ICTS AND EDUCATION: NEWS MEDIA PORTRAYAL OF E-LEARNING IN KENYA

by

DAVID KIPLAGAT TUWEI

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Major Professor
Samuel Mwangi, Ph.D

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Abstract

From around the year 2006, the government of Kenya has committed substantial amounts of resources to build Information Communication Technologies (ICTs) around the country and in the education sector in particular, with the sole purpose of catalyzing education. This commitment has emanated from the need to increase access to education to the greater portion of the ever-growing nation's primary and secondary school population. Some of the pressure to increase education access has also come from regional and international commitments to bodies such as the United Nations through the Millennium Development Goals (MDGs) and the New Partnership for Africa's Development (NEPAD) through its e-school initiative.

The news media have an important and potentially influential role in the discourse about the use of ICTs in education. While the news media rely on different sources for their news about ICTs and education, including politicians, central government ministers, and interest groups, policymakers, in turn, use the same media as a communication channel to relay their messages on education policy to the general public, education professionals and stakeholders. Having this symbiotic relationship between the media and its source(s) of e-learning news in mind, the purpose of this study is to examine the nature and content of the news media's interest in e-learning and to begin to ask how it could have influenced public opinion or even the public policy-making process. Content analysis was used to audit news media content comprising 60 news articles taken from two leading online daily newspapers in Kenya.

Findings from this study indicate that government officials were the most relied-upon sources of news about e-learning, while the theme of connectivity was the most discussed. The tone of the coverage was largely positive. Understanding the intersection between media coverage and e-learning ultimately enriches our understanding and knowledge of the power of journalists and news outlets in constructing the debate about educational technology.

ICTs, with their efficacy in boosting education still being studied, a discussion is provided about the need for media coverage to encompass the viewpoints of all stakeholders in education and adopt a broad conceptualization of ICTs so as to have a balanced debate about ICTs and ICT projects in education.

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Dedication

For Regina, Kibusio, Nyangoto, Geoffrey, Chepchirchir, Chelimo, and Chemeli.

Chapter 1 - Introduction

For Kenya and other African nations, education is considered a profitable investment to both individual and society. The effects of education are visible in economic growth, quality workforce, better health among other areas (Sifuna, 2007). However, in the recent past, Kenya has faced the challenge of providing accessible, relevant and quality education to all children throughout the republic. The problems have arisen owing to the severe shortage of trained teachers to provide education to an ever increasing youthful population. For instance, educational needs of secondary education are likely to increase following the adoption in January, 2003 of Free Primary Education (FPE) which has seen enrollment go up by 155 percent and is expected to rise from 0.9 million to 2.7 million in 2015 (Onsomu, Muthaka, Ngware & Kosimbei, 2006). As a consequence, these problems have placed Kenya and other African countries behind other parts of the world in primary, secondary and even tertiary education (Mbarika, Meso & Musa, 2004).

As a solution to the above mentioned challenges, and in response to national and international calls for increased access to education for all children, Kenya has recently embarked on strategies to raise school participation by instituting education policy reforms that will see the use of ICTs (also called e-learning) in teaching and learning in elementary and secondary schools. Part of the reason for this education reform effort is to meet the Millennium Development Goals, a set of development goals in which raising universal access to education is part, to be achieved by 2015. Kenya's ministry of education is optimistic that the use of technology in teaching and learning will alleviate the problems of education equity, access, relevance and quality (Ministry of education, 2006).

Globalization, which loosely refers to a networked society, has been aided by ICTs (Ya'u, 2004), and has become a potent force in international development occasioning the use of ICTs to solve development challenges in areas such as education.Used correctly, ICTs can help solve the endemic problems such as high pupil to teacher ratio, shortage of instructional materials, poor educational content, and absence of opportunities in remote areas (Wims & Lawler, 2007). Though many ICTs are offering hope to the extremely poor state of education in Africa (Mbarika, 2005), multiple digital divides of access, capacity, geography (even in front

runner countries that serve as e-learning best practices) provide stumbling blocks to progress in ICTs.

Despite its importance in education, e-learning and how it is depicted in the news media has received little scholarly attention. Wallace (1994, 1998) says that the significance of the news media has been downplayed in studies of education policy process despite the media's centrality in communicating messages on the formulation of education policy. Specifically, the news media serve to set the agenda on e-learning and also as a communication channel of messages about e-learning, such as the critical role of promoting ICTs and in the framing of messages about ICTs which ultimately determines how ICTs are accepted by all the stakeholders in the field of education.

In a study of mass media coverage of education news, Sanders (1969) found that metropolitan dailies devoted more space to education than smaller newspapers though there was prominent placement of education news by smaller newspapers oriented towards local coverage. Little attention has been given specifically to the study of media depiction of e-learning. Inspired by previous research, the present study aims to fill this gap in research knowledge and conceptualization by addressing the portrayal of e-learning by the news media in Kenya. Ultimately, the present study has three overarching objectives: a) to determine the main actor(s) who shape the news pertaining current education reforms of use of e-learning; b) to juxtapose the issues about e-learning that are emphasized in Kenya's news media and in the national ICT policy on education and c) to examine the tone the news media in Kenya gave towards the adoption of e-learning education. Overall, this study will expand knowledge of news media depiction of e-learning.

