basis of bathroom expectations in Brian Yaw Lance's school.
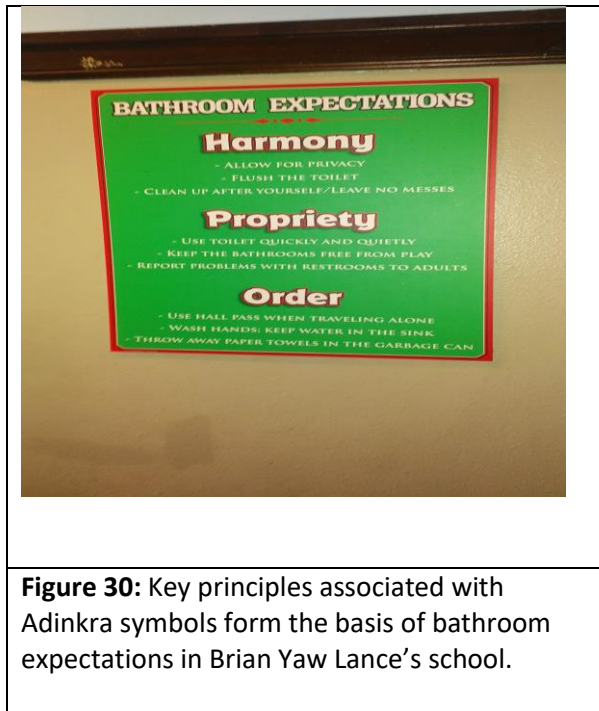
In the lesson below, Brian Yaw Lance employs Adinkra symbols in a project on identity and community building. The lesson plan outlines the steps taken during this project.

LESSON: KUJICHAGULIA – Self Determination and Adinkra symbols

- Session begins with participants responding to parable from previous training session
- Group will discuss the principle of Kujichagulia
- Participants will be introduced to Akan Day Names
- Participants will discover their own Day Name
- Participants will be introduced to West African Adinkra symbols and their meanings
- Participants will identify a symbol to represent their group (*consensus process*)
- Participants will identify individuals to serve as group leaders
- The group's facilitator will close the session with a story dealing with Collective Work and Responsibility, the theme of Session 3

Consensus process:

1. Each participant is provided a list of adinkra symbols that includes the name, image, and definition for each symbol. Particular symbols may be predetermined by group facilitator or participants may be allowed to search the internet for symbols that they prefer (the length of the process depends on the number of symbols provided).

2. Each participant is instructed to identify a symbol that he feels best represents what he thinks their group should stand for.

3. Each participant is allowed time to present his symbol and explain why he believes that particular symbol best represents the group.

4. After each participant has presented his symbol the facilitator will identify symbols that have been selected by more than one individual.

5. The facilitator will then identify symbols with the same or similar meanings.

6. Symbols that were only selected once and/or symbols with meanings that are considerably different from the others are eliminated from the selection process. Participants whose symbols were eliminated will then select one of those that remain.

7. Once again, symbols with the least amount of selections are eliminated from the process and those participants will select from those that remain.

8. This process of elimination is repeated until only two options remain. The group will vote on the last two options and the one with the most votes will become the group's symbol. In the case of a tie, the facilitator will cast the deciding vote.

The process of immersing and engaging in this project is elucidated by Brian Yaw Lance below:

[I] came up with the idea of decorating the main floor with the Adinkra symbols. So, what I did when I met with the students was I gave each of them index cards, asked them to write their name and three words that best describe who they are. So, based on those three words that they gave me, we identified Adinkra symbols that match … and shared those symbols with the students. They had to look a little deeper into their meanings and see if it was a true representation of who they are or who they're striving to become. So, once everyone had symbols that they were pleased with, we used a couple of LCD projectors and the students enlarged the symbols onto a sheet of tracing paper. They traced out the symbol and then I showed them a process for transferring those images onto the wall using pastels.

Figure 31: Adinkra symbols are displayed on the walls of Brian Yaw Lance's school as a constant reminder of the values associated with them.

Brian Yaw Lance continued to explain the process of engagement and the objectives he had for this project.

> To finalize it, we had a poster printed in a frame with each student's name, the symbols that they chose, and what that symbol represented. So, every student was recognized for their contribution and that it now hangs in the hall in as a guide. So, anyone who calls and they're drawn to a particular symbol and they want to know a little more about it, they can go and they can look at the board for reference to see what the name of the symbol is, what it signifies and who created it.
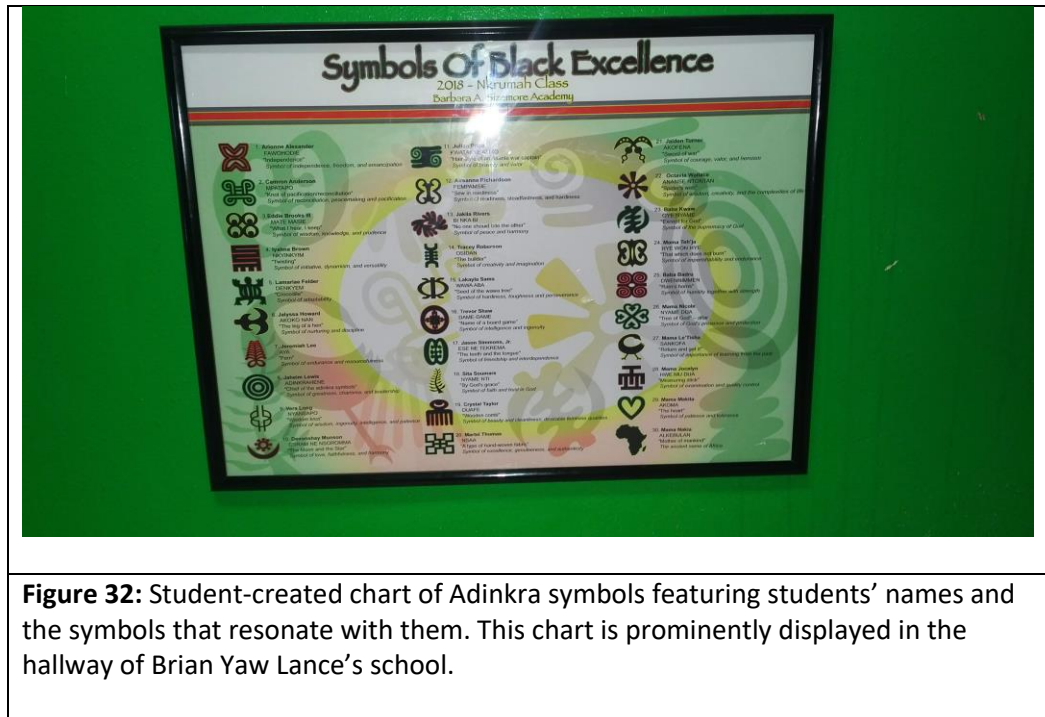
Figure 32: Student-created chart of Adinkra symbols featuring students' names and the symbols that resonate with them. This chart is prominently displayed in the hallway of Brian Yaw Lance's school.

The outcomes of such interactions with Adinkra symbols are not limited to the realm occupied by students. Teacher professional development is greatly impacted and to a large extent transformed. Teachers have to be well-prepared for the reciprocal interactions that occur in such environments. In Brian Yaw Lance's school, the Adinkra symbol, Sankofa, has provided the impetus and foundation for the professional development of teachers that has as its emphasis, the connection to African heritage and culture. This interconnectedness on the basis of the shared knowledge of culture and heritage is a hallmark of the African-centered approach (Foster, 1994; in Shujaa, 1994). This kind of teacher professional development is yet another expression of the African-centered approach, learning as a communal undertaking (Gadsden, 1993). The transmission of an African worldview is facilitated by a strategically guided process of education in which cultural orientation (to African worldview) and the maintenance and understanding of societal power relations are integral. The onus is also on the educator in

ensuring the transmission of this knowledge (Shujaa, 1994). Brian Yaw Lance explains the functions of this program below:

> We started an afterschool program here at the school for the teachers called the Sankofa program, and this is where we come together just to look into African culture and traditions …and it's helping us to grow in our understanding of African culture and tradition, which makes us better educators... so, that is Sankofa in action. We are literally looking back to the past in order to strengthen ourselves and help ourselves to become better in the future… and that's what we try to model for our students as well.

The use of Adinkra symbols in the expression and transmission of principles and virtues, as well as establishing a connection to the heritage and culture of students is of paramount importance to Brian Yaw Lance. In providing an appropriate description of the kind of education that Brian Yaw Lance imparts to his students, one can assert that it locates students of African descent within their own cultural history in a manner that facilitates the transmission of knowledge while affirming their cultural identity simultaneously (Shujaa, 1994). It does not stop there; Brian Yaw Lance's pursuits in his use of Adinkra symbols legitimizes African stores of knowledge, positively scaffolds African cultural practices for the benefit of learners of African descent, reinforces a worldview that represents self-sustenance and positive self-worth in the now and in the future, supports cultural continuity while simultaneously advancing critical consciousness, extends and uses indigenous language as a foundation, emphasizes interconnections between school and community, promotes service to family, community, nation, race, and world and creates spaces for positive social relationships (Lee, 1994; in Shujaa,1994). The importance of such an undertaking is not lost to Brian Yaw Lance, who elucidates the reasons for his pursuits below:

That's important [the use of Adinkra symbols and African cultural expressions]. Just because everyone needs a foundation to stand on…and our students, our people are the only ones who do not have that, or they stand on a foundation that is not their own. And I mean it's like asking the question 'what is the purpose of having one's name'? It helps people understand who you are and recognize you for what you are…and I think culture does the same thing.

Figure 33: Brian Yaw Lance displays the Adinkra symbols *Nsoroma, Gye Nyame, Nkyinkyim, and Funtumfunefu Denkyemfunefu* emblazoned on his arms. These symbols have personal meaning for Brian Yaw Lance who seeks to impart meaning from and establishing connections to Adinkra symbols to learners in multiple ways.

During my tour of Brian Yaw Lance's school, he showed me how he had intentionally

created banner displays of Adinkra symbols with reworked meanings intended to convey

the values he wanted to instill in the students. He regularly discusses and refers to these

symbols to connect students to the values expressed therein and to their ancestral

knowledge base and culture. In the photographs below, the banners with the Adinkra

symbols and their contextualized meanings are depicted.

Figure 34: *Epa*, symbol of justice.

Figure 35: Osrane ne nsoroma, symbol of harmony.

Figure 36: Hwehwemudua, symbol of conformity to standards of excellence
.

Figure 37: *Boa me na me mmoa wo,* symbol of cooperation and interdependence. Banners adorned with Adinkra symbols and

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	their contextualized meanings adorning the cafeteria walls of Brian Yaw Lance's school. Regular references to the symbols reinforce the values that he seeks to instill in his students.
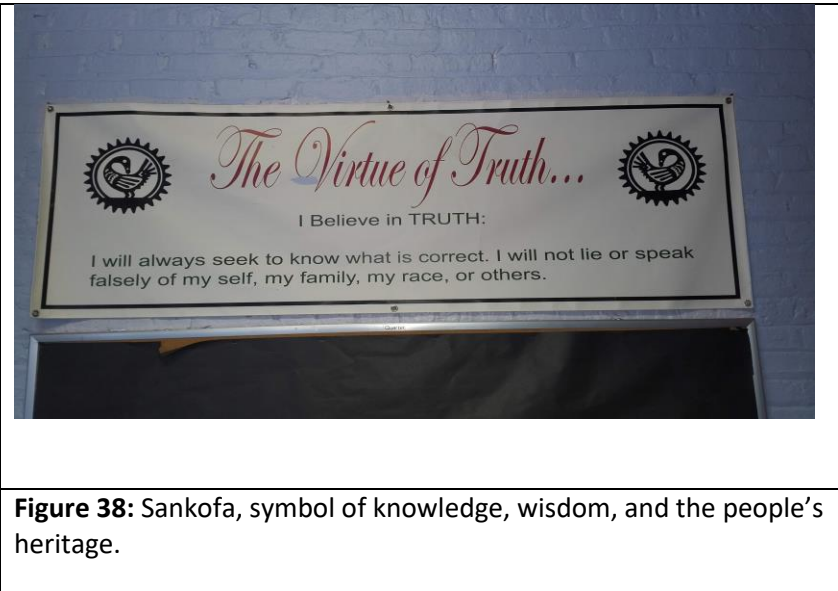
Figure 38: Sankofa, symbol of knowledge, wisdom, and the people's heritage.
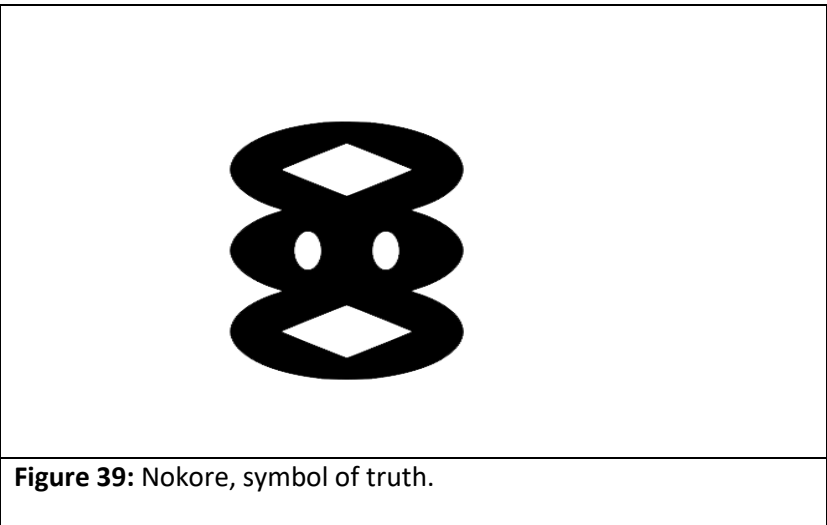
Figure 39: Nokore, symbol of truth.

