Designing Learning Technology: An African HCI Approach

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1 RESEARCH PROBLEM AND PURPOSE

The research involves investigating, from an African, specifically Nigerian perspective, what exactly might constitute education technology design best practices that will bring about developing a knowledgeable individual? Substantive progress has been made with regards to identifying gaps in the literature regarding the notion of education with technology in Africa, notably blended learning and some work on the relevance of indigenous knowledge and methodologies in providing some better understanding of the peculiarities of an African context. Initial fieldwork has been completed in Nigeria, thematically analyzed and interpreted the data; conducting a follow-up field work (a participatory observational study), and also evaluating and disseminating the early results from the initial analysis.

The problem investigated in this work concerns the notion of technology design and use, and why and how the design and re-design of learning technologies might be used in a Nigerian Higher education institution to further adoption and use. The gap identified in the literature concerns learning technology in Africa and Human Computer Interaction (HCI). Based on an iterative process of brainstorming ideas in Lancaster and with others (research experts in computing, education science and distance learning) in Nigeria, there is an understanding and believe that work needs to been carried out in trying to reveal the educational potentials of those technologies, such as fostering meaningful interactions, better and more engagement of learners and facilitators, and thus likely improve on the learning experience. Related arguments that shaped the problem in this work are about whether the technological solutions we adopt/adapt in most African higher education institutions are ideal in developing the capabilities and capacities of an African and Africa; and whether what we assumingly or unilaterally consider as candidates for design best practices in computing are regarded as an indigenous practices or is it some form of modern colonial phenomenon? These are the questions that form the basis of my work.

2 OUTLINES OF OBJECTIVES

This work concerns the present landscape of technology use for teaching and learning in Nigeria, and more importantly how we might move towards a future based on this socio-cultural understanding. The research question listed below outlined a path that is empirical, philosophical, and grounded, or a data driven approach.

RQ-1 What is the state of using eLearning and in Nigerian Universities?

RQ-2 How do tutors and students use eLearning systems to instruct and learn? And how can we bring about more adoption and use?

RQ-3 What and how do designers and developers of eLearning systems consider as ideals for design, development, evaluation and implementation practices?

RQ-4 How could the design of eLearning systems be enhanced by looking at African notions, and other indigenous form of conducting research?

RQ-5 To what extent does the effective and efficient design of eLearning systems aid in fostering meaningful interaction, more and better engagement, and thus possibly improve the learning experience in a blended learning environment?

The objective is to provide a different and perhaps new understanding regarding the ideas about using technology in education. It is my understanding and belief that we tend to adopt the latest technological solution without necessarily and critically investigating the context it is to be used, and which might lead to failure or unattained objective. Particularly in Africa, what was aimed for is to highlight the forms and ways, or rather candidate African approaches as to how technology can and will be adopted and used effectively and efficiently in Nigerian higher education institutions. This will be achieved by carefully and sensitively looking at what both conventionally western and indigenous methods

and approach can offer, first by trying to fully understand the African person and how he/she come to construct, shape and understand himself/herself, the environment and what is true and untrue, and secondly in the ways and approaches he/she come to develop and express those understandings.

3 STATE OF THE ART: IS IT RELEVANT ENOUGH?

This work is considered inter disciplinary, cutting across the field of African Philosophy, Education Technology, HCI, Research Methodologies in Social Science, and vaguely Developmental Discourse i.e. HCI4D. This section identifies the work that has been carried out with regards to African philosophy and how it might provide a better understanding of education and technology in Africa, specifically Nigerian; education with technology in Africa and the notion of blended learning; how HCI has approached Africa and how Africans have in recent years attempted to develop conversations about technology and design in Africa. It ended with gaps identified and how the research is situated within the wider context of the literature.