Study Justification

In the recent past, the adoption and use of ICTs has been associated with social and economic development. There has been a continuous deployment and development of ICTs and their applications in economic, political and social spheres such as in e-commerce, e-government, and telemedicine, to name a few. In Kenya, ICTs have been recognized as an integral part of development with the government providing support by financing ICT infrastructure and formulating ICT policies. The government has also mainstreamed and prioritized the use of ICTs in education. The recent technological advances especially mobile

communications have altered the country's connectivity landscape and shown the great potential of ICTs in development activities. For instance, Kenya's M-PESA, a mobile phone based money transfer service has been called the most successful technological innovation in the world (ITU, 2009). This study is timely, coming at a period of comprehensive ICT educational reforms as well as the wider wave of technological advances that has occasioned the harnessing of ICTs for development. The outcomes of this research have practical implications; first for education policy makers on how to devise appropriate strategies for education and, second for media houses on how to improve the quality of education reporting and ultimately, media performance.

This thesis is divided into five chapters. Chapter One consists of a description of the problem under investigation, namely, media portrayal of e-learning in Kenya. Chapter Two provides a contextual background of the study by reviewing literature on globalization, media and development, Millennium Development Goals, and ICTs and education. Chapter Two also provides a theoretical framework of the study using a combination of theories of cognition and media theories, namely technology acceptance model, diffusion of innovations and agenda setting theory. Chapter Three will explain the research design and methodology used in data collection and analysis. The study will use the content analysis method to audit selected newspaper articles of two newspapers in Kenya. While chapter Four will report and discuss the research findings, chapter Five will finally offer conclusions about major findings and suggest future investigation.

Chapter 2 - Review of Literature

This chapter attempts to provide a contextual background for the present study by reviewing existing literature on ICTs and development. Within this discussion is an explanation of the current attempts by the government of Kenya to improve education by incorporating ICTs, and by embracing the Millennium Development Goals. The chapter also discusses the challenges facing the current efforts as well as the relevant cognitive and media theories that help inform this study.

ICT, Globalization and Development

Globalization and technology have almost attained buzz words with researchers, policy think tanks, and politicians each having an opinion on what globalization entails as well as its merits and demerits. This fact notwithstanding, the forces of globalization and technology currently hold sway in local and international development arena. In the following paragraphs, a background on globalization and its implication in the developing world is provided to give a contextual backdrop of ICT deployment in Kenya's education sector.

United Nations Development Program (UNDP, 2004) defines ICTs as: tools used to produce, store, and process, distribute and exchange information. They include the "old" ICTs of radio, television and telephone, and the "new" ICTs of computers, satellite and wireless technology, and the internet. The different tools are now able to work together and combine to form the "networked world" – a massive infrastructure of interconnected telephones services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe". Rao (2005) asserts that there are two ways of conceptualizing ICTs: as an instrument and as an industry. Taken as an instrument, ICTs, when affordable and usable can alter the way society work, entertain, govern and so on, at individual, organizational, sectoral, regional and national levels. When looked as an industry, ICT represents a major growing economic sector covering hardware, software, and telecom/datacom and consulting services (Rao, 2005).

According to Audenhove, Burgelman, Gert & Cammaerts (1999), globalization has its origins in the Western countries, where the quest to achieve the information society has been

vibrant, leading to the development of information infrastructures. This process of achieving an information society has often involved modalities such as those that support private sector investment, regulation of the telecommunication sector, competition as well as open access to networks. Rao (2005) adds that information-enabled society (also called the globally-connected knowledge-based society) can be attained when there is a smooth integration of new media (ICTs) and traditional media coupled by technical skills, progressive government policies, humane and environmental use of technology or innovations among other measures. In the recent past, this dominant scenario has been transposed as the appropriate mechanism for the development of information infrastructures in the developing countries (Adebowale, Adewale, & Oyeniran, 2010).Ya'u (2004), contends that globalization entails a world that would become fully connected and brought together by the click of a mouse.

Globalization involves the breaking down of national barriers for trade, flow of information and capital and ownership of key industries. ICTs have been a means through which the world is brought together by conquering both time and space (Ya'u, 2004). Globalization is made possible by the new information and communication technologies (ICTs), the convergence of microelectronics, communication and computing technologies that has given rise to new information systems that can manipulate information rapidly and deliver such information at incredible speed at very low cost (Ya'u, 2004). ICTs have been aided in large part by the Internet, itself the center- piece of information technology and which has created a highly mediated and integrated world today popularly known as the global electronic village (Ya'u, 2004). In addition, globalization has aided and stimulated services such as education, finance, health and telecommunication with particular examples such as online education, electronic banking, telemedicine, data processing to give a few examples.

Perspectives and opinions on the net effects of globalization are as varied as the individuals affected by this phenomenon. Those in support of globalization tout the power of globalization in reducing, as mentioned earlier, the national boundaries as well as time and space.

