CHAPTER 3

Critical and Cultural Perspectives of Educational Technology Transfers and Theoretical Frameworks

This chapter presents a historical account of transfer of technologies from the West to the African countries. While the focus is on the hardware and software, the discussion equally incorporates extenuating outcomes or by-products of those transfers. Such include the cultural imperialistic effect, the historical relationship of colonialism between several western countries (colonists) and the African nations. Equally, other theoretical underpinnings inherent in the transactions, adoption of technology and implementation processes as well as power relations that guide such processes are discussed.

**History of Technology Transfer from the Global North to South**

Various telecommunication technologies have been exported from Western countries to the African nations since the 1800s. The first telephone service that connected Nigeria to London was installed in 1886 (Ajayi, Salawu, & Raji, 1999). The Ivory Coast experienced its first telecommunication service in the form of the telegraph in 1887 (Kone, 1999). Ethiopia was introduced to telephone service in 1894 during the reign of Emperor Menelik II (Tsigie & Feyissa, 1999). However, in the twentieth century, specifically, the 1960s and 1970s, were the international decades of development, as proclaimed by the United Nations.
The Western countries who established the United Nations after World War II would later dominate development efforts, including introduction of the mass media and technology, to developing countries, most of them newly independent former colonial states. Western telecommunications exportation to Africa has included computer technology for several decades. The IBM 360 computers were exported to Nigeria in the 1960s for information storage by the Nigerian government. Ngwainmbi (1999) noticed that this version of computer was third-generation quality and not the same version used in Western countries. This lends evidence to the criticism that the devices transferred from Western companies to developing countries are ineffective or outdated. Unfortunately, the developing nations usually accept these items, believing they are adequate and effective. A study conducted by Ngwainmbi on 14 African countries representing different African regions showed that the Africans were excited about the ideas of western exports of Information Technology (IT) while the local experts in the diaspora were skeptical of the IT products exported to Africa finding them ineffective and of lesser quality.

OVERVIEW OF DEVELOPMENT THEORY

Development Theory holds that mass media and other technologies play a vital role in the development of the so-called “Third World” a dominant discourse during the 1960s and 1970s. Proponents of this notion included US scholars Daniel Lerner and Wilbur Schramm, both of whom promoted in the 1950s and 1960s the distinct contribution of communication to development, a belief that was generally known as the dominant paradigm of development. This paradigm holds that by exposing the developing nations to modernization, or western culture, they will learn new culture, behavior, and lifestyle; and, consequently, become developed (Melkote, 1991; Ojo, 2004). Originally an economic theory, this concept, crossed over to communication during the period when mass communication media were considered powerful instruments during the Magic

1 Third World refers to the countries of developing nations that are considered economically, industrially, and technologically impoverished—these countries are mostly located in sub-Saharan Africa, some parts of Asia, and Latin America. This term connotes a derogatory meaning and is considered archaic since the use of “First” and “Second” Worlds have been abolished by WWII. Alternative terms include developing countries, global south, emerging countries, less developed countries, and underdeveloped countries.
CRITICAL AND CULTURAL PERSPECTIVES …

Bullet or Mass Society era. One of its assumptions then was that mere transfer of goods, services, technologies, industries, and cultural values of the West to the developing countries will automatically yield increased economic productivity. According to Melkote (1991) and Lerner (1958) assert the dominant paradigm measures development by advancement according to Western measures of urbanization, industrialization, and literacy. These attributes, argue proponents, are expected to replace the so-called primitive lifestyle of the developing countries and ultimately lead to their economic and social development. Both Lerner and Schramm viewed the imitation of the Western model as a snow-ball process whereby the growth in one of the sectors of development would automatically induce growth in other aspects of development. In the same vein, the OLPC Foundation presumes that distributing XO laptops to elementary school students will automatically improve their learning and the entire education system. Lerner’s theory of development was fused with a socio-psychological variable he termed “empathy,” a factor that disposes the individual to embrace this new Western lifestyle, through getting lost in oneself and transforming affected individuals into the life and experiences of another (Melkote, 1991).