To specifically understand how African philosophy might provide the needed understanding of technology in education is to consider philosophical inquiry generally as a way and form of understanding the world around us. When talking of an African Philosophy or specifically African philosophy of education, it is perhaps complex and problematic. The complexity would be in the fact that Africa is diverse, in culture and language, and thus makes it problematic to understand those cultures and languages under a common philosophical tradition. However, an attempt at dialogue and understanding such cross-cultures is central to understanding the nature of an African Philosophy (Bell, 2004). What it means is that we draw from different disciplines and viewpoints so as to clearly 'see' and to 'understand' our world and that of others. Bell (2004) noted that African Philosophy is the consequences of an 'aesthetic consciousness' that is born out of the ways we see and experience the world we live in i.e. "it arises from and must be understood within an aesthetic point of view" (p. x). However, Wittgenstein pointed that one might say "every view has a charm, but that would be false". The truthful thing one might say is that "every view is significant for the one who sees it as significant (but that does not mean sees it other than it is)". It is in this particular sense that "every view is equally significant" (PO, p. 135). As we learn differently, it might be viewed from the perspective of what the learner think knowledge is and on how they think they know. So, attempting to approach the idea of education in a Nigerian context from an African Philosophical viewpoint might provide us with some better understanding of the notion investigated. These viewpoints are best described by the debate moved by Winch (1964) in 'understanding a primitive society'. The question therefore is what can African Philosophy of education offer to the notion of using learning technologies in Nigerian Higher Education Institutions?

Adding onto the notion of an African philosophy and how it might be applicable to developing a better understanding of technology in education and how educational experiences are expressed, research literature suggests various opinions as to the existence of African philosophy. Historically, Philosophy in Africa is traced back to the undocumented thoughts and understanding that form the basis of the way Africans think and act. For example, ancient Egypt civilization and the tradition of literate Ethiopian writings. After colonization and the frustration that came with it, the ideas of an African mode of civilization, history, identify and language were greatly advanced. In a quest for identification, Waghid (2014) argued that understanding education in an African Philosophical context can be through 'cultural action' or through 'reasoned action'. Simply put, it is a way of asking questions about education in Africa from an African perspective through "oral traditions and cultural experiences" (p. 1). Others have advocated for an African purpose of education within the fabric of an African philosophy (Van Wyk and Higgs, 2004; Higgs, 2008). However, Horsthemke and Enslin (2009) questioned such an outlook, as more of having similar attributes of fundamental pedagogies. Their argument is that viewing such a Philosophy to be explicitly 'African' might be illogical as it hinders critical deliberation and critique, what they term "self - marginalization" (p. 219).

The question is where will all this take us? Such a deliberative effort calls for an informal conversation while being critical and sensitive to ideologies and other cultures. Doing so might bring about developing the needed understanding of the role traditional pedagogy might play in informing how technology can be used in an African educational system, and also how befitting it might be in developing the communal nature of an African person. There is also a rather salient agenda regarding informal knowledge in Africa, and how indigenous

forms of knowledge make more sense to an African person than other well-established forms of developing an understanding.

Specifically, to Nigeria, Akinsanya (2012) attempt to highlight that Nigeria has an 'eclectic' philosophy of education that might be widely considered bordering around the different cultures and languages in the country. The argument was based on the premises that the relationship between the social ideologies in the country, weak educational philosophy, and more importantly the educational policies in place, makes the eclectic approach a candidate alternative that might bring about constructing a Philosophy that eventually can be labeled as such.

Another theme considered is the idea of education and technology. The literature suggests different but rather similar direction in how the use of technology can be seen as a catalyst to create changes in the ways we teach and learn. In an African community, developing knowledge is basically viewed through learning by doing in the immediate environment and by the practical application of what was learned. However, the major issues of an African education system might be the case of how its been structed. Such a system is made in such a way that it values 'academic intelligence' while indigenous society values 'practical intelligence' (Bidwell & Winschiers-Theophilus, 2015, p. 140). Also, some of the failures of educational technology in Africa can be attributed to the emphasis given to the delivery of content, rather than the context of learning or pedagogies (Traxler, 2005). The use of technology assisted tools in most parts of Africa might be considered as a re-colonialization agenda (Shizha, 2010). This is because Africa's were and still are under the influence of western powers - a 'neo-liberal globalization agenda' (Bidwell and Winschiers-Theophilus, 2015 p. 139). The general assumption that adopting western style education at the expense of indigenous knowledge would bring about the needed globalised 'western expertise' has proved damaging to most educational systems in Africa, in that "most African countries find themselves getting exactly what they sought to avoid" (p. 139). This misconception of local meaning that a system can be reoriented in Africa for the teaching and learning of Africans without looking at African indigenous knowledge systems, language, pedagogies and culture is illogical. It is therefore important to identify and appreciate local paradigms that will bring about local meanings (Mweka and Bidwell, 2015). Equally important is the argument of the need to capture the African realities through indigenous forms whilst also identifying positive or relevant aspect of the relatively western imposed system in place, in order to move to some future where culturally and linguistically relevant learning can become the agenda of the day (Shizha, 2010).