Opoku-Mensah (2004) highlights the greater access to information that citizens of many developing countries now have despite the weak communication infrastructure. She particularly points out that globalization has witnessed a dramatic improvement in Africa's ICTs over the last ten years and which has seen over 5 million people connected to the internet and many more

using mobile telephone services. The benefits of globalization rests in the fact that markets drive the global economy through international trade, all courtesy of deregulation, privatization and the removal of tariffs and non-tariff trade barriers (Evoh, 2007a; Oshikoya & Hussain, 1998; Ya'u, 2004). The New Partnership for Africa's Development (NEPAD) recognizes, prioritizes and will fast-track the role of ICTs and ICT infrastructure because it believes ICTs can accelerate Africa's integration into the world economy (New Partnership for Africa's Development, 2001). Evoh (2007a) states that though the fairness of globalization to poor economies is a subject of debate, countries have to accept the globalization arrangement or risk peril because "no country can survive without others - jobs, systems, culture/traditions are universal (p. 8). On education, Evoh (2007a) contends that globalization "has a synergistic relationship with education development issues in various countries" (p. 9). African Information Society Initiative (AISI) was formed out of the recognition that globalization affects all aspects of development be it economic, social or political and to prepare African countries to utilize ICTs to promote social and economic development in Africa (African Information Society Initiative, 1996).

Conversely, critics of globalization, many of who are environmental and human rights activists oppose globalization for increasing the presence of multinational organizations particularly in developing countries thus killing local ownership of key and dynamic sectors of national economies while side- stepping and obstructing national democracies in policy formulations (Ya'u, 2004). Further, globalization's chief plank- removal of tariffs- has rendered many governments incapable of legislating anything in their countries, not to mention that liberalization has often been blamed for making developing countries incapable of marketing their services in developed countries.

Issues Surrounding ICTs, Globalization and Development

This part examines the fundamental issues related to ICT, development and globalization. These issues include (a) the digital divide, (b) the digital divide in Africa, and (c) millennium development goals and ICTs.

The Digital Divide

Previous conceptualization of the digital divide centered on the dichotomy between individuals who had access to ICTs and those who did not vis-à-vis their usage (Farrell, 2007; Opoku-Mensah, 2004; Wims & Lawler, 2007; Ya'u, 2004). The conceptualization of the digital divide has since changed because many scholars considered the above definition simplistic, popular and dangerous (Selwyn, 2003 p.6). Nonetheless, other educational technology critics do not subscribe to the concept of the digital divide altogether. For instance, Oppenheimer (2003) believes the campaign to close the digital divide is a cultural delusion like many others that are aimed at skewing everyone's view of how the world works.

The current conceptualization of the digital divide takes into consideration the meaning of ICTs, access to ICTs as well as the relationship that exist, if any, between access to ICTs and use of ICTs. This current definition also assumes the digital divide to be different depending on the various ICT technological applications such as the computer hardware and software; digital broadcast technologies, communication technologies such as cell phones and electronic information resources such as the World Wide Web (Selwyn, 2003). Access to ICTs does not guarantee ICT use as current deterministic notions follow, since having a computer does not mean access to the internet, and access to the internet does not guarantee access to on-line services, or meaningful use of ICTs (p. 10). In both developed and developing countries, access and usage of ICTs is associated with socioeconomic and demographic factors such as male, educated, wealthy, urban (Wilson and Wong, 2003). Though most countries in Africa have established ICT networks, the digital divide in Africa is almost always skewed between urban and rural centers (Mbarika, 2005; Opoku-Mensah, 2004). Though ICT use in Africa is restricted to the educated few who do not represent 70 percent of the rural population, there is a ray of hope of bright access future now that there are cheaper ICTs and ICT infrastructure such as the cell phone, satellite communications, together with continental efforts like the New Partnership for Africa's Development (NEPAD), all of which have seen a paradigm shift in access with an increase in interest in internet kiosks, cyber cafes, telecenters, and public internet sites (Mbarika, 2005).

An almost common consensus among technology enthusiasts has been that a nation's ICT infrastructure contributes to enhance the rate of socio-economic development. The benefits of ICTs are many; they are considered less expensive, more powerful, and can bring greater access

to information and knowledge (Wilson & Wong, 2003). Elsewhere, ICTs are used to provide information on elections, voter registration (as was the case in Senegal 2000 election), or even used to help reduce the cost of education and health as well as improve public service (p. 157). International Development Research Center's Acacia project in Senegal's rural villages is helping improve information accessibility of latest land reform legislation and natural resource management by the rural people and information for diagnostic assistance and preventive medicine by health professionals (Mbarika, 2005). Other use of ICTs in Senegal includes getting weather forecasts, land reform initiatives and funding options (p. 133).

Ya'u (2004) states that efforts of individual African countries and African countries collectively to bridge the digital divide have not achieved results because:

1) Sector reforms serve to provide markets for transnational corporations and not close the digital divide.
2) African countries do not own networks or content in these networks.
3) Digital divide is tied to broader development issues of the past and the present.
4) Digital divide cannot be bridged without universalizing ICT access.

Selwyn & Facer (2007) opine that whereas all individuals in the society can be considered digitally disadvantaged, closing the digital divide is possible if policy makers match the affordances of ICT with everyday needs, interests and desires of individuals while putting in place policy responses that go beyond simply increasing the levels of hardware and support. In his view, Ya'u (2004) believes that solving the problem of the digital divide in Africa will have to involve the democratization of ICT access rather than bridging the digital divide, in the way the Scandinavian countries and the United States of America first achieved connectivity by engaging in public investment rather than through the market.