Melkote (1991) stated that “modernization, according to Lerner, was essentially Westernization” (p. 82). The decades since the 1970s have witnessed a deluge of Western nations’ concerns over modernizing the developing countries of the global South. Fejes (1976) contends that “it was generally assumed that a nation became truly modern and developed when it arrived at that point where it closely resembled Western industrial nations in terms of political and economic behavior and institutions, attitudes toward technology and innovation, and social and psychic mobility” (as cited in Melkote, 1991, p. 38).

Due to the popularity of the dominant theory and its assertion that the mass media and technologies are panaceas for social and economic development as well as literacy, the United Nations authorized its agency, the United Nations Educational, Scientific and Cultural Organization (UNESCO), to invest in communication projects in developing countries, beginning in the 1960s, now known as the first Decade of Development (Ojo, 2005). Asian communities were the first targets for this mandate; in 1960, when UNESCO convened its first meeting to discuss communication promotion in Bangkok. Successive meetings were held in Chile, for Latin America, and another in Paris, for Africa (Ojo, 2004). The report of these meetings by UNESCO stated that 70% of the population
studied, lacked adequate information facilities. The report led to the UN and UNESCO’s crusade for exportation of ICTs to developing countries and their enthusiastic investments in communication technologies.

The dominant paradigm lost its legitimacy through an uprising by “Third World” leaders and critical scholars in the decades of 1970s and 1980s. These critics saw the dominant paradigm as imperialistic and a process toward further neo-colonialism. Scholars of developing nations, particularly in Latin America and Africa, sternly criticized the dominant theory of development and proposed alternative paradigms including the participatory model. The tenet of participatory communication as described by Melkote (1991) includes “the input of individuals at the grassroots in defining and planning development goals and strategies” (p. 240). The confrontation by critical scholars forced Schramm, the architect of the dominant theory, to recant. He revised his theory to include the integration of cultural and other local needs of the community as part of the development process (Ojo, 2004).

Melkote (2003) points out that the dominant paradigm exists under the assumption that progress and growth are rationalized and determined by the elites in the global North in conjunction with multilateral organizations and as such theorization is often presented in a universal manner with a “one-size-fits-all” model of development. For this approach, development is measured by Gross National Product, which overtly neglects and does not reflect individual development and progress nor does it take into account the histories of developing countries and their cultures. This neglect of history causes the problems and challenges to be viewed as natural rather than products of politics, corruption, and greed. It draws heavily on the positivist approach, which always claims the “truth.” Such truth has been accepted without question, Melkote says.

**Development Theory and the Lingering Traces of Colonialism**

Central to this development efforts is the promotion of communication technologies. Mass media and subsequently communication technologies were considered markers of modernization and development. Such mindset created a dominant paradigm that equates industrialization to modernization; and modernization is measured by similarity to Westernization. According to Stevenson (1988) and Melkote (1991), were
attributed the quality of a magic bullet, with people thinking these technologies would modernize the so-called backward countries in the areas of agriculture, industry and education in fairly similar ways. In most cases, these countries had no choice and were not allowed a say in the decision to innovate; it was thrust upon them. The assumption that such participation and contribution are essential to the introduction of communication technologies is integral to the participatory theory of development, which is here proposed as part of the theoretical framework. The same pattern of measuring modernization through the yardstick of Westernization is repeating in the scramble for educational technology—seeking a Western tool, pedagogical styles, and aiming to create a system similar to Western system. Just like many communication software and hardware were exported from Western Countries to African countries in the nineteenth and twentieth centuries, the same pattern is happening in the twenty-first century with many innovations.

For decades, Africa has been used as laboratory mice for testing new technologies. In fact, as the entire world is being ravaged by the novel COVID-19, the French doctor’s suggestion of testing a very crude COVID-19 vaccine in Africa—one of the continents with the lowest cases of COVID-19, was nostalgic for Africans as they raised not just outrageous alarm and vicious oppositions but skepticism about the motives of most Western technologies to Africa. Wilson Wong (2020) of NBCOnline reported that Dr. Jean-Paul Mira, head of Intensive Care Unit at the Cochin Hospital in Paris was being interviewed by Camille Locht and without flinching, Dr. Mira suggested, “If I could be provocative, shouldn’t we do this study in Africa where there are no masks, treatment, or intensive care, a little bit like we did in certain AIDS studies or with prostitutes?” He also continued, “We tried things on prostitutes because they are highly exposed and do not protect themselves.” The interviewer, Locht of the French television LCI concurred “You are right. We are thinking of a parallel study in Africa to use this same kind of approach with the BCG placebos” (Wong, 2020). Mira and Locht did not see anything wrong with their statements until it generated a public uproar, and of course, that was when Mira offered a public apology. Perhaps Mira was just stating the obvious and perpetuating the status quo. We may not necessarily blame him, for that has been the pattern, the modus operandi for centuries. So, when scholars raise questions about Western transfer of technology and emphasize the need for critically evaluating Western initiatives, the skepticism is not illusory. The skepticism is informed by the
colonial relationships between African countries and Western countries and the Colonists’ motives which have never really been for the utmost good of Africa, but for its usurpation.