Building on from the general misconception of education and technology in Africa, Goodyear and Retalis (2010) infer that learning is a "complex set of phenomena, entailing several processes and agents" (p. 7), while teaching might be considered as a form of instruction using various principles, techniques and methods in order to lead to a better understanding or competence of a matter. When such activities/processes are virtual or considered a blend, factors like the learning environment, the teaching method, the learning style, and the people involved might determine how it fits into a context. However, the ongoing debate demonstrates that "teaching and learning are discipline-specific" (Fry et al., 2008 p. 215). Regardless of the popular view that Africa is developing like a toddler attempting to run while she is still at an infant stage, one cannot in a matter of seriousness still be doomed to the usual conversation of 'lack of' or of the challenges in our societies. Africans, however, tend to mostly attribute our sluggish development to the limitations of infrastructure, poverty, capacities, and perhaps the effect of colonization. Scholars like Omolewa (2007) champion an African notion of education of Nigeria. He cautions that we ought not to be intimidated by the debate about the challenges we face in our educational system but must strive as a matter seriousness create a future that is rooted in the indigenous, but also modern and forward moving.

To further understand the general misconceptions in the literature regarding educational technology, the article "Can blended learning be redeemed" (Oliver and Trigwell, 2005) set out the general debate about the idea of blended learning, and how it got defined and interpreted. They claimed that the 'obfuscation' and 'confusion' that blended learning brings neither satisfies the purpose of learning nor the subject of learning. Also, Vaughan and colleagues (2017) point to the "lack of common agreeable institutional definition and understanding of blended learning" (p. 109) and stressed that a 'shared language' is needed in order to fully describe the development or address its potential or challenges. In Nigeria, due to the perceived prospect and potentials, blended learning is mostly considered the future of education in Nigeria. The attention most are on the technology rather than on factor hindering acceptance or barriers to adoption. The issues identified are mostly institutional, of instructor's experience, the limitation

of adequate hardware (Spring et al., 2016; Regha, 2015), and other issues relating to security, privacy, regulation and politics (Shonola et al., 2014; Saidu et al., 2016). Also, most studies attempt to provide an analytical description of such learning system (see. Ojo, 2013), and learners experience (Oyelere et al., 2016) but fail to develop an understanding of how learners interact and engage with the systems.

Within the wider context of the reporting above, the gap identified broadly relate to how the design of such technologies would bring about more adoption and use. The implication is of how the re-design will capture the centrality of a Nigerian person, through its cultural, societal and linguistic affiliations, and thus bring about a more contextual form of interaction, meaningful engagement in the learning processes, and develop better experience for learners. How then do we go about re-designing such solution to fit into the context of the environment?

Another theme identified in the ideas of HCI in an African context- how it's been approached and where it is now. The field of HCI in Africa and most developing countries have been viewed through the lens of development i.e. HCI4D. The perception that HCI in Africa is mostly viewed from the lens of development demonstrates how it's misinterpreted. There is a clear distinction between doing research and doing development. In HCI, one might suggest that doing research is exploring ideas and concepts while doing development is 'deeper and slow' (Dell and Kumar, 2016 p. 2227). These ideas are that HCI4D in development discourse can be of output or outcome. The developmental output will bring about something new or measurable, while the outcome might be identified after a long-term effect of a solution.