Table 9 below expatiates the relationship between Deep case #1 and Deep case #2 and how they are related to the emergent themes as well as the interrelationships that

exist between the Deep cases and the connection between multiple emergent themes and the Deep cases. While Deep case 1 is primarily focused on the participant's experience with using Adinkra symbols in the teaching of Science, technology, engineering, and mathematics (STEM) and ethnocomputing, the primary focus here is on decolonization, yet other emergent themes that stem from Adinkra symbols are made manifest through the interactions. These other emergent themes include empowering learners through interacting with and using Adinkra symbols. More of such connections are depicted in Table 9.

Table 9 - Connections of Deep Cases to emergent themes

Research Question 1: What is the essence of the lived experience of educators using Adinkra symbols in their professional practice?

Research Question 2: What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?

Deep Case 1	Deep Case 2	Connections to emergent themes
Participant emphasized the need to use Adinkra symbols as content that is devoid of colonial influences.	Participant emphasized the need to use Adinkra symbols as content that is devoid of colonial influences.	Decolonization Empowering Learners
Participant's experience with Adinkra symbols influences his intentionality to show learners the origins of STEM and computing concepts that connects learners to their African heritage and outside of mainstream European contexts.	Participant's experience with Adinkra symbols influences his intentionality his choice of adopting a model of discipline and value transmission that connects learners to their African heritage.	Challenging Eurocentrism Empowering Learners
Participant's experience with Adinkra symbols influences his intentionality to use the visual aspects of Adinkra symbols in teaching STEM concepts and	Participant's experience with Adinkra symbols influences his intentionality to adopt Adinkra symbol's as visual markers in the transmission of	Connecting the visual mode of Adinkra symbols to learning.

ethnocomputing. Values are transmitted in the process.	values and discipline concepts to learners.	Transmitting values through Adinkra symbols. Empowering Learners
Participant's experience with Adinkra symbols provides him with an avenue to bring cultural knowledge and norms into the learning environment.	Participant's experience with Adinkra symbols provides him with a behavior intervention system that learners can connect to in terms of heritage and for which they can claim ownership.	Bridging culture and education Empowering Learners

Member checks

In doing member checks, I revisited the initial interviews and asked participants

questions that gave them the opportunity to clarify, affirm, or reject my view of their

stated positions. Following are examples of participant expressions during this phase.

Professor Raymond Eggleston in affirming what he does with Adinkra symbols in

education specifically and in seeking global transformation states:

> What we do is draw from indigenous cultures because they are very good
> examples of this generative economy

What Professor Eggleston is expressing here is looking at Adinkra symbols for academic

instruction but also looking at the processes, for example, how the artisans make dyes

that are harmless to the environment and incorporating such processes into an economy

that is less impacting on the environment and world at large. He also affirms his stated

position by using Adinkra symbols in teaching mathematical and other concepts in the

statement below:

> What's really happening with the logarithmic spirals is that they are taking [on]
> some pattern that occurs in nature…they're creating an abstraction of it…so
> you're generalizing an underlying pattern or an underlying dynamic, and that is
> what mathematics is about…being able to get to those abstractions. So in the case
> of Adinkra, they're taking the presence of this log (logarithmic patterns) with
> scaling these growth patterns that occur in nature. So…when you look at the

ram's horn (*Dwennimen* Adinkra symbol) …well, obviously this is a logarithmic spiral.

He continues to emphasize his work with Adinkra symbols by stating:

> I teach transformational geometry in the classroom. There are four different transforms. There's dilation, there's reflection, there's rotation, there's translation. We can find all four of those in Adinkra symbols.

These statements of confirmation make clear the stated position of Professor Eggleston regarding his experience and interaction with Adinkra symbols.

Mawere Ohemeng focuses on how he views Adinkra symbols as a medium of empowerment.

> The power…I don't think a lot of people in this society understand the power of substance and the power that a European mainstream society is built around symbols.

He seeks to further drive this point home by emphasizing his personal connection to this empowering feature of Adinkra symbol interaction and usage.

> That power of a symbol…so for me Adinkra is ours as African people…It's not just something that was projected on to it, but it was something that we determined that we wanted to do…we take power! We said this is what this means to us and this is how we interpret it, and because it belongs. I said it has much more power…

Mawere Ohemeng continues to affirm his view of the relevance of Adinkra symbols to himself and his instructional practices.

> I think they're very relevant because again, they give us a totally different perspective. In a sense we are not talking about their stuff, we are not talking about their interpretation, this is our interpretation…our interpretation of the universe, our interpretation of leadership, our interpretation of accountability in our community.

By this statement, Mawere Ohemeng makes connections to the African worldview and its importance to education. For him, Adinkra symbols provide an avenue for African ways and views to be highlighted.

Baba Kumasa in the quote that follows reaffirms his personal connection to

Adinkra symbols

> I do remember having recurring encounters with a number of symbols, particularly the *Sankofa* symbols…those two...It as in tandem with Black student organizations that I was a part of, and also with the various connections that we were making with African-centered scholars and people who were in the creative arts who were drawing upon African traditions.

He also reaffirms his application of an Adinkra symbol in particular, *sesa wo suban*

(transform your character) to personal and potential group transformation.

> *Sesa wo suban* (an Adinkra symbol) …I'm very interested in what would be the implications of this [its applications] …in terms of how we think about this idea of personal and group transformation… [and how that could happen] through that media (Adinkra symbols).

> Brian Yaw Lance has applied Adinkra symbols in many instances but here he

reemphasizes the value of Adinkra symbols to character development.

> I think in the field of education, particularly with African American students, but with young people in general Adinkras are a very effective teaching tool…when I say teaching, I just don't mean from an academic perspective, but in terms of personal development, character building, life skills. It provides them with a solid foundation for how to govern themselves as they interact with the world.

Brian Yaw Lance again confirms how he personally interacts with Adinkra symbols, a

point he had made initially, in the statement below:

> I have two different symbols…these symbols represent different life paths that I have gone through… So, on a personal level, I've incorporated them into my own understanding of my life's journey.

The meaning is for Brian Yaw Lance personal. He shares with others what he has found

useful in his own life.

> Mawusi Amewu interacts with Adinkra symbols on a personal level as well as in

educational settings. She is personally attracted to its aesthetic qualities and associated

knowledge. She sees what she is doing as an action that she takes as a response to the

question she poses below:

> So, as you know, Sankofa means return to the past [and retrieve]. Aha! Take that knowledge and apply it where we are living… the question goes, who is going to the past and bringing down knowledge?

Mawusi Amewu continues to share her knowledge with learners across age groups in

both formal and informal institutions.

Professor Matthew Langston confirms his use of Adinkra symbols to connect his

students to their heritage and culture when he states:

> Whenever Adinkra symbols were made… y'know, the folks who made them and probably with generations, were looking for common geometric patterns for things in nature and they found the logarithmic curve to represent that pattern. And so when I'm talking to graduate students about the African oigins of mathematics, I often make the case that centuries before Europeans were saying they could use logarithmic curves to model organic growth, these artisans were already demonstrating that they had that geometric knowledge.

In other words, here is the proof! Professor Matthew Langston also does this when

training teachers during professional development programs or when interacting with

middle and elementary school students.

Dwayne Ferguson on the other hand emphasizes his connection to the visual and

communicative aspects of Adinkra symbols by confirming this in the following

quotation.

> Sometimes it's better to have symbols to represent something that we want to say The symbolism is huge! Y'know symbols mean a lot…Maybe because I'm biased but I haven't seen anything that can really have the potential to connect…like Adinkra symbols

It is this kind of communicative property of Adinkra symbols that Dwayne Ferguson

employs in making connections to the attendees of the afterschool program he runs.

In doing the member checks, Professor Bob Bryson reaffirmed his commitment to identifying mathematical concepts embedded in cultural practices. The quotation below is typical and confirmatory of this practice.

> I was finding math in these cultural practices to share with them…Unfortunately, a lot of kids today sort of think that they are not good at math because they don't possess the ...the math gene is in the DNA… it's ridiculous… people have been aware of this for many centuries… in Africa.

For Professor Bryson, it doesn't end with the identification of such embedded mathematical practices. It is also a tool of decolonization for him as previously shared and stated.

> So sharing culture, finding the math and science within culture, I think sort of pushes back on the colonizing effect.

Margaret Bates, an art teacher, after having previously shared her connection to the aesthetic qualities present in Adinkra symbols confirmed this to be the case when she stated that:

> … a lot of African art… function follows form or form is the function, they're interchangeable. I love that! It is also beautiful and it's functional… you have a symbol that tells a story, but it's also like a part of the culture and it's beautiful to look at.

Margaret Bates reaffirmed the meaning making interactions she has with Adinkra symbols as follows:

> There are a variety of Adinkra symbols and they all mean something.

Professor Adubea Ohene in my second interview confirmed positions she had expressed regarding Adinkra symbols. The first is in her view of Adinkra symbols as a language. She states this in the following quote.

> I consider it another language.

She continued by emphasizing the memory-retention aids of Adinkra symbols by her

reaffirmation of her previously stated stance.

> Everything that we handed out, that symbol was there because…they associated it
> in their mind with everything that they were taught.

Professor Adubea Ohene has employed this strategy in both formal and informal

educational spaces. Yet again, she declares how she sees Adinkra symbols as evidence of

a written form of language for African people particularly as the conversation about the

intellectual contributions of the African peoples continues. She states:

> Some of the layers that I see is that it flies in the ace of this popular notion that is
> recorded in history books that are still in use in the 21st century, that African
> people had no written form… had no written form of language and that were an
> oral tradition based people only.

Professor Adubea Ohene reemphasizes the importance of Adinkra symbols as a form of

cultural expression to the recovery of the intellectual traditions of African people

worldwide.

> Millicent Hollande, an elementary school teacher, expressed how she personally

connects with Adinkra symbols as well as the connections she sees her students make

with them. She states:

> So I just liked the connection, how it goes way back and it can go all the way to
> how we do things now.

But then it has another dimension, the visual. She sees the interaction as a process of

decoding as she expresses this in the quote below:

> … what does that code mean? … when you do that [interact visually with Adinkra
> symbols] and now they can visually see what that code means.

The member checks provided an avenue for participants to restate their positions in different words thereby confirming and clarifying what these positions unequivocally mean.

CHAPTER 5: DISCUSSION, IMPICATIONS, AND RECOMMENDATIONS

The purpose of this chapter is to present a thorough examination of the results of the present study, critically evaluate the study's results and its relationship to the extant literature, and contextualize the present study's results within the framework of the related literature. I undertake all this by examining the implications of this study's results for theory, practice, and future research. In line with this, I have organized this chapter in the following manner: a presentation of the summary of the present study's results, a discussion of the results within the context of the extant literature, the implications of the results, the limitations of the present study, recommendations for further research and an overall conclusion of the study.