**Neo-Colonialism**

Communication systems and equipment are not the only tools exported to developing countries by the global North; education and evangelism are too (Ajayi, Goma, & Johnson, 1996). For over 400 years, Africa and other developing nations have served as sites for investment for several Western nations and religions. Western countries such as Britain, France, Portugal, and Italy have used slavery, colonization and evangelism to enrich themselves with the labor and natural resources of developing countries. Even on a deeper level, what is often transferred is not just technology. Ideology, is equally transferred and such gives rise to (Cultural imperialism and neo-colonialism) which are threats and replacement of the indigenous knowledge and culture. On another note, most technology transfers are done letter-perfect, without adaptation or alteration to the local peculiarities. This is where the problem lies—in the imperialistic practice and the one-size-fits-all mentality. The caveat though is, what is transferred is not just technology. Culture is embedded in all societal activities including education. In designing, distributing, and implementing educational technologies, the cultural constructs and particularities should remain innate in all planning and implementation phase(s). There’s been a plethora of research—individual, governmental, non-governmental, and multilateral organizations but very few if any, have viewed educational technology in Africa from a critical-cultural perspective. This book is an attempt to dissect this phenomenon from a social, cultural, political, and economic implications cultural, theoretical, and participatory lenses.

**Hegemony, Cultural Imperialism, Electronic Colonialism**

Imperialism and colonialism are two inevitable constructs in discourses relating to Africa and the West. In most cases, the relationship is like a hand and fire—while each may desire the other, especially for warmth, very often the meeting results in one getting burned; and so, each time there is such relationship, carefulness is key. Even though cultural
imperialism is now mostly referred to media (US media in particular) domination over world cultures, the practice of cultural imperialism which generally means one nations’ or culture’s domination over another or others, has been in existence long before the United States. At least for Africa, it dates to several hundred years ago. There are varied permutations of this line of thought and in discussing cultural imperialism, electronic colonization or their like, one has to dig deeper into their etymology. In doing so, we need to review the thoughts of Italian critic, Antonio Gramsci (1971) who was very active in the 1920s and 1930s during the reign of Mussolini, coined the term to refer to the ideological rule of one social class over another or power domination of one group over another. This concept of Cultural Hegemony was enlightened by Marx’s theory and Greek dominance. Gramsci describes cultural hegemony as power domination of one group over another. Gramsci believes this power exertion can occur in economic realm through capitalism or in the cultural realm by exerting cultural power. The US media critic, Herbert Schiller (1976) furthered this concept by applying cultural imperialism to the US mass media world in his book Communication and Cultural Dominations noting how information exchange and domination occur between the core and periphery countries. Tomlinson (2012) viewed this concept in a rather broader sense as encompassing all “exercise of domination in cultural relationships in which the values, practices, and meanings of a powerful foreign culture are imposed upon one or more native cultures” (Abstract). The hegemonic tendencies continue to develop into various permutations as long as there is some form of power relations especially as we delve deeper into the electronic age. Thomas McPhail extended the hegemonic notion to emergent technologies through his concept of Electronic Colonialism defined as the “dependency relationship established by the importation of communication hardware and foreign-produced software, along with engineers, technicians, and related information protocols, that establish a set of foreign norms, values, and expectations that, to varying degrees, alter domestic cultures, habits, values, and the socialization process itself” (McPhail, 2010, p. 19) He explicitly warned that the newly imported system will cause displacement, rejection, alteration, forgetting of native and indigenous customs, domestic messages, and ultimately, cultural history. Bringing this home to the current study, one of the two key cases of this volume is the One Laptop Per Child XO-laptop project. The major contribution of the XO-laptop is American version of constructionism
which has proved oppositional to the pedagogical style and teaching training method inculcated in the African elementary and secondary school teachers. As indicated later in this volume (Chapter 6), elementary education teachers found the constructivist approach of teaching very difficult to imbibe and contrary to their teaching styles.