In developing such an understanding, local and indigenous perspectives have demonstrated how culture and power can be expressed in ubiquitous computing. This has been achieved by looking at technological studies through the notion of post-colonial computing. Dourish and colleagues (in Irani et al., 2010; Philip et al., 2012) claim that postcolonial computing isn't a mere call for the critical design of computing systems, nor stands to demonstrate that design in the west is different from design elsewhere, or suggest the "adaption of supposedly culture free western design to a supposedly culture laden non-western context" (Philip, et al., p. 7). Instead, they ask questions and form conversations about technology, culture, and development, and thus move towards developing a particular "mode of investigation" (Philip et al, p. 23) and opening up a "new line of inquiry" (Irani et al., 2010 p. 7). In other words, it presents an analytical phenomenon that aims to improve, for both design and use, an understanding of technology across cultures. The notion of postcolonial computing attempts to contextualize the exchange and translation of local understanding of cultural, social and infrastructural issues within and beyond the field of computing and design. It might also be regarded as a hybrid practice, engaging across cultures so as to devise means and methods of translating technology design.

However, it might be argued that Dourish and his colleagues, although content moving forward, rather than having "regretful contemplation of past biases" (Philip et al., p. 3), have developed and promoted an intellectual understanding of cross culture technology design and use, but from a predominantly western standpoint. They might not have experienced the implication of such past biases but explain and describe such a notion to 'themselves' and 'others' culture, in another term 'eurosplaining'. I am not suggesting that their description or rather explanations are biased, as they have carefully and collectively put forward the arguments that need advancing but that I adopt an 'African standpoint' (Gutmann, 1935). This is the same way as feminist might adopt a Feminist standpoint (in HCI see. Bardzell, 2010). This might be considered in the context of the 'difference' and 'productive possibilities' (Philip et al., p. 7) of an African standpoint regarding the notion of postcolonial computing in computing and other disciplines.

In an African context, technology not only acts as a catalyst for changes in how we construct and shape the world around us (and construct knowledge) but also as root and mostly used as a carrier of culture and for the revitalization of an African language (Bidwell and Winschiers-Theophilus, 2015). Through language, we come to understand the basis of indigenous societies, social views and worldviews, and also reflect our communication with ourselves and others- "between me and my own self, between my own self and other selves, between me and nature" (Wa Thiong'o', 1992 p. 15). The African standpoint might offer an alternative perspective for situating design of technology of all sort in an African context. The argument is whether this candidate form of viewing design in HCI can make any significant difference in the possibilities of harnessing the indigenous agenda, and whether we can come to a generalizable African notion of HCI throughout Africa? The ideas or related work presented above, as broadly structured, form basis of the related literature that inform and situates the work presented in this paper.

4 A METHODOLOGICAL DILLEMA: AN ECLECTIC APPORACH

Conventionally, there appears no easy and straightforward way of conducting research. Different methods were proposed and extensively debated on as to how applicable and practical they might be in different context. In Africa, the understanding is that researchers conduct research so as to develop an understanding of the immediate problems in their environment and thus move towards finding meaningful and sustainable solution to those problems. In doing so, they tend to employ methods that might or might not necessarily reflect their ideals or those methods that will bring about a meaningful conceptualization of their experience. Ideal in that those methods might be used based on their abstract potential, and not ideal in that these methods might not be regarded as developed for and by, or modeled on indigenous knowledge. Instead, a candidate method ought to be well established, carry indigenous values and experience, and also acknowledge the importance of cultural and social norms of the people investigated. Linda Smith (2006), Shawn Wilson (2008), and Bagele Chilisa (2012) have advocated for indigenous research methodologies. Such methods are situated and informed by indigenous viewpoints, standpoints, values, and culture (Wilson, 2008), and also allow the communities investigated to be central (as co-researchers) of their experience and expressions rather than 'subject' or 'object', and thus doing so appropriately move towards exploring the "appropriate centrality of the African person" (Asante, 1991 p. 171)

Indigenously, it is the belief and thus might be considered research best practice to make any assumption explicit. This is to establish how my work might be influenced by the beliefs and assumptions on which the problem was investigated. The belief might be of the need to approach my work based on an African standpoint, against the more prominent western individualistic viewpoint. There is an awareness that at different stages of this work, assumptions will be made, consciously and unconsciously. Such assumptions would include assumptions about what constitutes reality in my research (ontological), about the nature of knowledge and what is to be considered as truth and how to recognize one (epistemology), and about how personal values influence ways of analyzing and interpreting data and the processes and choices in my research (axiology). Working in/with communities that are considered colonized in every sense, and as being part of the context investigated, by blood and by birth, I assume the role of a collaborator and harnesser of an African resonance. The merit of such objectivity is that it questions the epistemological underpinning of the methods used. With such a bold and clear axiological stance, this pragmatic study attempts to points towards an African notion of technology and education.