Summary of the results

The purpose of this section is to readdress the research problem and the alignment of the present study to the existing literature. To this end, I provide a synopsis of the significance of the present study, as well as a recap of the presents study's results and the methodology used. The results are presented in five themes that emerged from the analysis of the data as follows:

1. Challenging Eurocentrism by Decolonizing content
2. Connecting the visual mode of Adinkra symbols to learning
3. Bridging culture and education
4. Empowering learners through Adinkra symbols
5. Transmitting values through Adinkra symbols

Restatement of the research problem

The literature revealed that there are many dimensions of Adinkra symbol application. Some educators identified Adinkra symbols as a tool to situate the learning in

the historical and cultural context of learners of African descent. The questions that arose were 'Why are educators using Adinkra symbols and how are they using them?" In this study, I position and investigate the use in educational spaces of Adinkra symbols as a multifaceted culturally relevant tool of instruction, the adoption and continued use of which has the potential to expose to a wider audience, the essence of the experience of educators using Adinkra symbols. The literature on Adinkra symbols is available (Arthur, 2017; Willis, 1998; Poirier, Eglash & Babbitt 2014; Agbo, 2006; Mato, 1988; Page, 1983; Boateng, 2011). Arthur (2017) extensively identifies and discusses Adinkra symbols as ideographic and pictographic writing systems (Arthur, 2017). Willis, 1998 gives a history and background of Adinkra symbols and presents the Adinkra dictionary (Willis, 1998). Poirier, Eglash, and Babbitt, 2014 present Adinkra symbols as a tool of mathematics instruction (Poirier, Eglash, and Babbitt, 2014). Agbo, 2006, and Mato, 1998 both discuss the values associated with and transmitted by interaction with Adinkra symbols (Agbo, 2006; Mato, 1986). Page, 1983 presents and extensive discussion on the background and the processes involved in stamping Adinkra symbols onto cloth (Page, 1983). Boateng, 2011, presents a perspective of traditional symbols such as Adinkra, and the possible implications of their use on international copyright law and intellectual property law (Boateng, 2011). This study is unique because it examined how educators are using them in instructional delivery in both formal and informal settings.

Significance of the study

The results of the present study contribute to the literature on Adinkra symbols and culturally situated instructional tools by providing knowledge and information on how educators experience and use Adinkra symbols in instructional delivery and in educational institutions in general. Equipped with a knowledge of the diverse ways in which educators use Adinkra symbols, educational institutions and educators can access and use this information to situate learners of African descent in their cultural and historical contexts in their quest to provide them with a truly wholesome education. The results of the present study also potentially stand to be of benefit to learners (educators included) by helping them to better understand the cultural lens and tools for understanding educational content and the world around them.

Connections to lliterature informing the study and update

The literature review presented in Chapter two directly informed the present study and provided a practical and theoretical background. In this section, I provide an overview of that literature and an update on any research published during the conduct of the present research study. This study has highlighted the experiences and use of a cultural asset that is employed in the advancement of learning (Ladson-Billings, 2014). Kress (2009) asserts that "Phenomena and objects which are the products of social work have meaning in their cultural environments" (Kress, 2009 p. 79). Indeed, the experiences of educators who experience and use Adinkra symbols in their instructional practices reflect the norms of the wider cultural landscape. This intentional use of culturally relevant and sustaining pedagogies and tools are in total contrast and opposition to the deficit approaches to learning that characterized the landscape of African American

education in gone-by eras (Paris, 2012). These deficit approaches delegitimize cultural resources of marginalized populations such as African Americans (Lee, 2007; Paris & Ball, 2009). What participants in this study expressed was their intentional acts of legitimization by the use of Adinkra symbols to reaffirm their cultural ways of knowing in line with the preservation of such indigenous epistemologies in educational and wider contexts.

Since conducting the literature review for the present study, there have been a few research projects conducted on Adinkra symbols in general. After completing and analyzing the results of the present study, I revisited the literature to see if any new studies had been conducted or published on Adinkra symbols. I found two articles related to the present study that have been published since then.

Kissi, Fening and Asante (2019) in "The Philosophy of Adinkra Symbols in Asante Textiles, Jewelry, and other Art Forms" discusses the African worldview as presented by the Asante, a subgroup of the Akan and their use in communication by use on textiles, in jewelry, and other art forms. Owusu (2019) in "Adinkra Symbols as Multivocal Pedagogical/Socialization Tool" discusses Adinkra symbols as ideographic representations of proverbs, philosophies, thoughts, and values of the Akan people. Owusu (2019) presents Adinkra symbols as "multi-vocal" by drawing on concepts of multivocality, iconography, and iconology to demonstrate how Adinkra symbolisms are often used to characterize social realities and the communication of social ideals. Owusu (2019) emphasizes the capacity that Adinkra symbols have as a powerful tool for teaching and social engagements applicable to a variety of contexts and interpretations.

The methodology used

This study employed the qualitative approach. This permitted the use of open-ended questions in detailed interviews conducted with participants of their experiences using Adinkra symbols in instructional delivery that yielded rich data. To do this, I utilized the approach proposed by Creswell (2013) in conducting semi-structured interviews of participants that were audiotaped and transcribed. All of the participants, eleven in total, met the criteria of being educators who use Adinkra symbols in instructional delivery. Participants were recruited by identification as a potential interviewee and by a flyer. I used thematic analysis (Creswell, 2009, 2013; Saldaña, 2015) to engage the data collected in the identification of emergent themes.

Restatement of the study's findings

Five themes emerged from the analysis of the data collected through interviews of participants. These themes are as follows:

1. Decolonizing content /Challenging Eurocentrism
2. Connecting the visual mode of Adinkra symbols to learning
3. Bridging culture and education
4. Empowering learners through Adinkra symbols
5. Transmitting values through Adinkra symbols

Participants expressed their experiences and the reasons behind their choice to use Adinkra symbols as a teaching tool as being based on the themes outlined. Participants emphasized the need to situate the learning experiences of students in the cultural and historical contexts from which the learners emerge. This is in alignment with views expressed regarding the importance of using culture as the basis for education. Learners of African descent should therefore be situated within the knowledge and cultural

practices of Africa and the African world. The heritage knowledge of Africa exists as a

cultural fund of collective knowledge of African peoples through time (Dei, 2012). This

knowledge affirms cultural identity (King, 2005; Dei, 2012). Such knowledge is

embedded within particular cultural contexts (Clifford, 1986; Geertz, 1993). This

situatedness in specific cultures resists appeals to universal ways of knowing that often

privileges Western ways of knowing over indigenous ones and tends to affirm power

frameworks that promote inequity (Clifford, 1986; Geertz, 1993; King, 2005). Culture is

what is at the heart of all human experience and as such is central to the production of

knowledge. Educational contexts should embrace multiple epistemologies (Cajete, 2000)

taking into consideration the diversity of cultures involved.

Discussion of the results

The results of this study informed and answered the central research questions.

Interviews delved into the experiences of educators with Adinkra symbols and the factors

that informed them to adopt Adinkra symbols as an instructional tool. In this section, I

present a discussion of the relationship between the results and the research questions as

well as its implications for theory and practice. I also discuss the limitations of this study.

The analysis reveals that educators who use Adinkra symbols in their instruction

are primarily guided to do so by their quest to situate their students of African descent in

their cultural contexts. Using Adinkra symbols was seen as an appropriate way to

motivate the learners by connection to their cultural context. Some educators came into

the knowledge of Adinkra symbols in their own quest for cultural meaning and having

realized its value now use it in their instruction. Others became familiar with them by

seeking cultural expressions of, for example, mathematical ideas and concepts through

ethnomathematics. Whatever their fields of inquiry were, they found value in using

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Adinkra symbols in instruction and did so to primarily ground their students in their cultural context by using the symbols as a culturally responsive instructional mechanism.

Particularly important was the contextual interpretation and application of the symbols. The use of Adinkra symbols among people of African descent in the United States reflects the thirst of the community for culturally relevant philosophies that characterize the diverse elements of Black life in the wider society (Temple, 2010). This thirst and concomitant expression have been brought into the learning arena to make learning more meaningful to students of African descent. This yearning was expressed by all eleven participants in this study. Thus, the educators concurred that the African-American cultural mission stands to benefit from its culture of origin. Adinkra symbols was as such applied to African-American educational and wider contexts. These contexts were often subject-related and spanned a wide range from mathematics, to art, to history, values, hierarchy of needs, environmental sustainability, poetry, and music among others.

One of the reasons cited by the participants in this study was that more often than not students were not interested in the subjects taught or the manner in which they are taught because of the colonial and Eurocentric nature of the subject matter with which they do not identify. Their use of Adinkra symbols was seen as a way to decolonize the content so as to motivate their learners while posing a challenge to the existing Eurocentric paradigm that is presented as the sole paradigm. The supremacy of European epistemologies was not only guaranteed but accompanying this process was the inferiorization of African epistemologies. It must be noted here that colonial education (broadened here to include the education of marginalized societies) served as one of the most formidable forces of deforming non-European cultures (Abdi, 2012). To this end,

African forms of expression, ontologies, and epistemic locations were all banished into oblivion by the colonizing powers (Achebe, 2000; wa Thiongo, 1986, 2009). In the United States and in Africa, the knowledge systems of African populations were presented as non-existent and backward when its existence was acknowledged (Abdi, 2007b). These attitudes towards the education of people of African descent have never had their interests at heart, but have rather actually served the colonizing powers to the present day. As noted by Woodson (1930), "the mere imparting of knowledge is not education" (Woodson, 1930, p. 1). Attempts at curriculum reform must necessarily include knowledge systems that were derided and excluded as an outcome of the colonial enterprise (Shizha, 2014). The analysis of the data that emerged from this study reveals that educators who use Adinkra symbols in education are intentional about highlighting African epistemologies in educational contexts as a way of decolonizing both the curriculum and educational spaces. In other words, it is a purposive resistance to the status quo in contemporary education that has largely been shaped by the colonizers. Doing so also provided the educators and learners with a familiar cultural grounding of what was being taught and a centering of the subject in their cultural context. It is also evident in this study that these decolonizing efforts occur across disciplines such as art, mathematics, computing, and in providing a model for discipline that is not only steeped in the values espoused by Adinkra symbols but are based on them.

One of the key themes to emerge from this study was the connection between the use of Adinkra symbols and the empowerment it gave to learners of African descent. The general agreement was that symbols that represented African-American people were important to their education. Adinkra symbols, in the context of being historically

accumulated and culturally developed symbols of knowledge are essential to the process

of individual functioning and of learning (Moll & Gonzalez, 1994). In addition to this,

studies conducted by Ratteray (1994), Lee (1994), Hilliard (1992), Murrell (1993),

Asante (1991), all indicate that education tailored to the needs of people of African

descent develop students who demonstrate academic achievement while maintaining

cultural competence (Ladson-Billings, 1995). The participants in this study used Adinkra

symbols in diverse ways to empower themselves and the populations they teach.

Participants emphasized the importance of highlighting the role and contributions of the

culture emanating from the African worldview across learning environments in the

United States and the wider African diaspora. The use of Adinkra symbols in educational

spaces by participants was presented as a source of empowerment for both educator and

the populations they impact (Dei, 2015; King, 2015). For people from marginalized

groups, education should be a conduit to their empowerment, and ultimate liberation

(King, 2015; Ladson-Billings, 1995; Verharen, 2003). Participants in this study were

intentional about this form of empowerment that cements their own and their learners'

identities while pursuing a model that affirms their humanity as well as that of the

learners they impact (Chinweizu, 1987; Abdi, 2012). Indeed, the chief motive of

education for people from oppressed and marginalized societies is their liberation.

Participants in this study expressed the manner in which they engaged Adinkra symbols

as a tool for liberation in educational spaces. Participants pointed out that neglecting

cultural symbols in favor of the symbols of the dominant culture was a recipe for the

continued exploitation, marginalization, enslavement, and oppression of African

Americans. Participants in this regard emphasized that the cultural symbols of a people

are intrinsic to one's education. This empowerment, participants pointed out, was also directly linked to the diverse ways in which Adinkra symbols can be and are employed in the educational terrain.

Educators repeatedly emphasized the importance of culture to education. Adinkra symbol use in educational settings represents an expression of the culture of learners of African descent. Culture expresses the value system of the culture-sharing group which is integral to defining it. Culture determines the quality of life of a people in large measure (Myers, 1987). The importance of cultural identity, its formation and development, to people of African descent has been repeatedly emphasized (Asante, 1983; Myers, 1987; Cruse, 1967; Karenga, 1982; Paris, 2012; Kamalu, 1990; Hilliard, 1997; Ladson-Billings 1995). Culture has implications for the study of education and more specifically learning, in the sense that education and learning cannot be studied without an acknowledgement of the cultural content or form of educational transmission the learner is familiar with, and the settings within which the learning processes take place (Myers, 1987). Kluckhohn (1961) asserts that cultural phenomena are as essential and definite as physical or biological phenomena, and further links her argument to systems of socialization and education, both formal and informal. The content transmitted through socialization or education reflects the basic value orientations of the culture-sharing group (Masemann, 1991). Participants in this study emphasized, in alignment with what is espoused by African-centered theory. This is that the culture of people of African descent should be at the center of the educational experience. Participants also advanced the notion that reinforcing cultural knowledge through Adinkra symbol use perpetuates the culture and also humanizes the population as they are represented by Adinkra symbols in much the

same way that Adinkra symbols represents them. The engagement with cultural practices and tools was thus seen by participants as a foundation and bridge to education, and again, as a tool of decolonization by way of acquaintance with the cultural heritage of the African peoples. It is this purposeful alignment of culture with education that furnishes us with a route for the expression of African American cultural practices (Woodson, 1968). In so doing, we are engaging in a process of humanizing pedagogy that takes into account the realities, culture, history, and perspectives of the learner of African descent (Bartolome, 1994; Ladson-Billings, 1995).