Removing the problem of the digital divide requires a sober debate and realistic framing of the digital divide by academics, politicians, practitioners and other stakeholders in the information age because the digital divide will persist as long as there are differences in technological capital of individuals, organizations and communities (Selwyn, 2010). Improving infrastructure, placing emphasis on villages, towns, schools, colleges, health centers and other public internet access points (Hare, 2010; Opoku-Mensah, 2004) as well as the political will (where the government has a stake in the ICT sector rather than leaving it all to the international

development and investment communities) may help remove the digital divide in Africa (Opoku-Mensah, 2004).

The Digital Divide in Africa

From the foregoing discussion, it can be concluded that the digital divide is a dynamic concept which varies over time and place. There is not one single divide, but multiple divides for instance within countries, continents, within men and women, between the young and the elderly and so on. As we move from the local or within countries or even continent to the global, the digital divide and more so between Sub-Saharan Africa (SSA) and the developed world, the inequity in ICT is stark.

Despite the tremendous ICT revolution in the world, many people in SSA are not enjoying the benefits of the information society (Hare, 2010). ICT revolution (also called the information revolution) refers to the technological, commercial, institutional changes in the ICT sector arising out of the ICTs diffusion since mid 1980s (Wilson & Wong, 2003).

SSA constitutes 49 African countries situated south of the Sahara (excluding South Africa and North Africa) with a combined population of 633 million people (Mbarika, Okoli, Bryd & Datta, 2005). This part of Africa, though highly tribally segregated with a rich variety of language, social mores and cultures, share less than 1 telephone line per 100 people (compared to the United States which has 60 telephone lines per 100 people) (p. 132).

Despite constituting 13 percent of the world population (Ya'u, 2004), Africa has only 18 mainline telephones per 1000 people compared to 146 for the world or 567 for developed economies (New Partnership for Africa's Development , 2001), and accounts for 0.02 percent of the total number of landline telephone connections in the world, with a continental technical divide even more evident because more than half of ICTs in Africa are found in South Africa alone (Ya'u, 2004). South Africa is an economic powerhouse with a dense network of old and new technologies (Wilson & Wong, 2003). Africa has poor access to older ICTs (radio, television and newspaper) but the transistor radio is more easily available (Amutabi & Oketch, 2003; Ya'u, 2004) than computers since there is one computer per 10,000 people or even less in rural areas (Amutabi & Oketch, 2003). In terms of the new ICTs such as computers, there were 3million computers in Africa in the late 1990s, with over half in South Africa followed by North

Africa then Nigeria and finally SSA (Wilson & Wong, 2003). Majority of the people in developing nations live on less than two dollars a day and cannot afford computers nor have access to the internet (Farrell, 2007). 340 million people in Africa or half the population of the continent lives on less than 1 US dollar day (NEPAD, 2001). Indeed, just like South Africa skews the statistics of the rest of Africa, any development in telecommunication in the developing world is confounded by China and India where one-third of the growth in mobile subscribers come from (Hare, 2010). In this part of Africa, too, not one single country has made it to the top 20 internet users in the world; the few people that are connected to the internet get internet not from educational institutions but through dial-ups, leased lines, cyber cafés and mobile services (Ford, 2007).

International Telecommunication Union (ITU) review of progress made towards global information society by 2015 that governments committed themselves to during the World Summit on the Information Society (WSIS) in Geneva in 2003, and later in Tunis in 2005, showed that 80 percent of Africans in general do not have internet access with 12 percent of the households being devoid of any internet access; in contrast to the developed world whereby 60 percent of the households have internet (Hare, 2010). 80 percent of the more than 500 million internet users in the world are in the developed world with two out of five people in developed world online compared to only one in fifty in developing countries (Rao, 2005). Internet access remains a "distant reality" in most of SSA (Mbarika et al., 2005) and internet is not yet a mainstream medium like in the developed world (Rao, 2005). In the education sector in Kenya, for instance, technology-enhanced learning facilities are neither available nor accessible to the majority of teachers; the little that is available is costly as internet access costs an average of US$ 15.8 per month and the telephone US$ 3.00 per three minutes (Maritim, 2009). According to Amutabi & Oketch (2003) "as long as cost to get access to education and internet are higher in Africa than the North, money will continue to mark the dividing line between knowledge and ignorance" (p. 72).

The problem of the digital divide in Africa may result in the continent being eclipsed by the pace of revolution in other regions such that Africa will continually fall further and further behind thus increasing the gap between the haves and the have-nots (Wilson & Wong, 2003 p.175).