This work adopts an eclectic methodological approach that is informed by indigenous African notions and empirical inquiries. Before coming to the conclusion of an eclectic approach, the understanding is that each method has its limitation or perhaps what Chillisa (2012) claimed that most or all data collection methods are "biased and based mostly on a western individualistic assumption" (p. 161). What I am after is an approach that would provide some way of sensitively bringing forth a rich and unbiased reflection of the concepts investigated, and eclectic triangulation did just that. Triangulation is "an approach to the generalization of discoveries and validation of strategies, and also as a route to additional knowledge" (Flick, 2004 p. 183). It is also considered as the combination of two or more "investigators, approaches, methods of data collection and analysis, and theoretical perspective" (Flick, 2004; Thurmond, 2001 p. 253) in bringing forth a better understanding of a phenomenon. However, Guest et al. (2011), cautioned that the excessive use of the term triangulation as evident in mixed method inquires has resulted in misconception and misinterpretation of its meaning and use.

The empirical data was collected through qualitative and quantitative methods; namely, an interview, focus group discussion, survey, and a participatory observation. Understood in Winching term (Winch, 1964), these methods are selected amongst many on the requirement for using culturally and socially sensitive, and relevant methods, and not just for their abstract methodological potential. However, some of the methods used were viewed from an indigenous perspective, notably talking circles in focus group discussion, sensitive participatory observation and conversational interview, and consideration of cultural and infrastructural barriers in using survey as a method.

Talking circle is a dialogue form of allowing participants in a group discussion equal opportunity to speak and be heard without being interrupted in the process. It is more of a communal way of "reciprocal learning and sharing of ideas, views, and experiences" (Chillisa, 2012 p. 106) of participants. Participatory observation, in this context, is

considered a form of rapid ethnography (see Hughes et al., 1994; Millen, 2000) - providing a time constraint understanding of user and their activities. Limiting time comes at a cost, in term of any insight gained, in that it might not 'inform sustainable design' (Brereton et al., 2014) or bring about 'implications for design' (Dourish, 2006). However, this quick and dirty approach might not provide the needed insight that could eventually inform design, but rather the motive was the understanding that only through experiencing life as it is in the environment of the participants that one could really understand the ways of life of such participants. However, Dourish (2007) pointed that an ethnographic contribution in technology design and HCI (not all but quite much) are not gauged solemnly on it 'implications for design' but rather on an 'empirically informed contribution' or perhaps the implications can be inferred from the 'analytical aspect' of the empirical contribution. The value will be derived from the understanding developed from the analysis and interpretation of the participant's data. It is through this interpretation that one can come to inform/inspire design practise. The implications can also be in how the ideas expressed reframe the ideas and context of an African HCI (Dourish, 2014).

For the participatory observation, the purpose is to identify how activities are carried out to achieve some sort of leaning. These activities will be shaped by the specificity of the circumstance or intent of the participant. Participants were observed while ensuring (as I stimulate the activities through natural conversation and not an interview– understood in Kovach (2001) and McGlynn, (2013) narrative of how storytelling tradition is part and parcel of indigenous form of constructing knowledge, and in how it relationally moves for the needed inter-relationship between methods and paradigms in indigenous worldview) respectful engagement. Some educational ethnographers are of the opinion that interview does not necessarily "provide the participants perspective and understanding" but of an account of a participant's perspective of a particular concept with relation to a situation as it limits the social requirement/rule of "conversation and reciprocity between people" (see Beach et al., 2018 p. 22- 27). Instead, the conversational approach (been "relational, purposive, informal and flexible, collaborative and dialogic, and reflexive" (Kovach, 2001 p. 43)) relationally moves for the needed inter-relationship between methods and paradigms in indigenous worldview.