The experience of using Adinkra symbols as a tool of instruction and in educational spaces writ large, by its use of image, color, and text among others make it an appropriate communicative and a truly multimodal device that when employed has the potential to significantly impact the learning process. This theme emerged from the interviews given by the participants in this study. Educators highlighted the importance of the visual image as found in Adinkra symbols as "something that they can attach information to" and probe the associated multilayered meanings and implications on a deeper level. Reference was also made to the manner of learning by association of concepts to the symbols mentally. The importance of using the visual image of Adinkra symbols by educators allows for the unraveling of multiple layers of meaning by the learner. It is worthy of note that the social forces of today impact literacy in very similar ways as it did in the past (Coiro, Knobel, Lankshear, & Leu, 2014). Participants in this study expressed the view that the experience with and use of Adinkra symbols while motivated by their quest for culturally situated meaning was also driven by social forces of oppression and marginalization and the need to counter them. To this end, one of the

primary roles that Adinkra symbols play in educational spaces stem from their combination of multiple modes of communication, in this and most cases, the image, text, and color. Participants emphasized the importance of having all these modes in one form of symbolic expression. This they also expressed was a function of forces of power at play. Being conscious of one's needs and resources available in one's culture that enable the construction of knowledge draws attention to shifts in power and validation of knowledge (Kress, 2007). One participant expressed that it is the visual image in Adinkra symbols that gives it its power. In literacy learning, particularly for people of African descent, Adinkra symbols provides an avenue to bring into the multimodal landscape culturally relevant semiotic resources for use in diverse ways. Participants also pointed out that the multimodal nature of Adinkra symbols made them a perfect aid for long-term retention of information. Learners are able to recall the notions expressed by the symbol by the simple recall of the symbol (Coppens, Verkoiejen, & Rikers, 2011). When teaching and learning, it is quite common for images to be used in the explanation of phenomena (Kress, Jewitt, Franks, & Bourne, 2005). Participants expressed in diverse ways the view that the multimodal function of Adinkra symbols is a great aid to learning and education generally.

A feature of Adinkra symbols that participants found to be critical to learning for themselves and their students was in its transmission of values. Participants expressed that the corpus of knowledge associated with Adinkra symbols have a lot to teach about morally upright and ethical behavior as well as personal and group transformation. Participants expressed how they were able to model desirable character traits with Adinkra symbols as focal points. The internalization of the values is encouraged. This

internalization has to be intentional on the personal and the collective levels for group

transformation to occur. This personal transformation is directly linked with the identities

of both the educators who use Adinkra symbols in instructional spaces and the learners

who they impact.

While this study hinges on educators' experiences of Adinkra symbols, it also

provides a window into the multimodal nature of Adinkra symbols specifically and

culturally relevant multimodal communication devices writ large. The multimodal focus

here is on the engagement and interactions with these cultural tools with the emphasis on

the proclivities that certain cultural groups have for literacy activities and practices

(Gutierrez & Rogoff, 2003). In surmising a similar view, Cole (1996) expresses this

notion when he states that:

> … the structure and development of human psychological processes emerge
> through participation in culturally mediated, historically developing, practical
> activity involving cultural practices and tools (Cole, 1996).

Adinkra symbols provide an avenue for participation in continuous literacy by their use

as cultural tools steeped in cultural practices in diverse contexts, and situated on the

historical-cultural continuum. Yet again, Adinkra symbols, when situated as culturally

relevant multimodal communication devices provide opportunities for access to an

integrated form that has both the visual and verbal modes of communication

disseminating information in two modes simultaneously (Kress, 1997). Another feature

of such a culturally relevant multimodal communication device lies in its facilitation of

meaning construction. Here, meaning is made by accessing and engaging two or more

semiotic modalities (Lemke, 1998b). Unswortth (2001) describes how multiple modes of

communication provides the capacity for diversity in the construction of meaning when

he postulates that:

> These dimensions [of meaning] include the 'ideational' dimension, concerning people, animals, object, events and circumstances involved; the 'interpersonal' dimension, concerning the issues of relative power, attitude, affect etc., defining the relations among the participants in the communication and 'textual' dimension, concerning the channel of communication and the relative emphasis and information value of aspects of what is being communicated. (Unsworth, 2001 p. 10).

Participants in this study connected their use of Adinkra symbols to the dimensions of

meaning constructed from the multiple modes in Adinkra symbols. They provide

opportunities for meaning to be constructed from people, circumstances, animals, and

objects while at the same time addressing issues of power as a tool of decolonizing

content and educational spaces. The value of Adinkra symbols to the community as

expressed by participants in this study underscores their choice as a choice of

communication device for conveying valuable information. Furthermore, in agreement

with the position elucidated by Unsworth (2001), the comprehension of how these

meanings are constructed requires "the kind of visual and verbal grammar that relates

such elements and structures to meanings and ultimately to the nature of the contexts in

which the visual and verbal texts function" (Unsworth, 2001 p. 10). Adinkra symbols are

ideally situated as a visual and verbal grammar for constructing meaning. By using

Adinkra symbols as a lens, an opportunity is provided to access aspects of the situated

literacy practices of people of African descent. It is a window into the historical-cultural

continuum of practices and interpretive contexts of people of African descent.

The lens provided by the use of culturally relevant multimodal communication

devices such as Adinkra symbols emphasize the fact that there are multiple literacies in

nature (New London Group, 2000). Participants advanced the notion of including

Adinkra symbols in the canon of multiliteracies. They were of the view that these cultural

resources should be tapped into and used, much in tandem with the perspective shared by

Dyson (2004) who states that:

> Surely it is time for all those interested in multiple languages and language variants, in diverse cultural practices and world views, in the expanding symbolic repertoire of our time to appropriate and re-accentuate this word "basics" (Dyson, 2004 p. 214).

Literacy in contemporary contexts certainly means more than knowledge of letters

(Siegel, 2006). It involves the provision of access to the full range of modes of

representation and their associated social and cultural practices that are required to be

literate in the present milieu (Siegel, 2006). It also involves power relations, it is

ideologically charged, and is inherently linked to cultural, social, and historical factors

(Hagood, 2000). Such is the accordance provided by the use of Adinkra symbols in

formal and informal educational settings.

Study results in relation to research questions

    The central research questions were

    a. What is the essence of the lived experience of educators using the Adinkra symbols in their professional practice?

    b. What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?

As previously discussed, the results showed five themes that emerged from the data.

Adinkra symbols are used by educators to decolonize the content offered through

mainstream texts and to challenge the myths of genetic determinism purported by racist viewpoints that suggests that Africa and Africans have no intellectual heritage (Hegel, 1956). Other participants used Adinkra symbols because it offers an association of text and symbol that works well as a visual in aiding the retention of information by learners. Equally important is the recognition of Adinkra symbols as an expression of the African cultural viewpoint that forms the basis of educators' adoption for instructional purposes. These educators stressed that culture is vital to education. In teaching with Adinkra symbols and familiarizing students with them, educators viewed their actions as empowering. The culture of the learner is brought to the center, as opposed to being non-existent or existing on the margins, with the use of Adinkra as a learning tool. This indeed is an act of empowerment, in that whereas the learner's culture, heritage, and experiences were marginalized, an opportunity is made through the use of Adinkra symbols to make them central to their education. Adinkra symbols, being associated with values have been adopted by educators as a purposeful tool in transmitting such values to learners.

Implications for theory

The theoretical literature discussed in this section includes African-centered theory (Asante, 1997, 2007; Shujaa, 1994), and Culturally-relevant and sustaining theories (Gay, 2002, 2018; Ladson-Billings, 1995, 2014; Paris, 2012. At this juncture, I provide implications from this study that are directly related to the theories that informed it.

African-centered theory

African centered theory posits that phenomena is to be viewed from the perspective of the African person (Asante, 1980, 1991; Verharen 1995; Myers; 1987, 1993; Karenga, 1986; Keto, 1990). It provides a foundation for inquiry and understanding from a point of view that is grounded in African values (Dei, 1994). African centered theory is predicated on the African worldview which emphasizes the interconnectedness and interdependence of natural phenomena. The results of the present study confirm the conclusions of Asante (1991, 2007) and Hilliard (1998) in that education has to center the historical and cultural contexts of the learner. African-centered theory in its conceptual form is a strategy designed to foster the success of learners of African descent. One of its central premises is that all learners are cultural beings (Hilliard, 1995). Participants in this study often expressed how they use Adinkra symbols as a way to anchor the learning of learners of African descent into the historical, cultural, and value systems stemming from the African worldview. The results revealed that situating learners within the framework of their cultural contexts is one of the reasons why educators use Adinkra symbols in instruction.

Culturally-relevant and sustaining pedagogies

The persistent denial of the existence of a unique and distinct African-American culture has culminated in a situation in which narratives on African-American culture emphasize slavery and poverty. While there have been attempts to match classroom culture with student culture in the quest for academic success, the research undergirding these attempts have not been applied to students of African descent (Ladson-Billings, 1992). The viewpoint that holds that African-Americans have no unique culture is not

supported by historical evidence (Holloway, 2005). Culturally relevant teaching refers to teaching that is designed to emphasize students' culture as the foundation for helping learners understand themselves within the context of their culture and in relation to other cultures, as well as provide a framework for social interactions and the conceptualization of knowledge. This mode of teaching stands in contrast to the kind of teaching designed just to match school culture to students' culture. Culturally relevant teaching espouses the perspective that African-American culture is the foundation upon which the learning experience is to be constructed and that this mode of thought ranks high in importance.

The present study's results showed support for Landson-Billings' (1992) culturally-relevant pedagogy and Paris' (2012) culturally-sustaining pedagogy theories. Throughout the interviews, participants emphasized the primary role that culture should take in wholistic and true education. They expressed their choice of Adinkra symbols as an instructional tool as being in alignment with the use of culturally-relevant and sustaining pedagogies. Secondly, participants revealed that they were not mandated by their educational institutions but to the contrary introduced the use of Adinkra symbols into their learning contexts. The analysis of the data also reveals that the emphasis on culture and on cultural tools ranks high among the reasons why educators choose to use Adinkra symbols as an instructional tool.

The present study provides confirmation for the necessity of African-centered theory, culturally-relevant (Ladson-Billings, 1992) and sustaining pedagogies (Paris, 2012). There was no contradiction between the results and the theories outlined above. The present study adds knowledge about how educators are using Adinkra symbols in instruction which hitherto has not been discussed.

Implications for practice

This section discusses the implications that the results of this study have for education and educators. The results presented have implications for practice for universities, high, middle, and primary schools. It also has implications for the non-formal education sector. For universities, the advancement of the knowledge and sociocultural practices of cultural groups around the world may provide an avenue to not only expand the knowledge horizons of their students, but also access other modes of communicating and making meaning besides the ones they are already familiar with. The knowledge gained from this study for instance, may be used to show university students how content can be decolonized.

Implications for educators

The present study provides educators with the knowledge on how educators in a variety of subject areas and interests are using and experiencing Adinkra symbols in instructional delivery. If educators of learners of African descent in particular are interested in providing a wholistic education to their learners, then they will stand to benefit from what participants in this study are doing by employing the various dimensions of Adinkra symbol use in the education of their leaners. All eleven participants in this study mentioned that they use Adinkra symbols in instruction to show that knowledge is not limited to the purview of the European culture and worldview but to other cultures, in this case, African, and emphasized the importance of demonstrating this to learners, who in many cases may feel isolated from the subject matter. Participants discussed establishing such connections in subject areas such as technology, art, mathematics, ethics, semiotics, all in an effort to empower the learners.

Implications for learners

The results of this study has implications for learners as they learn from the experiences and interactions with Adinkra symbols from participants. Learners stand to possibly benefit from such experiences by having their learning situated within their historical and cultural frameworks. The self-esteem of learners possibly stands to improve from the knowledge of the contributions of their culture and heritage to knowledge as a whole. Even though this study was limited to the experiences of educators, learners may note similar experiences in their interactions with Adinkra symbols. This study adds new knowledge to the literature by showing how educators are using Adinkra symbols as an instructional tool and the reasons for doing so.

Limitations of the study

The present study revealed two limitations that were both addressed in the design of the study. Firstly, there is the issue of the generalizability of the results. The intent of interpretive inquiry such as utilized in this phenomenological study is to provide a thick and rich description as well as a holistic interpretation of, in this case, the educators' perspectives and experiences interacting and using Adinkra symbols in their professional practices. To mitigate this limitation, I purposefully sought participants whose work and experiences fit the purpose of this study. Purposeful sampling was used to ensure that only participants who met the criteria for this study were contacted to participate. This limitation did not present any problems or affect the outcomes and results of this study.