**Manufacturing Consent and Engineering Consent**

What do the above theoretical substructures assert? They succinctly provide a lens through which the critical review of a potential hegemonic transactions can be evaluated. Although hegemony resounds an ideology of domination, in some instances, such domination may not blatantly be forceful. They may, subtly assume a latent domination which may seemingly convey that a consent was accorded the hegemon. Meaning, the acceptance, deployment, and implementation of those technologies may seem to have been requested by the African nations. Such tactics was described by Edward Bernays (1955) a renowned public relations guru, as Engineering Consent, a term coined from Walter Lippmann’s (1922) *Public Opinion* and later furthered by Herman and Chomsky’s (1988) Manufacturing Consent. The United Nations’ 1948 Universal Declaration of Human Right mandates that the Will of the people shall be the basis of the authority of their government and this sets off the requirement for public opinion and consent. Lippmann asserts that common people lack the cognitive ability to fully ascertain the socio-political or cultural environment. With this assumption, the people with the knowledge would step in and make the decisions for them. This is typical of the replacement of African traditional education system with a Western one and the basic tenets of development theory which considers Western culture as the best and a model by which every other education system should be measured. Herman and Chomsky revealed the propagandist motive of the news media and media in general in framing issues and using the double standard to furthering the social and political agendas of dominant and privileged groups to the disadvantage of the society. In this same line of argument, Edward Bernays added, this is done by using some form of manipulation in coercing people to adopt a situation or program. This is evidenced in the results of this research on the XO laptop. The OLPC Corporation approached the Presidents of Nigeria and Ghana to pitch their educational technology. Such negotiation did not involve the input of educationalists and including the national Ministry of
Education. The then Nigerian President, Obasanjo may be skilled in many other disciplines but is neither a school teacher nor education technology specialist. OLPC having garnered the approval of the Head of State, now has the consent of the country to deploy the XO laptop. Meanwhile, the right approach would have been to negotiate with experts in education field to ascertain first, if this tablet is congruous to the Nigerian curricula, the feasibility of its implementation, and the modalities needed to train teachers and students to properly incorporate it in teaching and learning. Participants of the study explained, EXPG4 notes “the push for this [XO-laptop] was not from the Ministry of Education. Rather it came from the Ministry of Finance and Economic Planning. It’s interesting to note because when you look at other case studies with OLPC the negotiation it is never usually done with the Ministry of Education, but another ministry.” Similarly, EXPN2 explains that the initial negotiations were conducted between the OLPC founder, Negroponte and the then Nigerian President, Obasanjo. Upon receiving the approval of the president, OLPC proceeded to contact a Nigerian technology company to oversee the pilot project. The Nigerian education ministry was involved after the school was selected, informed, and the XO was shipped for deployment.

**Critical Review of Education in Low-Income Communities**

Social science seeks to problematize social phenomena toward providing solutions to problems (Nichols & Allen-Brown, 1996). Access to education and the varieties of quality of education that is available and is offered in different societies have demonstrated varied levels of disparities among people of different social status, through digital divide, social, class, and racial discrimination, gender and economic disparities (Banerji, 1998; Bond, 1966; Jagers & Carroll, 2002; Wong & Lee, 1998).

Kemp, Morrison, Ross, and Kalman (2004) expressed the need for educational technologists to assume a critical stance in their research. These scholars observed that a majority of research done in the educational technology field answers questions in the areas of technique, cognition, and science. What has been lacking in educational technology research are inquiries in the areas of:

human understanding, freedom, and action... in the realms of ecology, society, school, and culture... people are examining educational capital
from the point of view that asks where to get more money for more computers, but not from the view that asks why supporters of educational computing are taking advantage of women, people of color, and poor people. (p. 245)

In another instance, Morrison et al. (2004) admonished educational technologists to employ action research methods in studying educational technology and engage with the many foundational, essential, provocative, and morally pertinent issues that are ignored. Moreover, they advised that educational technologists should not be busy using technology to do things to and for learners. They should rather be busy asking learners to tell us what to do and to tell us from philosophically, economically, politically, ecologically, and educationally informed positions. Adhering to the above injunctions, the inquiry here seeks perspectives of the users of the XO laptop and other technologies, the local experts, teachers, and parents of students who usually, are not consulted in similar matter.