A number of political, economic and social factors have been attributed for Africa's poor state of ICT-related infrastructure. Chief among the many "culprits" is the overall dismal performance of Africa's telecommunication sector when compared to the rest of the world (Wilson & Wong, 2003 p. 163). Barriers to technological development in Africa also include inadequate human, physical and fiscal resources, lack of modern and viable telecommunication infrastructures, problem of technology transfers, national and international telecommunication regulations (Kinyanjui & Morton, 1992). Other scholars cite the continent's legacy of poverty, colonialism, political misrule, weak institutions, half-hearted leadership and conservative policies as the stumbling blocks for rapid technological change in Africa (Wilson & Wong, 2003). Internal problems of bad leadership and corruption have continued to put SSA behind the rest in the world in socioeconomic development; resulting in the christening of Africa as a continent of negativity with little hope of advancing (Mbarika et al., 2005).

Rao (2005) asserts that ICT projects in Africa have failed because they were too technology-centric. The information society, in Rao's view, should go beyond connectivity to consider accessibility to content, communities online and offline, the inherent and emerging cultural attitudes, commercial and other motives of the projects and a host of other factors (p. 275). Ya'u (2004) and Mbarika (2005) say that average literacy (which stands at 55 percent in Africa with technical graduates making up only 2.1 percent compared to 56 percent in developed countries) determines ICT use while adoption and deployment of ICTs depends on technical manpower. In their opinion, these two factors should constitute the parameters to measure the digital divide. According to (Momanyi, Norby, & Strand, 2006), low connectivity in Africa has meant that the educational systems have not only missed the technological revolution but technology has yet to impact them in ways it has the first world countries (p.154).

Technology is needed in Africa so as to bridge the digital divide either within Africa itself or between Africa and the developed countries (Mbarika, 2005; Ford, 2007). Wilson & Wong (2003) contend that as long as there will be differences in wealth between countries globally or within countries or between individuals, the digital divide will continue to exist. Africa's economic independence and prosperity depends on exposure to science and technology, and education is a medium through which this technology can reach communities (Farrell, 2007; Ford, 2007).

The success of ICT reforms and ICT diffusion is closely related to politics and public policy; policies in support of ICT enabling environment that will benefit both consumers and producers of information goods and services (Wilson & Wong, 2003). In the recent past, the digital divide policies and programs have used ICTs to advance modernization and promote social and economic development in the developing countries (Mbarika, Payton, Kvasny & Amadi, 2007). Developing countries have been advised to experiment on new media and technology, borrow the experiences of developed countries, tap the potential of telecommunications technologies and apply them in modified forms to suit their own needs and circumstances to increase access and share limited resources (Kinyanjui & Morton, 1992). Rao (2005) believes the framework for gauging a country's progress towards the information society should take cognizance of several factors such as the state of the ICT infrastructure in a country, the technical capacity of individuals who are going to use ICTs, how the content in the networks are suitable to the users among other factors.

The future seems bright for Africa because currently a number of African countries are instituting national policy reforms that encourage private sector participation (Evoh, 2007b; Wilson & Wong, 2003) and competition in internet, e-commerce, and broadcasting(Wilson and Wong, 2003). African Information Society Initiative (AISI) was adopted by the Economic Commission of Africa (ECA) in 1996 to oversee the crafting of e-policies by African countries (Opoku-Mensah, 2004).

However, for ICT policies to be beneficial to African countries, the element of good governance must be included (Meso, Datta & Mbarika, 2005). E-policies that support computing ownership and investment can make ICT beneficial to a greater majority of the population because they shape and influence ICT infrastructure as well as a nation's economic and social development, but unfortunately, most policies in developing countries exclude good governance and governance standards (p. 196). Other criticisms leveled against national policies adopted by countries is that the policies (1) are devoid of specifics of how countries will speed up their information society initiative, (2) lack parameters to quantify benefits that will accrue out of such policies, (3) do not provide a way to evaluate the role of stakeholders or see the effects of such policies on the ground, and (4) exclude the academia in policy formulation despite their expertise or knowledge (Opoku-Mensah, 2004).

E-policy formulation has, however, not been smooth in SSA because ICT policy making is still low and less priority is paid on it because countries lack resources to integrate ICT and face management obstacles among other reasons (Evoh, 2007). Additionally, though some African countries already have policies, service penetration and quality of tariffs have not yet improved (NEPAD, 2001). Ya'u (2004) states that African countries should have power to make independent policies on ICTs because ICTs have created channels for capital flight in developing countries such as profit repatriation by multinationals, cost of connection to international internet backbone, loss of tax in online transactions and the cost of infrastructural provision (p. 20). Policy makers, technologists and concerned stakeholders should develop a revitalized policy agenda which moves beyond previous digital divide policy making and which creates positive social change that generates opportunities for the technologically-based empowerment of individuals (Selwyn and Facer, 2007).

In the recent past, there has been a huge embrace of Information Revolution in Africa due to the rise of new telecommunication systems courtesy of the death of government controlled telecoms industry and the entry of economic globalization and international competition that has witnessed the uptake of new technologies, rise in internet market, and the spectacular diffusion of the use of the cell phone, even among ordinary people e.g. taxi drivers in Uganda and Tanzania (Wilson & Wong, 2003). So phenomenal has been the uptake of mobile phones-though the growth in mobile sector has been out of necessity rather than policy- that many see the future to be mobile for voice and internet, a situation that can ensure attainment of universal access by 2015 (Hare, 2010). Kenya is poised for a huge growth in mobile services with subscription at the end of 2008 at 15.0 million, but expected to rise to 29.29 million (Kenya's population is 39 million) by the end of 2013. The growth is attributed to several factors including increased competition, rising demand for mobile services, subsidization of handsets, competition in the sub-sector, and price wars that have reduced tariffs (ITU, 2009). M-PESA, a mobile transfer service for Safaricom, the leading provider, accounts for the highest revenue base for the company with the number of M-PESA users rising exponentially from less than 2 million in 2008 to 8 million in 2010 (Safaricom, 2010).