In indigenous research landscape, Gonzales (2000) demonstrated how ethnography can be indigenise through the analysis of four season in reformulating an ethnographic methodology. The framework demonstrated how such an outlook could inform a process of understanding people that is rooted in indigenous knowledge (Chillisa, 2012). This is an approach that can be considered "humble, holistic, and in consciously dynamic relationship with the context" (Gonzalez, 2000 p. 623). The participatory observation in this work is not the case of an indigenous form to observation but more of simply looking at what participants are doing (by listening; observing what was done, when, and how; recording and documenting such observable scenarios). Also is the understanding that such observational notes might not have any underlying value. The notes will be valuable insofar as it can bring about a better understanding or made relevant for what it can highlight about how participants engage in some learning activities using technology

I have completed, transcribed, analyzed and interpreted interviews of 19 students in 5 group discussions; 15 interviews with tutors; 5 interviews with university managers in three universities; 7 interviews with developers and designers in three technology companies; and 7 experienced researchers in the field of computing, distance learning, and education research in Nigeria. The interview with experienced researchers takes the form of an expert review and also in trying to reach a consensus regarding my initial ideas and context of my work. It is also considered a method of evaluation my choices, and in getting recommendations as to how to go about interpreting data and disseminating findings to fit the context of the environment. This might be considered a 'dialogue evaluation method' with experts in the community. Presently carrying out the observational study of students and tutors actual use of Moodle and Google classroom to perform some learning activity in three Nigerian Universities; and of designers and developers in three technology companies that provide eTechnological solutions to all sectors of education in Nigeria, as they attempt to design, develop and evaluate some of the technological solutions they deploy. The motive for conducting these set of studies is the understanding that what people say they do might be different from what they actually do. I want to 'see' and 'understand' for myself and for other, what they 'specifically/explicitly' mean when they expressed some of the ideas during the initial study.

For the analysis and evaluation of data, I have employed a grounded approach (Glasser and Strauss, 2017) to thematic analysis of qualitative data and statistical analysis of quantitative data. After

interpreting the data, I summarised the interpretations and presently running 6 focus group discussion with the participants in the initial study (students and tutors), and also considered running a focus group discussion in the companies that participated in the initial study, as a form of evaluation of the conclusion drawn from the data collected. This approach thus shows a clear appreciation of the data as it goes beyond the conventional form of highlighting the voices of the participants through quotes.

5 STATE OF THE RESEARCH

I have completed a grounded approach to the analysis of the initial data collected using the thematic analysis approach of Boyatzis (1998) and Nowell et al., (2017). The initial data was collected in July 2018. The thematic analysis was carried out independently by myself and my supervisor where we agree (i.e. intercoder agreement) on common themes after deliberation (i.e. stepwise replication). I also conducted two rounds of writing up the interpretation, and the third round after comments from my supervisors. The interpretive data was summarised and used as part of the participant's evaluation data.

I have also conducted a statistical analysis of the quantitative data and employed other theoretical frameworks to contextualize the analysis process. The frameworks are the People Activity Context and Technology (PACT) framework and then the notion of Trajectory in contemporary HCI. The PACT framework has been widely adopted when designing user-centered systems (Benyon, 2014). The logical rationale is that I am looking for a way to carefully develop the needed sensitivity of the context I am working in/with, and I believe PACT and trajectories did assist. PACT was employed before the analysis of the data as to order the description and clearly understand the participants, the activities they might engage in, the context of those activities, and the technical and societal features of the technologies used, and of ideal ways to design technologies within a Nigerian context. This might demonstrate the rationality between the participants and set the phase for understanding the different outlook of users regarding the use of technology in education. I have also employed the concepts of temporal trajectories in the analysis of how ideas were experienced and expressed by different participants at different time intervals. In a recent study, Velt et al., (2017) showed how trajectory can be employed in situating a research problem against existing work; in analyzing, describing and generating user design experience in cultural context; in evaluating, validating and recommending design ideas; and in how it can assist in building new concepts and ideas. Trajectory here acts as a sensitization toolbox that could highlight the similarities and differences between ideas expressed regarding the same concept by different participants. The relevance of the temporal aspect of trajectory might be better understand from the viewpoint that Nigeria is a developing country. Development takes time as changes can be viewed overtime. It is the hope that this informative framework would specifically provide a way of showing the implication of the methodological synergy in advancing the discussion about the field of education with technology in Nigeria.