Secondly, there was the potential for researcher bias owing to the fact that I am very familiar with Adinkra symbols and had to mitigate against the development of spurious assertions and theories. I focused on the data that was presented and analyzed it.

I did not bracket myself or my experiences from the analysis, rather I used my understandings as a foundation for my analysis and interpretations. Finally, the participants were all from the United States and it would be interesting to find out if educators using Adinkra symbols in other contexts have had similar experiences. The limitation of time and scope of this study did not allow for such an investigation to be carried out at the present time.

Recommendations for future research

This section provides recommendations for further research from the perspective of the researcher and other interested parties.

Recommendations for researching learners engaging Adinkra symbols

The scope of the present study has been limited to the experiences of educators using Adinkra symbols, and as such a necessary follow-up to it will have to investigate the experiences of learners interacting with Adinkra symbols in their instruction. The purview of such a study by necessity should also look at the personal connections that learners who have been exposed to Adinkra symbols and interact with them connect with them. Brian Yaw Lance makes this point when he says

> They go from each grade. They learned them [Adinkra symbols], some of them. …then they add to their knowledge base. I know definitely when I was working at the high school that a lot of young people gravitate to the symbols and use them. I remember one young man who had a *Gye Nyame* [An Adinkra symbol] cutting at the back of his hair…I know that it's definitely more commonly used amongst young people who come through our institutions than the average African American teenager also.

I suggest, in my capacity as a researcher to investigate this phenomenon further. In educational institutions, both formal and informal, learners are exposed and taught the same things at any given moment in time. What would be interesting to investigate would

also be who internalized the symbolism, interactions, experiences, and meanings of Adinkra symbols as they were used to instruct them and who did not and why. It would also be interesting to investigate how the experience of interacting and using the symbols have aided the learners to retain the associated meanings and phrases with the visualization of the symbol. Learners' self-esteem and feeling of empowerment after exposure to and interaction with Adinkra symbols should be integral to such a study of learners' engagement with Adinkra symbols.

Conclusion

This study provides insight and knowledge which should guide other educators interested in using Adinkra symbols as a culturally responsive instructional tool and policy makers interested in the enacting of policies that promote the well-being and success of learners of African descent. Educators in general and culturally responsive educators in particular should promote the use of Adinkra symbols through the awareness and propagation of the variety of its applications and its benefits.

This study answered the research questions as seen in the results and outcomes of the data analysis. The research questions were answered by the descriptions of the experiences of participants as given in their interviews of their interactions and uses of Adinkra symbols in instructional delivery. The results of this study present the factors responsible for educators' use of Adinkra symbols. Some of these factors include the need for decolonization of the content and the challenge to Eurocentrism and genetic determinism, the importance of culture to education, the connection between the use of Adinkra symbols and the empowerment of learners, the importance of the visual/image to learning, and the use of Adinkra symbols to transmit values to learners. Future research

may expand on the present study by investigating students' perceptions of Adinkra symbols. Another line of future research should investigate educators' perceptions of Adinkra symbols in contexts outside the United States. A better understanding of educators' and students' experiences and interactions with Adinkra symbols across the world may better inform the hows and whys of the use of cultural tools like Adinkra symbols.

The results of the present study provided implications for African-centered, Culturally-relevant and Culturally-sustaining theories. Educators in this study demonstrated that they were self-directed and self-motivated in their use of Adinkra symbols in instructional settings. They were excited about the possibilities that Adinkra symbol use have for learners.

The results of the present study also furnished implications for practice. The knowledge of learners may stand to benefit by way of expanding their horizons and using other communication modes. Educators may use the results as a basis for empowering learners, decolonizing content, being purposeful about the use of the visual/image in instruction, transmitting values, and emphasizing the overall importance of culture to education.

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<u>Education</u>

University of Illinois at Chicago
September 2016 – March 2020

Ph.D. in Literacy, Language, and Culture
Department of Curriculum and Instruction

College of Education

Columbia College Chicago	May 2009	Master of Arts – Education
Columbia College Chicago Management	May 2002	Master of Arts – Entertainment
University of Ghana, Legon	May 1997	Bachelor of Arts – Geography

<u>Teaching and Advising</u>

Du Sable Museum of African-American History   **Independent Consultant**

- Designed unit plans for teachers as part of the Amistad Project
- Trained and led workshops for Chicago Public School Teachers as part of the implementation of the Interdisciplinary African and African American Studies Curriculum

Village Leadership Academy, Chicago, IL   **Teacher**

- Utilizes a variety of instructional methods including cooperative learning, student-centered instruction, internet-based learning, discovery, and discussion.
- Successfully administered state tests to students.
- Assessed student learning modified lessons to create meaningful, authentic learning for students.
- Actively participated in school events such as PTA, Open House, School assemblies, in-service workshops, faculty meetings, team leader meetings, and grade level meetings.
- Designed and implemented classroom management plan.
- Contributed significantly to the development and implementation of the school's Social Justice Curriculum

Catalyst Circle Rock Charter School, Chicago, IL   2010 – 2011 Teacher

- NWEA test scores reflected growth of eight months after only three months of instruction.
- Developed a science curriculum for the middle school.
- Designed and implemented lesson plans for students at different learning levels.
- Utilized a variety of instructional methods including cooperative learning, internet-based learning sites, discovery, and discussion.
- Successfully administered state tests (ISAT) to students.
- Assessed student learning modified lessons to create meaningful, authentic learning for students.
- Actively participated in school events such as PTA, Open House, School assemblies, in-service workshops, faculty meetings, team leader meetings, and grade level meetings.
- Designed and implemented classroom management plan.

Country Club Hills School District 160,   2009-2010 – ACE
Country Club Hills, IL *(Alternative Classroom Experience) Supervisor*

- Administered computer-based national test to five hundred and twenty students.
- Elected as team leader and liaison between select staff and principal.

Crete Monee School District 201U, Crete, IL   2005-2008   Student Teacher (Grade 4)

- Utilized a variety of instructional methods including cooperative learning, games, discovery, and discussion.
- Administered standardized tests and assisted cooperating teacher in parent conferences.
- Organized international cultural feast and Grandparents day.

Chicago Heights School District 170,   **2003-2005   Teacher/Facilitator**

Chicago Heights, IL. *(Crete Alternative Program)*

- Assessed student learning and prepared bulletin boards.
- Designed and implemented the curriculum for the Music Business class.
- Administered computer-based instruction and testing.
- Successfully doubled the number of students eligible for graduation from eight to seventeen.

Chicago Heights School District 170,   **2003-2005   Permanent Substitute Teacher**
Chicago Heights, IL.

- Employed various classroom management strategies.
- Worked extensively in special education classrooms.

Park Forest School District 163, Park Forest, IL   2002-2003   **Substitute Teacher**

- Employed various classroom management strategies in maintaining an orderly environment.
- Worked in extensively in special education classrooms.

<u>**Research Experience**</u>

Doctoral Researcher

College of Education, University of Illinois at Chicago.   2017 – 2019

- Conducts research by examining publications through multiple sources

Researcher

Department of Education, Cumbia College Chicago   2006 – 2009

- Examined the level of participation of middle school students in science lessons through multiple sources

Researcher

Department of Arts and Entertainment Management, Columbia College Chicago   2000 -2002

- Examined and analyzed the importance of digital technology to the survival of independent record labels

Publications

- Independent Record Labels and the importance of digital technology to their survival: An Analysis of the past, present and future of independent record labels. (Columbia College Chicago)

- Middle School Students' Participation in Science Lessons: Focus on Strategies to increase female participation (Columbia College Chicago)

- African Unity: The Final Frontier (*in Rastafari Speaks Reissue 2 Volume 1: Summer 2002, Pg. 5*)

- Revelation (in JAHUG vol.4)

- The Empress Menen Chronicles (Volume 1) Spring 2019

- Ritual: The importance of *nsuo* (water) in the worldview of the Akan and other Africans (in *The Eternal Year of African People*) – Pending (May 2020)

Service

Dean's Student Leadership Advisory Board.   2017 – 2020

College of Education, University of Illinois at Chicago

Serves on advisory board that advises dean on student concerns and makes proposals for initiatives to improve student life.

Graduate Mentor   2018 – Present

College of Education, University of Illinois at Chicago

Counsels graduate students on program requirements, procedures, and time management.

Managing Editor   2017 – Present

The Empress Menen Chronicles

- Processes manuscripts submitted for publication

- Oversees production and publication procedures
- Maintains editorial correspondence with contributors
- Conducts business transactions including advertising and publicity
- Edits copy for publication
- Designs and maintains publication's internet presence

Skills

Analysis and Problem-solving

- Ability to define a problem and identify its causes
- Ability to comprehend large volumes of information
- Ability to develop and defend independent conclusions
- Ability to design a plan and implement it as a solution to an existing problem

Interpersonal and Leadership skills

- Ability to effectively provide mentorship
- Ability to provide instruction on concepts and skills
- Ability to facilitate group discussions and conduct meetings
- Ability to collaborate with others on projects
- Ability to navigate complex bureaucratic environments
- Ability to motivate groups and individuals to complete projects
- Ability to respond to feedback appropriately

Research and Information Management

- Ability to develop principles of organization to effectively sort and evaluate data
- Ability to design and analyze surveys
- Ability to comprehend and synthesize large quantities of data
- Ability to identify information sources applicable to a specific problem

Self-Management and Work Habits

- Ability to work effectively with limited supervision
- Ability to comprehend new material at a fast pace
- Ability to work effectively under pressure to meet deadlines

Project Management and Organization

- Ability to manage projects from inception to conclusion
- Ability to identify goals and/or tasks to be accomplished and proposing a realistic timeline for its completion
- Ability to prioritize tasks while simultaneously anticipating potential problems
- Ability to maintain flexibility and adaptability in the face of challenging circumstances

Written and Oral Communication

- Ability to prepare logically-written and concise materials
- Ability to organize and communicate ideas effectively in oral presentations to small and large audiences
- Ability to write at all levels – brief abstract to book-length manuscript.
- Ability to debate issues in collegial manner and participate in group discussions
- Ability to write effective grant proposals
- Ability to use logical arguments to persuade others
- Ability to explain complex and difficult concepts in simple language and basic terms

Languages

- English – Full proficiency
- Twi – Full proficiency
- Ga – Fluent

Computer skills

- Microsoft office suite (MS Word, Excel, PowerPoint)
- Google suite (Slides, Docs, Sheets
- Skype, Hangouts
- Social media (Twitter, Facebook, Whatsapp, Telegram)
- ATLAS.ti Qualitative Research Package

Professional Organizations

- National Youth Leadership Forum

- Humanities, Arts, Science, and Technology Alliance and Collaboratory

- Research Gate

Honors and Awards

Diversifying Faculty in Illinois Fellowship   2017 – March 2020

References

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APPENDICES

APPENDIX 1:   LITERATURE REVIEW SUMMARIES OF SELECTED AUTHORS

Citation	Problem Investigated	Findings/ Conclusions	Implications	Relationship of Literature to the Study
Arthur, G.F.K. (2017). *Cloth as Metaphor: (Re) Reading the Adinkra Cloth: Symbols of the Akan of Ghana*. Bloomington, IN: iUniverse.	Presents a framework for analyzing Adinkra symbols and presents the symbols as a system of writing.	Study serves as an example of how the material culture of the Akan people, specifically, Adinkra symbols can be utilized as the context for both visual and verbal language learning.	Literacy programs must recognize that the visual element, whether pictogram, ideogram, or phonogram is a central part of complete literacy.	This piece of literature provides the most extensive collection of Adinkra symbols. It also provides a basis for the exploration of these symbols and their meanings. In addition, it highlights the importance of the visual element to complete literacy.
W. B. (1998). *The Adinkra dictionary: A visual primer on the language of Adinkra*. Fort Wayne, IN: Pyramid Complex.	Presents a detailed account and framework for understanding the language of Adinkra symbols.	It is imperative that Adinkra be appreciated not only for its aesthetic qualities, but also for its meaning-making functions and that their place in Akan wisdom must never be forgotten.	Adinkra as an art form and a meaning-making medium continues to expand. Multiple symbols are now being fused together to create new meanings.	This body of literature contributes an understanding of the dynamic and always expanding canon of Adinkra symbols. This sets the stage for transnational experiences of educators who use Adinkra symbols in the United States.