The role of ICTs in human development has generated international and regional attempts to mainstream the place of ICTs in Africa's development. Currently, chief among such efforts is

the United Nations Millennium Declaration and the regional New Partnership for Africa's Development (NEPAD).

Millennium Development Goals and ICTs

The UN Millennium Development Goals (MDGs) were adopted in 2000 by world leaders representing 189 countries during the UN Millennium Summit and fifty-fifth session of the UN General Assembly (Clemens, Kenny, and Moss, 2007; United Nations General Assembly, 2000; Easterly, 2009). In a meeting aimed at finding ways to reduce poverty and attain sustainable global development, (United Nations General Assembly, 2000), the leaders designed what is now called Millennium Goals (MDGs); a set of objectives set 15 years into the future, to be achieved by 2015.

Adopted 10 years ago, the MDGs have been the centerpiece of foreign aid efforts to developing countries and gained the attention of the UN, World Bank, International Monetary Fund (IMF), and bilateral aid agencies working with the low-income countries (Easterly, 2009). This attention does not only represent advancement on several economic and social indicators but MDGs have also been motivational tools to raise development efforts in and by poor countries (p. 26).

Though the world leaders considered the goals of the MDGs ambitious, it was stated that the objectives were achievable and its success would be made possible by collaboration between wealthy and poor nations towards reducing disease, hunger, poverty, illiteracy, environmental degradation and discrimination against women (United Nations General Assembly, 2000; Clemens et al., 2007).

According to the United Nations General Assembly (2000), the UN Millennium Declaration came up with 8 MDG goals and other 18 targets together with other related, measurable indicators to check progress towards attainment of the following goals.

1) Eradicate extreme poverty and hunger
2) Achieve universal primary education
3) Promote gender equality and empower women
4) Reduce child mortality
5) Improve maternal health

6) Combat HIV/AIDS, malaria and other diseases
7) Ensure environmental sustainability; and
8) Develop global partnership for development

The current efforts in Kenya to use ICTs to reduce the challenges of education equity and access (Ministry of Education, 2006) finds consonance in Millennium Development goal 2 which has a similar objective of achieving universal primary education. Further, the eighth goal of the MDGs takes into consideration the link between ICT access and the global economy. MDG goals have helped generate discussion, focus attention, help assign accountability to the pledges made by leaders and called for assistance from the international community (Clemens et al., 2007). However, many countries in Africa will not meet the MDG targets, due in part to the ambitious design of the goals themselves and Africa's historical evidence of underdevelopment (p. 746). Easterly (2009) believes MDGs are unfair to Africa because (1) they have emphasized the failure of SSA compared to other regions, (2) they have created a negative image of the continent than is justified, (3) they have changed success into failure, (4) they have demoralized African leaders and activists, (5) they have trumpeted the stereotype that Africa is a failed continent, and (6) they have affected foreign direct investment.

Clemens et al. (2007) contend that MDGs constitute unreasonable expectation of what can be attained within a short time period and puts wrong predictions on the role of aid in the development process. Clemens suggests that the international community should devise other parameters of measuring the development process that are country-specific, flexible, recognize historical contexts, focus on immediate targets rather than outcomes, and be considered benchmarks rather than goals (p.747). "MDGs do not give a fair picture of progress in all regions and portrays universal failure in Africa, whereas there are notable successes" (Easterly, 2009 p. 34).

NEPAD, a regional initiative of the African Union (AU), is a response to globalization and was created to address problems of poverty, hunger, disease, education, health, agriculture and regional infrastructure among others (Evoh, 2007; Nwonwu, 2006) as part of the MDGs (Nwonwu, 2006). NEPAD is a regional body that was born out of African leaders to enable Africa participate in the world economy and put the continent in sustainable growth and development using capital, technology and human skills (NEPAD, 2001).

African Information Society Initiative (AISI) was founded in 1996 to coordinate the United Nations agencies' support of NEPAD and to oversee the implementation of MDGs in Africa (Opoku-Mensah, 2004).

At the country level, the Government of Kenya's Vision 2030, an economic blueprint for 2008 to 2030 that hopes to transform the country from a middle-income economy to newly industrialized economy is grounded in the MDGs (Government of Kenya, 2007). By the Vision 2030 blueprint, becoming a middle-income economy will enable the country attain the MDGs by 2015. In other words, Vision 2030 is, in essence, a springboard for the attainment of MDGs.