A follow-Up fieldwork is ongoing with participants from institutions and technology companies that participated in the initial study, as a form of participant's evaluation and dissemination of early findings within the community. The evaluation is carried out in a form of focus group discussions. Such discussions would allow credible reflection and accounting how the analysis of the data represent the subjective experience of the participants, and if the conclusions drawn are credibly. This form of representation is important in that when stakeholders are continuously involved in exploring their concerns, there is the likelihood of them seeing the need to implement the outcome of the research, and thus brings about communal changes through participation. It also forms part of the ideals of 'reflexivity' and 'relational accountability' in research. Also, I ran seminars across these universities, first to report on some of methodological implications of an eclectic approach I adopted, and secondly as to clear some of my initial doubts regarding epistemology and methodology while conducting research in Nigeria. I have also attempted to clear some of these doubts in Lancaster through the SCC PhD Brown Bag Lunch talk. The brown bag talk is a lightweight talk where students and academic can present their ongoing and future work and get comment. One might wonder why bother when I have already used those methods in trying to develop an understanding of the problem investigated, which I believe does work well for most part of my work. The understanding is that I have used methods, sensitively or otherwise, but needed more justification and reasoning to support some of my argument regarding an indigenous form of conducting research and knowledge systems. Also, is to advance (at the same time question and critique) the rather unacknowledged standpoint of African forms of conducting research in HCI.

6 CURRENT AND EXPECTED OUTCOMES

At this stage of my work, I believe I have achieved some reasonable outcomes. First, I have questioned stereotypical western construct and methodological ways of conducting research in education and HCI and argued for an indigenous form within a culturally and socially sensitive environment, or rather a blend of the two, more of an eclectic form of knowing what's worthy of investigation and in the selection of methods and approaches. Second, I have attempted to further the argument of how research outcome and conclusions can be gauged, not necessary with only western constructs like 'credibility', 'validity' and 'reliability', but also through the use of societal 'norms' and 'values' e.g. summative evaluation of interpretation drawn and engaging in dialogue with experts in the community for candidate forms of evaluation. It seems ideal and candid integrating both standards. Third, I have followed due diligence with regards to research best practices.

I believe my research, when completed, will make three major contributions to knowledge. It will offer a 'new' and 'decolonized' understanding of how to design learning technologies that will be adopted and use effectively in a culturally and socially embedded African context, and in demonstrating the capabilities and capacities of an African about innovation and design. It will (theoretically) also critique and contribute to the ongoing debate about an African HCI and notion of postcolonial computing and technology design by looking at indigenous knowledge and forms of investigations. It will (empirically) contribute by providing an outlook that might be considered specifically Nigerian, on the use of technology and education, and a revival of the argument about the process and models of technology acceptance and adoption, and the extent to which this fits the African context.

The outcome could be a framework or a set of design guidelines that can be used to inform stakeholders as to how to design learning solution from the standpoint of Africa- specifically- Nigerian. The anticipated framework will inform and demonstrated how African culture and societal norms impact how technology should be design, and on how the synergy of different approach and methods, both western and indigenous, might assist us in provide a more precise understanding of the difference in how we view and appreciate the world around us, and thus demonstrate the relevance of an African standpoint, not only in conducting research but also in how we attempt to understand the world around us and that of others.

7 ANTICIPATED FUTURE WORK AND CONCLUSION

This paper presents a range of ideas regarding the notion of designing learning technologies to be used in a blended leaning environment. The paper also demonstrates that while well-established methods in social science and other disciplines might provide us with some way of understanding the world, indigenous approaches and methods might provide a clearer understanding of cross-cultural world of Africa. It ends by highlighting some of my initial doubts and how I've come to develop an understanding of research best practice from a predominantly western viewpoint while also considering what an indigenous viewpoint might offer, all in the hope that the approaches, methods, analysis and conclusion drawn can have some implication to both viewpoints.

Other future work will include making sense of the data. I plan to use the data in furnishing the debates regarding notion of technology acceptance and adoption (Davis, 1985), Postcolonial computing (Irani et al., 2010) and technology design, and the debate around harnessing indigenous knowledge using analytical approach in critical discourses (see Foucault, 1980; and Wa Thiong'o', 1992).

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