**Critical Theorists and Education**

This section situates the argument with the assertions of other critical theorists on education. Paulo Freire, Henry Giroux, and Peter McLaren are among the critical education theorists who assessed the education of people in low-income and marginalized communities. Giroux (1983) highlights the importance of human agency rather than just the institution in defining the purpose of schooling. He asserts that teachers and students play a great role in defining schooling and its function. In the same vein, Giroux and McLaren (1986) emphasized the inevitable role of teachers whom they referred to as “transformative intellectuals” (p. 213) in the process of learning. They suggest that teacher education curricula while inculcating the study of power, language, culture, and history, should also incorporate the voices of the voiceless, that is, the students. Similar to the constructionist pedagogy, Paulo Freire (1985) believes that education should entail dialogue; therefore, students should not be assumed to be empty vessels or *tabula rasa* that need to be filled but should construct knowledge based on their familiar experiences and their already acquired knowledge. In line with the above, Emile Durkheim (1956) believes that education and learning involve knowledge creation and that the ideal
education is one that is relevant to society. McLaren (1994) further distinguishes three forms of knowledge; he explains when knowledge can be considered as relevant, critical, and transformative. He asserts that:

knowledge is relevant only when it begins with the experiences students bring with them from the surrounding culture; it is critical only when these experiences are shown to sometimes be problematic (i.e., racist, sexist); and it is transformative only when students begin to use the knowledge to help empower others, including individuals in the surrounding community. (p. 197)

The present study explores among other things, to what extent the educational technologies deployed to Africa incorporated familiar experiences and locally relevant knowledge of the communities in question. Theorists have also voiced their opinion on traditional schooling. The sociology of education garnered momentum in England and the United States in the early 1970s and was influenced by Brazilian radical educator Paulo Freire’s (1985) quest for ways that education can be meaningful, critical, and emancipatory, and that these traits are lacking in some traditional schooling. Similar to Freire, Henry Giroux also criticized traditional and institutional structure of schooling that do not incorporate the life and experiences of those students directly involved. In the same vein, McLaren (1994) warned that “as teachers we need to collectively demythologize the infallibility of educational programmers and so-called experts, who often do nothing more than zealously impose their epistemological assumptions on unassuming teachers” (p. 219).

This argument might suggest that critical theorists are always negative about educational technology. They in fact believe in the intrinsic value of educational technology in furthering emancipation. Moreover, the constructionist pedagogy that the OLPC project and other initiatives promote is subsumed in a pedagogical method whereby the student is a co-creator of knowledge. This aligns with Freire’s (1970) description of a relevant pedagogy in his classic book Pedagogy of the oppressed, where he observed that:

In a humanizing pedagogy, the method ceases to be an instrument by which the teachers (in this instance, the revolutionary leadership) can manipulate the students (in this instance, the oppressed) ... A revolutionary leadership must accordingly practice co-intentional education. Teachers and students (leadership and people), co-intent on reality, are
both Subjects, not only in the task of unveiling that reality, and thereby coming to know it critically, but in the task of re-creating that knowledge. (pp. 55–56)

The criticism then relies on the fact that the planning, design, and implementation phases especially of the OLPC as a case, and to some great extent, other technologies, failed to incorporate collective deliberation of the target audience and local experts both in the assessment of their needs and in the consultation of the best ways to implement the project.