ICTs, MDGs and Education

The use of ICTs in education is essentially an education reform effort and education reforms are necessary to meet the MDGs, boost education access and quality for all children (Tolani-Brown, McCormac & Zimmermann, 2009). The use of ICTs in education has been touted as a measure to develop the human capital (Evoh, 2007b), and produce skilled and educated workforce that will further see a country get the benefits of the global economy (Evoh, 2007a). In particular, e-learning is increasingly gaining acceptance as a viable means of enabling large numbers of students to access education. Integration of ICTs in learning has been said to provide a realistic, motivating and interactive learning environment necessary for developing students' skills and knowledge in today's hi-tech multicultural environment (Eteokleous-Grigorious, 2009). Organization for Economic Cooperation and Development (OECD) (2005) defines e-learning as the use of information and communication technologies (ICTs) to enhance and/or support learning. It covers a wide range of systems from students using e-mail to accessing course work on- line. When e-learning is tied to the internet, it comes in four categories (1) web-supplemented, (2) web-dependent, (3) mixed mode, (4) fully on-line.

Learning using technologies is now a global issue with the internet considered a value-neutral tool that makes it possible for individuals to leapfrog limitations of access and get unhindered access to learning thus solving the known problems of inequality in education, social exclusion and undemocratic educational opportunities (Gulati, 2008 p. 1).

A general consensus is that ICTs can improve teaching (Pittard, Bannister, and Dunn, 2003) and learning (Evoh, 2007b). ICTs can also be used for a variety of reasons, including curriculum development and delivery, skill development and training of students, and

professional development of teachers in rural and isolated communities (Evoh, 2007a p. 14). As such Africa should integrate ICTs in education at all levels; empower citizens to acquire skills to use ICTs while the state continues to provide education as a public good (Ya'u, 2004 p. 27). Africa seems left behind in the utilization of ICTs for education purposes when compared to other regions of the world. For example, ICTs has been used in secondary education reform in United States of America, Europe, and Asia (Evoh, 2007a).

Around the world, ICT spending amounts to millions and millions of dollars in trying to come up with the technology that can aid learning (Selwyn, 2010). As such, there is need to consider whether investing in ICTs will produce maximum educational and related benefits (Pittard et al., p. 3). However, for ICT reforms to be effective it will take much investment and support of the educational system- physical, technical, infrastructural, human resources, curricular frameworks, standards, and assessment (Light, 2009 p. 12).

Nonetheless, it is naive to oversimplify the net positive effects of use of ICTs because ICTs alone cannot produce education results; other mediating factors or influences such as teacher training and support, classroom management techniques, school leadership, ICT culture of a school, student experiences on ICTs among other factors are key to understanding the impact of ICTs (Pittard et al., 2003; Tolani-Brown et al., 2009). Current ICT reforms in developing nations are guided largely by intuition (belief that by modernizing learning environments using computers or other ICTs, teaching and learning will be improved) or anecdotal evidence rather than research or science (which is lacking anyway). ICT researches in poor nations consist majorly of qualitative research. There is need for research to assess how and when ICTs produces desired outcomes and to know when perception meets reality (Tolani-Brown et al., 2009).

Though ICTs have positive effects on student attainment owing partly to potential to engage learners directly, no definite study showing causality exist. For instance, different specific technologies produce specific effects (Pittard et al., 2003). Selwyn (2010) opines that for the past 25 years of educational technology scholarship, there has been a divide between rhetoric and reality with “a long history of eagerly anticipated but largely unrealized technological transformation.” Selwyn adds that ICT research should avoid deterministic postulations that treat technology as a means to an end. Consequently, there is reason to scrutinize the framers of

educational technology- marketers, journalists, government agencies, teacher unions, and consumer interest groups (Selwyn, 2003 p. 71).

The polemics of ICTs in educational settings comes amidst many challenges such as how ICTs can impact education of children living in abject poverty and in underdeveloped educational infrastructure, not to mention other problems such as lack of trained teachers, negative attitudes, social and cultural restrictions placed on girls, inappropriate policy and funding decisions and many others (Gulati, 2008). In Botswana for instance, despite the government's attempt to give its citizen basic computer skills to enable them use computers for learning in primary and secondary schools, many challengers were faced including shortage of IT literate teachers, rural- urban disparities of connection, electricity, and telecommunications (p. 8). A fieldwork study to describe changes taking place after integrating ICTs in six schools in developing countries of India, Turkey and Chile found that necessary changes are broader than just the introduction of a new tool; it entails deeply reshaping life in the classroom to relationships that make up the school community (Light, 2009).

NEPAD, the regional initiative of the African Union (AU), in recognition of the importance of secondary education in Africa, has come up with the NEPAD e-school project whose aim is to alter educational curriculum delivery by equipping secondary schools (in the first phase and primary schools later) with ICTs to align education to the 21st century (Evoh, 2007b). Through this project, NEPAD hopes to see improved curriculum delivery, learning, education access for remote locations, raised technical literacy in learners and readying of learners for the world of work (p. 67). In a descriptive study to gauge the level of success of NEPAD e-schools (NEPAD schools are considered model centers of excellence in ICT education in 16 African countries and are provided with computers, e-materials, internet appliances and trained personnel), and other schools offering ICT education in Kenya, NEPAD schools performed better than non-NEPAD schools in overall national exams but this could not be attributed directly to e-learning. Nevertheless, NEPAD schools performed better in Computer Studies compared to non-NEPAD schools. In general, e-learning was found to bring out better results in teaching and learning in Secondary schools (Ayere, Odera & Agak, 2010).