Poirier, Eglash, and Babbitt (2015) Ghana: Adinkra Symbols.	Presents a unique aspect of Adinkra design, the incorporation of elements of geometry.	Geometry lessons can be created based on Adinkra symbols for all elementary and high school grade levels.	Students from all over the world can interact with Adinkra symbols in the study of geometry.	The transnational and global extent of interaction and experience with Adinkra symbols is a major contribution of this body of literature to this study. Although geometry serves as its basis, the holistic nature of knowledge stemming from Adinkra symbols is emphasized.
Hodge, R., & Kress, G. (1993). *Language as ideology* (Vol. 2). London: Routledge.	Evaluates and critiques aspects of the work of Saussure and presents a new conceptual framework based on Saussure's semiotics but emphasizes the social practices associated with it.	Social relations in semiotic acts and in social formations are constituted by relations of power and solidarity.	There is the need to further investigate symbols and signs and their association with power. Opposing groups in society express their social relations and negotiate their interests through ideological schemas.	This piece of literature is related to this study by way of defining and providing a framework for the study of signs and symbols, semiotics.
Agbo, A. H. (2006). *Values of Adinkra and Agama symbols*. Bigshy Designs and Publications.	This work delves into the Philosophical, educational, historical and moral values	Study is important to the meaning making processes that stem from interaction with Adinkra symbols.	Meaning making from Adinkra symbols emanate from its design and the proverbs associated with them.	This piece of literature provides meanings of proverbs associated with Adinkra symbols in their original context.

	associated with Adinkra and Agama graphic symbols.			
Nacimiento E.L. & L.C. Ga Adinkra (2009). Sabedoria em símbolo africanos African wisdom symbols Sagesse en symboles africains Sabiduría en simbolos africanus. Rio de Janeiro: Pallas.	This work draws attention to Akan philosophy as transported to the diaspora and how Adinkra symbols in particular has meaning for the people of Brazil.	This work is presented as being critical to the identity of African-Brazilians in particular. Adinkra symbols have implications for the Africana movement in Brazil which is patronized by all segments of the society.	The meaning making emanating from Adinkra symbolism has historical and educational implications for the people of Brazil.	This piece of literature relates to this study by providing an example of transnational experiences with Adinkra symbols within the Brazilian context.
Mato, D. (1988). Clothed in symbol – The art of Adinkra among the Akan of Ghana.	This study focuses on the various forms of Akan funerary arts and documents the proverbs associated with the symbols.	Adinkra symbols are associated with parables, apologues, and aphorisms.	Adinkra symbols are multidimensional. It can be viewed from the angle of the symbols as art and meaning made from them.	This body of work provides a basis for the argument in this study of the multidimensionality of Adinkra symbols and its implications for learning.
Page, K. (1983). *Kente and Adinkra Cloth-Asanti, Ghana* (Doctoral dissertation, Governors State University).	This study focused on the interpretation and function of Adinkra symbols.	The study of Adinkra symbols reveal aesthetic preferences, social, and religious thought. They are always making a statement.	Adinkra symbols are always generating meaning in the context in which they are situated.	The basis of this study, the generation of meaning within the context of experience and interaction with Adinkra symbols aligns with the objectives of this study.

Boateng, B. (2011). *The copyright thing doesn't work here: Adinkra and Kente cloth and intellectual property in Ghana*. U of Minnesota Press.	This is a study into the indexes of culture and power through the lenses of Adinkra symbols.	Even though Adinkra symbols originated in the time of the ancestors, it has now assumed global dimensions. Intellectual property law can be used to preserve traditional forms of knowledge.	Adinkra symbols are intellectual property.	This piece of literature emphasizes the intellectual property of Adinkra symbols. This relates to this study to the extent that intellectual property when so recognized can be an emancipatory force.
Kayper-Mensah, A. W. (1976). *Sankofa: Adinkra poems*. Ghana Publishing Corporation.	This study highlights how Adinkra symbols can be expressed through poetry. This was done to make them meaningful to both traditional and contemporary audiences.	Meaning making is contextual. The time and place of use of Adinkra symbols puts the message being delivered in context.	Adinkra symbols can be interpreted through poetry forms in a manner that is meaningful to the reader. It has educational implications related to identity development and knowledge of other cultures.	This piece of literature is relevant to this study because it provides an example of poetry and interpretation situated within a social and cultural framework.
Quarcoo, A. K. (1994). The language of Adinkra symbols. *Legon: Sebewie Ventures Publications*, *17*.	The colors associated with the symbols express the mood in which the message is delivered or associated with.	Adinkra symbols preserve and present aspects of Akan history, values, cultural norms and philosophy.	Adinkra symbols have philosophical bases.	This piece of literature is related to this study by offering insight into the ontological base of Adinkra symbols.

Christian, A. (1977). *Adinkra oration*. Catholic Book Centre.	This is a study of the oratory associated with Adinkra symbols.	The symbolism enshrined in the symbols are what draws people to them.	The attraction of symbols has far reaching implications for education.	This piece of literature is related to this study because of its assertion that Adinkra symbols are attractive to the person who interacts with them and as a consequence, the experience of the interaction. In so far as this study focuses on experience, it would be interesting to find out the extent of this attraction to the participants.
Coppens, L. C., Verkoeijen, P. P., & Rikers, R. M. (2011). Learning Adinkra symbols: The effect of testing. *Journal of Cognitive Psychology*, *23*(3), 351-357.	How can symbol-word pairings be used to demonstrate the generalizability of the testing effect in symbol-based learning?	The results showed that there was no difference in final memory-test performance after a retention interval of 5 minutes, but after a retention interval of a week tested pairs were retained better than repeatedly studied pairs.	This study is significant because the testing effect generalizes to classroom applications with verbal materials. These results are promising for educators teaching disciplines in which symbols have to be memorized; aiding student learning by the use of symbol-word pairings appears to be a powerful way to improve symbol learning.	This piece of literature contributes to this study provides a quantitative basis for interaction with Adinkra symbols by conducting a pretest and a post-test to determine the contribution of Adinkra symbols to long-term memory retention.

Sarar Kuzu, T. (2016). The Impact of a Semiotic Analysis Theory-Based Writing Activity on Students' Writing Skills. *Eurasian Journal of Educational Research*, *63*, 37-54.	The primary research question asks whether a writing activity based on semiotic analysis theory is more effective than an activity with the same content based on more a traditional method.	Results revealed that textual analysis based on the semiotic theory was more effective for the writing skills of students than the traditional writing method with respect to three areas of evaluation: understanding the subject, accessing the message, and multidimensional interpretation.	The most significant difference afforded by the semiotic analysis-based application is that it enabled students to view the topic in a multidimensional way.	This piece of literature is directly related to the methodology in this study in its development of textual analysis steeped in a background of semiotics.
McDougal III, S. (2009). " Break It Down": One of the Cultural and Stylist Instructional Preferences of Black Males. *The Journal of Negro Education*, 432-440.	What is the relationship between Black male learning styles and their teachers teaching styles? Students have the desire to experience information holistically, and to know how it relates to their everyday lives (Meaning making).	Forty-five percent of the students interviewed expressed that they have a preference for, and they benefit from being provided a certain type of explanation from their teachers. Students expressed their desire to know how what they were learning will be important for them in their everyday lives or "the real world."	Students interpret information through the lens of their cultural grounding and social experiences.	This piece of literature is related to this study to the extent that it exposition of the importance of connecting learning to students backgrounds by the provision of a social and cultural lens through which to interpret information and experiences.

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Iruka, I. U., Curenton, S. M., & Gardner, S. (2015). How Changes in Home and Neighborhood Environment Factors Are Related to Change in Black Children's Academic and Social Development from Kindergarten to Third Grade. *The Journal of Negro Education*, *84*(3), 282-297.	This study sought to examine whether a change in home environment and neighborhood were associated with Black children's academic and social growth between kindergarten and third grade.	The home environment factors were generally associated with children's academic achievement and social behaviors at both kindergarten and third grade.	This study provides some evidence of how important it is to consider neighborhood context in conjunction with home environment factors in seeking to ensure the success of African-American males. It is significant because it provides an example of a study that is situated in a sociocultural and historical context.	This piece of literature relates to the sociocultural basis of the learning process expounded in this study,
Jewitt, C., Kress, G., Ogborn, J., & Tsatsarelis, C. (2001). Exploring learning through visual, actional and linguistic communication: The multimodal environment of a science classroom. *Educational Review*, *53*(1), 5-18	To what extent is learning realized through the interaction between visual, actional and linguistic communication (i.e. learning is multimodal) and involves the transformation of information across	Focusing on the pupils' texts and their transformation of the teacher's communicative work (across modes, in terms of composition, genre and analogy) serves to emphasize the dynamic nature of the process of learning and the ways in which different pupils' interests influence this process. It also highlights how the visual and the written elements of a text can be used to attend to different	This research explored the full repertoire of meaning-making resources which pupils and teachers brought to the classroom (actional, visual and linguistic resources) and how these were 'organised' to make meaning, i.e. by	This piece of literature is a demonstration of the multimodal resources brought into the classroom to enhance the learning experiences of students. The use of Adinkra symbols in this study takes this a step further by aligning to the importance of multimodal resources but situating those resources in social, historical, and cultural contexts for the holistic education of students of African descent.

	different communicative systems ('modes'), e.g. from speech to image?	aspects of meaning; to realise different functions	taking a 'multimodal' approach to classroom interaction (Kress et al., 2001)	
Hull, G. A., & Nelson, M. E. (2005). Locating the semiotic power of multimodality. *Written communication*, *22*(2), 224-261.	What roles do digital multimodal texts play in real-world contexts?	Through analysis, the authors attempted to characterize the relationality between and among modalities and thereby demonstrated some of the semiotic dimensions and strategies that partly accounted for the emergent meaning of a student's (Randy) composition.	The analysis undertaken together with Randy's story offer a strong counterclaim to the argument that digital media simply facilitates the multimodal composing that could and does exist apart from computer technologies.	This piece of literature relates to this study by expanding the discussion of multimodality beyond the digital context. This study emphasizes interactions with Adinkra symbols in both digital and non-digital contexts.
Babbitt, W., Lachney, M., Bulley, E., & Eglash, R. (2015). Adinkra mathematics: A study of ethnocomputing in Ghana. *Multidisciplinary Journal of Educational Research*, *5*(2), 110-135.	How does Adinkra symbolism make meaning in mathematical terms and how can that be used to develop computer software for student learning?	The study found that students who used the culturally-based software showed a marked improvement when compared to those who used software devoid of cultural content.	This study shows how ethnomathematics research can be used to develop ethnocomputing interventions in classrooms. The ethnocomputing activity, Adinkra Computing engaged	This piece of literature relates to this study by demonstrating that Adinkra symbols as ethnomathematics can be used in the development of culturally situated software to enhance and provide meaningful experiences to learners.

			students' interest and increased mathematical performance between pretests and posttests.	

APPENDIX 2: INTERVIEW PROTOCOL

University of Illinois at Chicago
Interview Protocol for semi-structured interviews
Educators Perceptions of the Adinkra Symbols

1. Tell me about your use of the Adinkra Symbols.

2. How do you use the Adinkra Symbols in your professional Practice?

3. How did you start using the Adinkra Symbols?

4. What is particularly interesting or creative about your use of the Adinkra Symbols?

5. Can you show me some examples of materials you use that incorporate the Adinkra symbols?

6. Tell me about any challenges you face in using the Adinkra Symbols in your professional practice.

7. Tell me about how you continually deal with (try to resolve) these challenges.

8. What sorts of things help you deal with these challenges?

9. What advice would you give to other educators about using the Adinkra Symbols?

10. Is there anything else you can tell me about your use of the Adinkra Symbols?

Thank educators for participating in the semi-structured interview

APPENDIX 3: RECRUITMENT FLYER

University of Illinois at Chicago

Research Information and Consent for Participation in Social Behavioral Research

Educator Perceptions of the Adinkra Symbols

You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Principle Investigator Name and Title: Department and Institution:	Kwadwo Oppong-Wadie, Doctoral Student Educational Psychology, University of Illinois, Chicago
Address and Contact information:	1040 W. Harrison St., 3353 micthom@uic.edu, (312) 413-7451
Project Sponsor:	None

Why am I being asked?

You are being asked to be a subject in a research study about educators' perceptions of the Adinkra symbols. The Adinkra are visual symbols that represent concepts or aphorisms. The Adinkra symbols are used extensively in fabrics and pottery among the Ashantis of Ashanti Kingdom and the Baoule peoples who historically migrated from Ghana. The Adinkra symbols have become popular in African diasporic communities and are now being used by some educators as part of their professional practice. You are being asked to participate in this research study because you are an educator who uses the Adinkra symbols as part of your professional practice. Your participation in the research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with the University of Illinois at Chicago. If you decide to participate, you are free to withdraw at any time without affecting that relationship. Approximately 50 subjects may be involved in this research at UIC.

What procedures are involved?