**Efforts to Improve Cultural Distinctiveness in Western Initiatives**

It should be acknowledged that multilateral and bilateral organizations especially the World Bank and UNESCO, and even the inventors of the initiatives for instance the OLPC Corporation, in an effort to improve and infuse cultural distinctiveness to western initiatives galvanize local experts as consultants, capacity builders and for program evaluation (evaluators), etc. This effort often is blurred by either the local consultants’ efforts to produce socially desirable results that are favorable to the Grantor so as to secure another gig afterwards, thus, failing to produce honest reports. In other words, aligning with the maxim, s/he who pays the piper dictates the tune. This was evident during the research trip in Nigeria and Ghana to review the OLPC initiative. The consultants involved in the deployment had an unalloyed loyalty that impeded their freedom to constructively criticize the deployments, implementation styles, and process in their evaluation. Brock-Utne (2000) made similar observation and noted that often fear and retribution of criticism from international donors thwart honest evaluation of projects from local experts. She writes:

> Many development consultants avoid criticizing the powerful donors. Those who know them well enough to be able to criticize them are normally dependent on them for funding of sectors or programs or for consultancies. Academics in the South are dependent on the consultancies for their living, as are the people working in consultancy firms in the North. Although their task is to appraise, evaluate, and review, they well know that they have to stay within certain parameters and critique within narrow limits if they wish to retain their jobs.” [She went on to claim]
“Donor agencies, even tough ones like the World Bank, do not like criticism and have their ways of punishing those who speak too loudly or are too direct. (p. 15)

The above observation was partial to only some local experts and not all of them. They are consultants who also risk the so-called retribution and provide honest evaluation of projects and institutions appreciate such effort for it helps in improving the initiative. And such practice is very commendable both for the consultants and the donors.

**African Culture, Education, and Technology**

It is imperative to examine, a little deeper in this section, the African culture and education in relation to educational technologies and their characteristics. This research, in discussing African culture, does not present a monolithic view of African culture. However, despite the diversity of African cultures there could also be some core similarities or values that are inherent in almost all sects and sub-sects of Africa especially during the precolonial era when culture was undiluted and customs intact.

Some of the cultural traits to be discussed in this section are those that are in direct contrast to some of the characteristics of the Western educational technologies. For instance, the XO laptop by name (One Laptop per Child) and by deed, promotes individualism—a trait that one of the top education policymakers in Ghana disapproved and described as oppositional to the community-spirit that we teach our children. Community ties is a strong suit in Africa with reverence to lineage and kinship; even with marriage, it is not usually an affair of husband and wife but of two groups of kindreds and communities. Reflected in the most familiar Igbo culture are aphorisms such as “onye aghala nwanne ya,” “igwe bu ike” loosely translating to “we carry everyone along” and “there is strength in numbers.” This may seem a simple argument or issue that may not necessarily mean much to someone who is engrossed in western culture of individualism. But, just like a “Westerner” will shrink at someone “invading his or her space” and thus becoming very uncomfortable and such state of mind and environment makes it very difficult to learn and

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2 This refers to pre-COVID-19 era before the institution of the universal social distancing.
assimilate any concept taught; such applies to an African pupil who has been taught from birth to share and promote communal living.

Another oppositional stance of Western educational technology is the Constructivist approach whereby students are expected and required to steer the wheel of learning while the teacher serves as a mentor. For full disclosure, this research subscribes to pedagogical style; I co-construct knowledge with my students and I have discovered that it is a more meaningful style of teaching for the environment that I live and work. As an educator in a Western country. In fact, all my postsecondary education was done in the United States and I have learned and imbibed the advantages of constructivist pedagogy and can apply it properly. However, a teacher in Africa may not be as comfortable as I am allowing students to learn through hands-on activities and interactions while he or she serves as a guide, lecturing sparingly. For a teacher without a grounded training in this style of teaching, it may seem foreign and it does seem foreign to them; hence, the need for proper teacher training which is discussed in detail in Chapter 5 (Teacher Training and Pedagogy). Respect is defined differently in the African culture with regard to child-elder relationship. As can be seen also in Chapter 5; teacher participants in the 2010 study raised the issue of feeling very incapacitated and losing control of the class and of the process of teaching and learning with the XO laptop. For those teachers, their training in classroom management is defined a little differently than the Western model proffers.

Another major trait of the Western educational technology that clashes with the African culture is the transplantation of the American and European model curriculum; there is still an elusive attitude toward balancing indigenous knowledge with foreign knowledge by using locally relevant examples, materials, and artifacts. This need is somewhat realized at the primary school level and gets lesser relevance at the secondary and tertiary levels. But, there should be a balance whereby the local knowledge is accentuated with broader and foreign knowledge so as to prepare the student for the changing society/world. What then can be amended and what should be retained and not diluted? Curriculum developers must be trained to understand the culture(s) of a nation.

Finally, the issue of Language albeit discussed in detail in Chapter 2, is equally important to be mentioned here along with the discussion on Meaning and Thought. The three core principles in the process of interaction in the formation of values for individuals include, Meaning, Language, and Thought as deduced from symbolic interactionism theory
of George Herbert Mead (1934) and later Herbert Blumer (1986). The meaning given to an object presupposes how people act toward that object and this is central to human behavior and learning. By attributing the meaning of “solving all educational and health problems” and “the only way in which students will be prepared to compete in the global arena” to computers and other computed devices, will compel people to regard those devices in that same way. Conversely, by rejecting the potential and power of the old-fashioned, pen and pencils to achieving the desired pedagogical goals, will equally render those objects incapable of achieving such goals. Similarly, language gives people a means by which to negotiate meaning. The superfluous description and promises of these initiatives appear deceptive in the least, and evoke the feeling of disappointment when all that were promised are not achieved. Language encodes meaning that people decode in various ways and as Mead implies, the use of symbol in language transforms the socialization process and frees that meaning from the bounds of space and time—there is need to re-encode the meaning given to educational technology and to ICTs. The last construct, Thought, serves to modify each individual’s interpretation of whatever has been encoded through language and symbols. Thought is the fullness of the meaning that was encoded via language. This book calls for pragmatism on the part of all stakeholders involved in the process of designing, deploying, supporting, implementing, and evaluating technologies employed in all facets of education. Such synergy culminates into a participatory action model of praxis.

**Participatory Action Research (PAR)**

The participatory action research approach was developed in the 1980s and the 1990s when criticism of the dominant paradigm was at its peak. The major assumption of participatory action research (PAR) is that grassroots participation can help recapture the knowledge and narratives of the poor and oppressed (Melkote & Steeves, 2001). PAR seeks to generate knowledge that is “specific, local, non-Western, and non-positivist” (Melkote & Steeves, 2001, p. 342). It is used to bring the opinions and knowledge of locals who otherwise may not be consulted. Incorporating a PAR model in introductory research of any phenomenon, especially one involving educational technology, can potentially provide utilitarian benefits to the users of the technology. In addition, the model can serve as cost effective information to the designers of the program.
The feedback ensures user interest and establishes user input and ideas that will help avoid the costs involved in significant alterations (Liu, John, Maddox, & Henderson, 2001). PAR is also associated with pragmatic and emancipatory outcomes (Cousins & Whitmore, 1998). Unlike the top-down approach, PAR entails a collaborative effort of all stakeholders of the program which comprise of students, parents, and teachers, subject matter experts and local decision-makers as well as the representatives of the technology in question.

Other attributes of PAR include an acknowledgment that people are capable of helping themselves and that everyone has something of interest to share. In terms of appraisal of knowledge, the participatory paradigm recognizes that traditional knowledge is equally relevant and that all people can be agents of change. It therefore maintains a bottom-up, two-way flow process. Kemmis and McTaggart (2008) provide several features of participatory action research. They indicate, it is a social process employed in settings such as education and community development; PAR also seeks to tap people’s current knowledge and thus applies a practical and collaborative approach by social interaction. The ultimate goal of PAR according to Kemmis and McTaggart (2008) is to help people recover and learn how best to work to improve their current situation.

Limitations of Participatory Action Research

PAR is often considered a means to an end or an end in and of itself (Huesca, 2003). Some scholars have noted that PAR can actually be misused in situations where there is passive collaboration or in situations where a pre-determined objective is already in place. Dissanayake (1985) as cited in Huesca also points out that it could be either a gross assumption or a somewhat generalized premise that the local people and peasants actually are qualified to provide vital local information that could inform a study. Finally, due to a lack of concrete definition of PAR and the wide-ranging scholarship that attempts to define each derivative, its critics aver that PAR is actually a dominant communication pattern in a different guise. These limitations were considered and best practices applied during the research. All respondents participated willingly. Purposive recruitment ensured that participants are knowledgeable about the subject; all student participants either used or are currently using the technologies and the parents consisted of men and women whose child/children or ward have
used or are currently using the technologies under study, and who also have had some experience with it. The Subject-Matter Experts (SMEs) equally consist of people who are directly involved in the decision making, training, planning and implementation of the technologies or experts in the field of education and technology for the countries of focus.

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