The research will take place at UIC in the Education Performing Arts, & Social Work (EPASW) building at 1040 W. Harrison Chicago IL, or in a public place of your choosing. The research for you will involve 2 conversations about your use of the Adinkra symbols and your perceptions of using them in educational contexts. The project will continue from September 1, 2018 – September 1, 2020. Data from the research will be coded so as not to directly identify you. Any reporting of the data for this study will be presented in aggregate. Interviews may be audio recorded. Each interview will last approximately 30 minutes. Participants will be treated with the utmost respect in the exercise of their autonomy. Participants will be accorded the right to

refuse answering any question they may have discomfort in answering**.** Should the case arise where the participant refuses to be audio-recorded but is willing to participate in the research, the interview will proceed with the PI taking notes instead. Participants will not be required to be in any photographs. Photos will be taken of artifacts used in Adinkra-related processes.

What are the potential risks and discomforts?

The anticipated risks may be that participants may feel uncomfortable discussing their use of the Adinkra symbols and their perceptions of using them in educational contexts. To the best of our knowledge, the things that will be discussed in the sessions will have no more risk of harm than you would typically experience in your daily life and work. Interviews will be conducted on an individual basis.

Are there benefits to taking part in this research?
There are no direct benefits to participants in this research. This research could be of assistance to teachers and educators in the future.

What other options are there?

You will have the option not to participate in this study. If you decide not to participate in the study, this will not affect your job in any way.

What about privacy and confidentiality?

The persons in the know about you being a research subject are myself and faculty member (my advisor at UIC) participating in the project. Otherwise, information about you will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare or if required by law. Study information which identifies you and the consent form signed by you will be looked at and/or copied for checking up on the research by UIC's Office for the Protection of Research Services. The State of Illinois auditors may monitor the research. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

All personal identifying information, like names, will be removed from all data. Recordings will be destroyed after data analysis. Study codes will be used on data documents and a separate document will be kept that links the codes to subjects identifying information (master list). The master list will be destroyed after data analysis. Interviews will be transcribed and participants will only be identified in the text transcriptions with study codes. Documents will be in electronic and paper formats. Documents will be kept in a locked secure location at UIC with access granted only to Primary investigator and Faculty sponsor. Instruments of data collection will not contain any identifiers. Computerized data will be assigned security codes. A coding system will be used. Data collected for this research will be stored until the end of data analysis when it will be destroyed. Data identifying the subjects together with the master list will be destroyed upon completion of data analysis.

What are the costs for participating in this research?

There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

You will not be reimbursed for participating in this study.

Can I withdraw or be removed from the study?

If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty. If you decide to withdraw from the study you are to contact the project PI Kwadwo Oppong-Wadie koppon2@uic.edu, (708) 283-9268 or his faculty supervisor, Michael K. Thomas micthom@uic.edu, (312) 413-7451. The researchers also have the right to stop your participation in the study without your consent if we believe it is in your best interests.

Who should I ask if I have questions?

If you have any questions about this study or your part in it or if you have any questions, concerns, or complaints about the research, contact the project PI Kwadwo Oppong-Wadie at Kwadwo Oppong-Wadie koppon2@uic.edu, (708) 283-9268 or his faculty supervisor, Michael K. Thomas micthom@uic.edu, (312) 413-7451.

What are my rights as a research subject?

If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) 312-996-1711 OR 1-866-789-6215 (TOLL-FREE) OR EMAIL OPS AT uicirb@uic.edu.

Remember

Your participation in this project is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are fee to withdraw at any time without affecting your relationship with the University.

Signature of Subject

I have read (or someone has read to me) the above questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

☐ Check this box if you are willing to be audio recorded.

_____   _____

Signature   Date

_____

Printed Name

_____   _____

Signature of Person Obtaining Consent   Date (must be same as subject's)

_____

Printed Name of Person Obtaining Consent

APPENDIX 5: RESEARCH OUTLINE

What do I need to know? (Research Questions)	What is the essence of the lived experience of educators using the Adinkra symbols in their professional practice? What are the commonalities between educators' perceptions and experience of using the Adinkra symbols in the United States in their professional practice?
Why do I need to know this? (Goals)	To uncover the core experiences educators have from their interactions with Adinkra symbols by use of a phenomenological approach to make connections and describe the central place symbols and symbolism play in it.
What kind of data will answer the questions? (Methods)	Interviews (semi-structured) Participants will participate in two interview for approximately one hour each. Participants are educators who use Adinkra symbols in instruction.
Analysis Methods	Interviews will be transcribed, ATLAS.ti will be used for coding Researcher will employ memoing and memo sorting (Glaser & Strauss, 1967; Glaser, 1978). Researcher will develop *a priori* codes for deductive analysis. Inductive analysis will also be performed during data analysis
Potential Conclusions	Potential conclusion is that educators' interactions and experiences are varied and contribute meaningfully to instruction. Meaning making is made in a host of situations applicable to literacy contexts.
Alternative explanations (Validity threats)	Bias – Potential for the development spurious associations and premature theories.

Methods to Investigate Alternative explanations	Involvement will provide the researcher with rich data to minimize any undue influences resulting from bias or reactivity.

APPENDIX 6: RESEARCH TIMELINE

Data Collection/Activity	Week 1	Week 2	Week 3	Week 4 etc
	Interviews	Interviews	Transcription	Development of textural and structural descriptions

APPENDIX 7: EXAMPLE OF LESSON PLAN USING ADINKRA SYMBOLS

Example of lesson plan using Adinkra symbols (Adapted from original from livetext by Emily and Tara)

Lesson Overview

This is an Extending and refining lesson plan for a 6th grade combined Social Studies and Art lesson. This lesson is designed for 8 students for a duration of 35 minutes.

Objectives

By the end of this lesson, the students will be able to:

1. Comprehend how different cultures express emotions in various ways
2. Know where Adinkra Symbols came from and how they are traditionally produced
3. Analyze perspectives and errors through the process of critique

Anticipatory Set

Teacher will project a map of the African continent and help students identify Ghana on it. Teacher will inform students that they are about to learn about Adinkra symbols and the people who originated them.

Introduction to new ideas

Teacher will give an introduction of Adinkra symbols and the Asante people who originated them.

Teacher will discuss their functions as communicative devices.

Teacher will discuss colors and their relationship to Adinkra symbol expression.

Teacher will discuss how dye for Adinkra cloth is made.

Teacher will explain that students will be making their own cloth with the symbols.

Teacher will pass out handout with 20 symbols and review them with the class.

Guided Practice

Teacher will pass out quilt squares (6x6)

Teacher will pass out paint

Teacher will ask students to pick a symbol and paint on their quilt squares

Teacher will pass out stencils with which students will paint symbols onto squares.

Students will paint several symbols onto the square until it is full

Assessment

Teacher will lead class to openly critique their final product. Each student will be expected to participate.

Teacher will ask students why they chose the particular symbol and colors.

Closure/Exit Slip

Students will answer the following questions:

1. How does communication by Adinkra symbols differ from what you are familiar with?
2. What is the meaning behind the symbols you tried to express in your quilt square?

APPENDIX 8: PHOTOS – EXPRESSIONS AND USES OF ADINKRA SYMBOLS IN THE WIDER SOCIETY

Figure 40: Adinkra symbol stamps carved out of calabash gourds and used in stamping the symbols into cloth after application with dye. The wearer of the cloth communicates the message of the symbol to all who know and understand.

Figure 41: Chicago Kwanzaa celebration poster with seven Adinkra symbols of relevance to the African-American holiday.

Figure 42: Certificate of achievement depicting Adinkra symbols in use at charter school in Chicago.

Figure 43: A host of Adinkra symbols and the meanings they communicate here displayed on a wall a charter school in Chicago. Educators use them to engage student learning in multiple ways.

Figure 44: Adinkra symbols communicating values in the hallway of a school in Chicago.

Figure 45: Adinkra symbols emblazon storefronts in the African-American community of 79th and Eggleston, Chicago. Here the symbols are selectively chosen to communicate the importance of investing in the community.
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| **Figure 46:** Close up of Adinkra symbols on 79th and Eggleston. | **Figure 47:** *Gye Nyame* and other Adinkra symbols as forms of African-American cultural expression. 79th and Eggleston, Chicago. |

Figure 48: Adinkra symbols being displayed in mural form at the intersection of Marquette and Dorchester streets in Chicago.

Figure 49: Adinkra symbols *Okodee mmowere* (symbol of strength, braver, and power) and *Bese Saka* (symbol of abundance) displayed at the intersection of Marquette and Dorchester in Chicago.

Figure 50: An African-American woman proudly displays and expresses herself through the Adinkra symbols *Gye Nyame* and *Duafe* on her earrings.
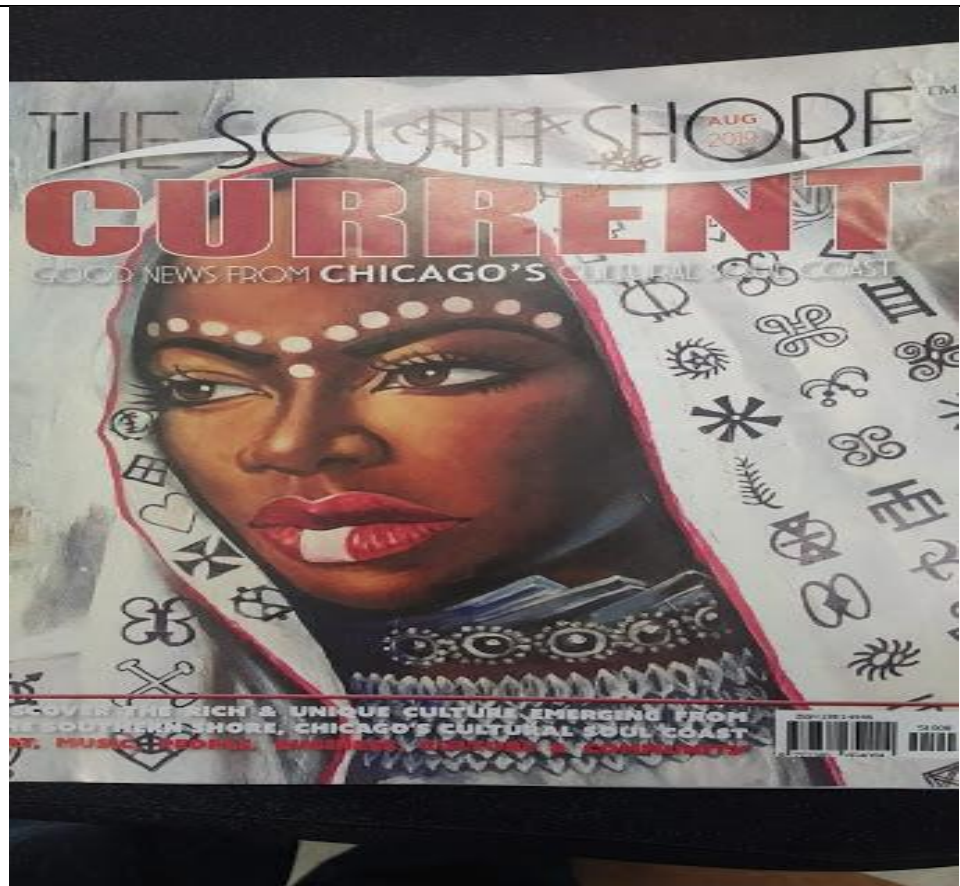
Figure 51: Adinkra symbols grace the cover of Chicago's South Shore Current news magazine.

Adinkra symbols on chocolate packaging on display at a grocery store

Figure 52: Symbols of importance of historical knowledge, strength, unity in diversity, and prudence displayed here. These messages are communicated to the individual who interacts with them. They are used here for aesthetic as well as communicative purposes.
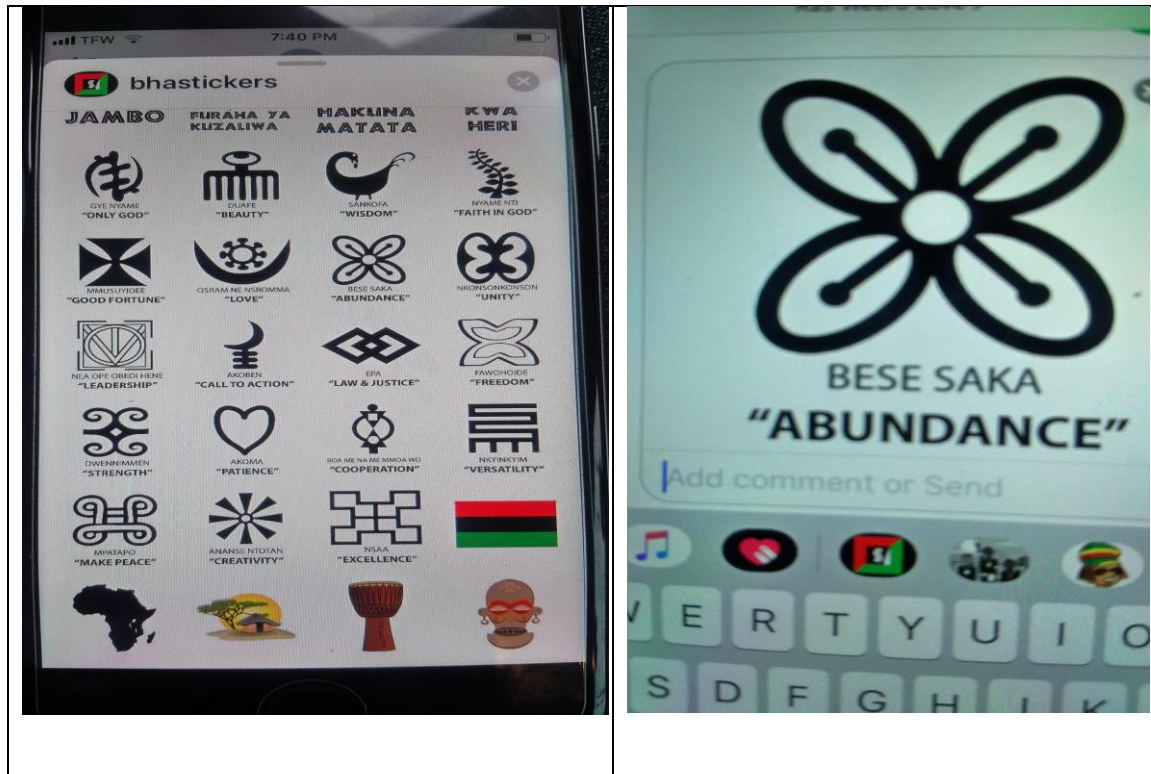
Figure 53: This image shows a cell phone application developed by the Black History Arcade using Adinkra symbol stickers for textual communication. Here they are used in a manner similar to using emojis.

Figure 54: Alternate view of wall of Adinkra symbols at the intersection of Marquette and Dorchester in Chicago. The symbols selected carefully communicate the axiology of the community.

Figure 55: A lady wears the *Gye Nyame* and *Sankofa* Adinkra symbols on her fingers as a form of cultural expression.

Figure 56: A young lady expresses herself and her connection to her culture and heritage with the *Gye Nyame* Adinkra symbol prominently featured in her earring.

Figure 57: *Hye won hye*, Adinkra symbol of imperishability and endurance and *Nea opese obedi hene*, Adinkra symbol of service and leadership are carefully selected and displayed at the intersection of Marquette and Dorchester in Chicago.

Figure 58: Mural dedicated to the memory of recently deceased musical artist Nipsey Hussle is set to the background of Adinkra symbols in Hyde Park, Los Angeles.

Figure 59: Artist works on mural depicting an Olmec figure against the backdrop of Adinkra symbols in Hyde Park, Los Angeles.
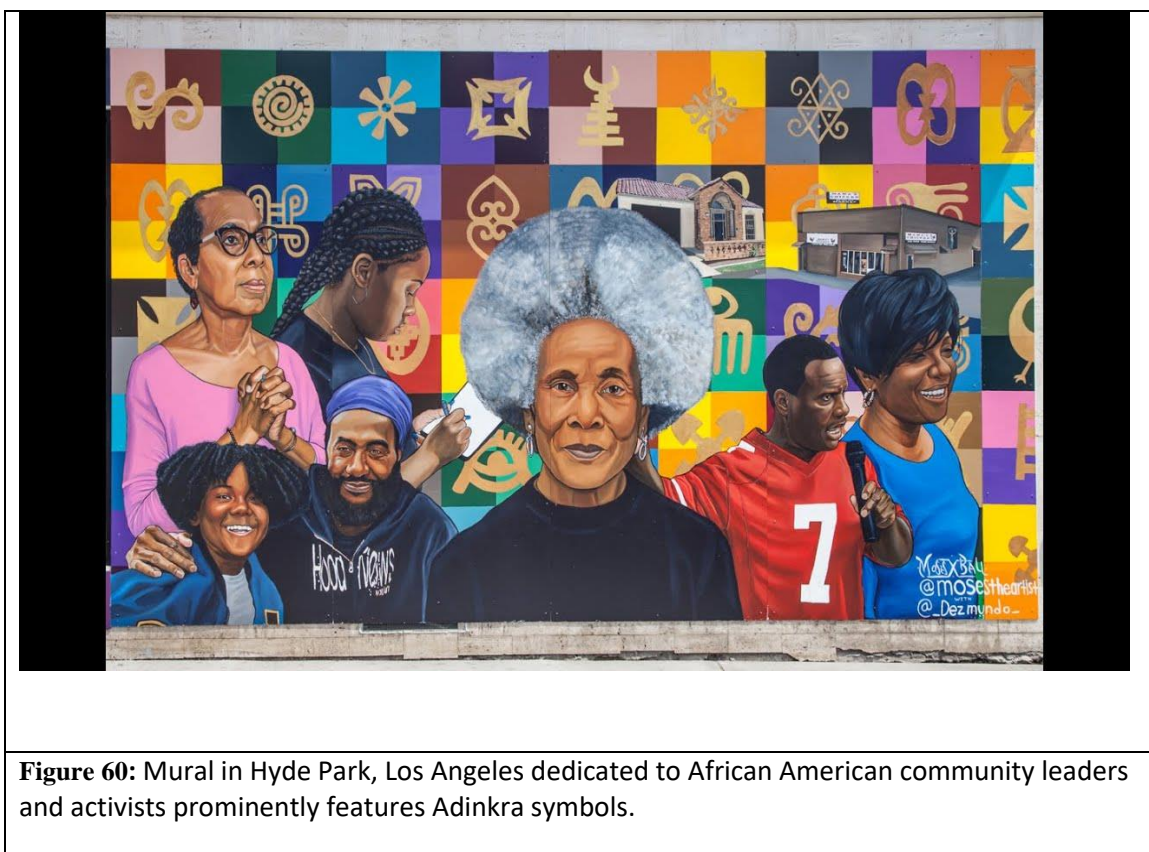
Figure 60: Mural in Hyde Park, Los Angeles dedicated to African American community leaders and activists prominently features Adinkra symbols.
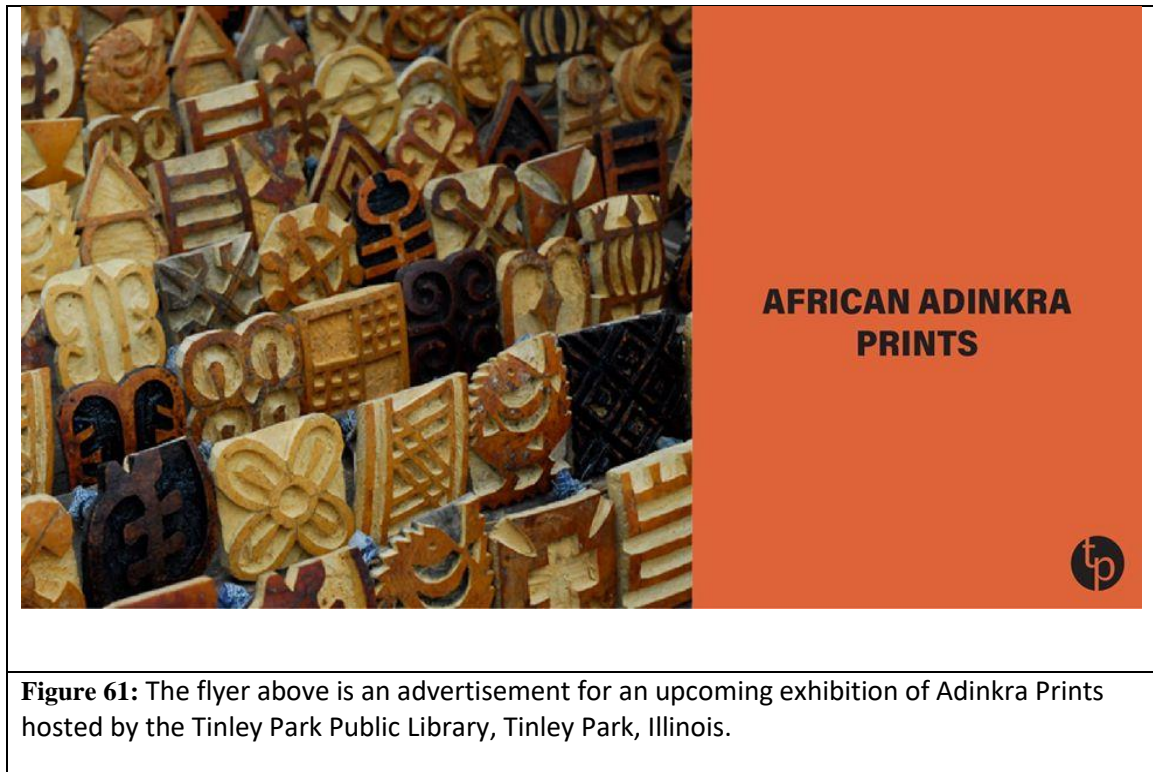
Figure 61: The flyer above is an advertisement for an upcoming exhibition of Adinkra Prints hosted by the Tinley Park Public Library, Tinley Park, Illinois.

APPENDIX 9: GLOSSARY OF TERMS

Abakosem anaa mpanyinsem – Matters of the past or matters of the elders, constituting an oral history.

Abrone ne abisaa – Quizzes and riddles in the Twi language

Adinkra – Ideographic and pictographic symbols originating in Ghana and Ivory Coast, West Africa.

African-centered theory – This theory posits that the history, culture, and experiences of learners of African descent should be at the center of their learning experiences.

Anansesem – 'Ananse' (the character) stories of the Twi speaking peoples.

Akan – A meta-ethnic group residing in Ghana and Ivory Coast and speaking the Central Tano languages. The Asante, Denkyira, Bono, and Gyaman are sub-groups of the Akan.

Apaeyi - libation, prayer that is sometimes associated drum poetry.

Aroko – A system of communication of the Yoruba people of Nigeria that uses symbols.

Asante (Ashanti) – Also sometimes referred to as *Ashanti* they are an ethnic group native to Ghana, West Africa. They are responsible for the popularization of Adinkra symbols and are credited to adding many of the symbols to the canon.

Awensem – Poetry in the Twi language of the Akan people.

Bakongo – Members of the Kongo nation of Central Africa. Defined as a Bantu ethnic group, their primary language is Kikongo and has a well-defined and expressed indigenous belief system.

Bono – Also known as *Abron* are a sub-group of the Akan and inhabit the middle portions of Ghana and the Ivory Coast. They are also the founders of the Gyaman state in Ivory Coast.

Constructivism – A theory of philosophy and an epistemological viewpoint that proposes that learning is an active and constructive process in which the learner constructs his or her own representations of reality.

Culturally relevant pedagogy – A form of pedagogy grounded in the notion of teachers being responsive and able to display cultural competence. Course content is linked to cultural contexts of students.

Culturally sustaining pedagogy – Closely related to culturally relevant pedagogies, culturally sustaining pedagogy raises questions about the purpose of schooling and proposes that schools should contribute to the sustenance of the cultural practices of students of color.

Dasein – It refers to the *being*. This being, according to Heidegger, is one who understands that being is an aspect of the ontological constitution of humans.

Denkyira – A subgroup of the Akan and a once powerful nation that contributed to the canon of Adinkra symbols.

Dogon – An ethnic group indigenous to Mali and Burkina Faso, famous for their knowledge on stellar systems.

Gyaman – Also spelled *Jaman* is an Akan sub-group and state whose landmass comprised parts of the Brong Ahafo region of Ghana and Bonduku in the Ivory Coast. They were responsible for contributing to the canon of Adinkra symbols.

Gye Nyame – Adinkra symbol that expresses the omniscience of the creator of the universe.

Hwehwemudua – (The measuring stick) Adinkra symbol of quality control, thorough examination, and excellence.

Mme anaa mmebusem – Proverbs.

Multimodality – It is a theory of communication and social semiotics that suggests that communication practices exist in a variety of forms, including but not limited to, the textual, the aural, the spatial, the linguistic, and visual modes used in the composition of messages.

Nsibidi – A system of indigenous symbols originating in Nigeria including ideographic and logographic designs.

Nsubaa anaa sudwom - funeral dirges

Nwom – folk songs of the Akan people

Phenomenology – An approach to research that focuses on the direct experience of individuals with a phenomenon.

Sankofa – Adinkra symbol denoting the importance of returning to the past to access knowledge. It is a very popular symbol in both Ghana and the United States.

Semiotics – The study of signs and symbols and how they are interpreted or used.

Sociocultural theory – Emerging from the seminal ideas of Lev Vygotsky and others, Sociocultural theory posits that learning and human cognitive development are social processes and as such the source of human intelligence is to be found in culture and society.

Vai – An ethnic group in Liberia, West Africa that was studied by Sylvia Scribner and Michael Cole for their indigenous literacy practices.