Though NEPAD is considered Africa's homegrown organic political product, critics point the high ambitions of the project set against Africa's past performance of political instability, corruption, abuse of human rights and leaders hanging on to power. Moreover, the

project has been said to be an exclusive and isolated top-down initiative which does not involve the people it is meant to serve, and does not take the views of scholars or the technocrats, civil society organizations, students or other stakeholders (Nwonwu, 2006). Besides the paradox of who owns the NEPAD initiative between the NEPAD formulators (African countries) and those who provide funds (development partners from the West) come other challenges of poor ICT infrastructure in Africa, and dependence on non-guaranteed foreign support (Nwonwu, 2006 p. 27). Other problems include sustainability issues, project scale, and control of the telecoms sector by government, external interests, and lack of local expertise to manage technologies (Evoh, 2007b).

The project, though with idealistic goals, can improve, enrich, and expand access of secondary education in Africa from its current poor state (Evoh, 2007b p. 80). Nevertheless, other educational technology projects provided extant examples for e-Africa Commission (the owners of NEPAD) to start the NEPAD e-school initiative. The following two case study projects- Mindset Network Organization and Khanya Educational Technology Project both operating in South Africa constitute the best practices of e-learning in Africa to date.

E-learning Best Practices

The Mindset Project and Khanya Educational Technology are two educational technology projects run by private sector interest groups that use ICTs to improve the quality and expand secondary education access for the deprived groups in South Africa (Evoh, 2007a).

Mindset Network, a non-governmental organization aims to use ICTs to improve access and quality secondary education. The project uses studio broadcast technology to teach secondary school curriculum to many students across South Africa at the same time. Schools are required to obtain digital satellite television decoders and a Television set. The project funds are sourced from local and international donors and corporate sponsors (Evoh, 2007a). Founded in 2002, Mindset Network distributes quality and contextually relevant educational resources in technology platforms such as broadcast and data cast, video, print and computer for subjects like English, Mathematics, Physical Science, Information Technology and Mathematical Literacy broadcast to 1,200 high schools and over two million homes in South Africa (Mindset, n.d.). The organization, apart from installing receiving equipment such as TVs and satellite dishes, provides training on use of its resources to users, and conducts internal and external comprehensive

research on its project that is used to inform the organization on content production (Mindset, n.d.).

Khanya project, on the other hand, is an initiative of the Western Cape Educational Department founded in 2001 to use technology to address shortage of educator capacity in schools. The project does not replace teaching capacity, only augmenting teaching by using technology to help teachers by delivering curriculum and, in effect, removing the digital gap between the "haves" and the "haves- not"(Western Cape Education Department, 2001). Like Mindset, Khanya uses ICTs such as audio-visual technology to improve teaching and learning and deliver the curriculum thereby alleviating the problem of teacher shortage in poor communities of South Africa (Evoh, 2007a). As of February 2010, Khanya's achievements includes equipping 1102 schools with technology facilities (including computer labs), deploying 43,293 PCs, training 24,417 educators in basic information technology skills, reaching 805,818 learners with technology daily. Khanya uses computer technology to modernize schools beyond the traditional "talk and chalk"(teachers use PowerPoint presentation), adopts education software to make teaching relevant and effective and helps to streamline other processes and tasks in schools like keeping mark sheets, exam results, and analysis. Project sustainability is assured by the incorporation of technology support until educators can comfortably use the technology (Western Cape Education Department, 2001).

Evoh (2007a) concedes that ICT initiatives in South Africa however, face several challenges including.

1) Inflexibility in national and state departments of education
2) Rigid government procedures in rolling out technologies and setting equipment
3) Loss of focus on education improvement to technology by private partners in education
4) Lack of computer literate teachers to use technology, resulting in machines lying idle many months after installation
5) High cost of electricity
6) Lack of electricity in rural areas such as KwaZulu-Natal making ICT deployment impossible and further creating a digital divide between rural and urban schools in South Africa

7) Many projects are without the element that will ensure their survival or sustainability beyond the roll-out or demonstration phase.

ICTs and Education in Kenya

Computers entered Kenya schools on an experimental basis almost 30 years ago (Farrell, 2007) but the use of computers intensified in the 1990s up until now when the nation is paying greater attention to ICTs (Amutabi, 2004). Kenya has a considerable growth in the number of computers acquired by schools in recent years at huge costs (Wims & Lawler, 2007).With a population of over 30 million people, Kenya is one of the populous SSA countries with 53 percent of the population below 20 years making the demand for education by this group very high in contrast to the limited education opportunities (Mbarika, Payton, Kvasny & Amadi, 2007).

Kenya's education system is 8-4-4 with elementary school taking 8 years while secondary and university (most degrees) take 4 years. The country introduced free universal compulsory access to primary education in 2003 leading to an immediate increase in enrolment of 1.3 million students. This growth has meant an accumulating demand for access to secondary and tertiary (middle-level colleges) as well. Kenya formulated the National ICT Policy in January 2006 to ensure the availability of accessible and affordable ICT services. In the education sector, the ministry of education developed the Kenya Education Sector Support Program (KESSP) in 2005 to focus on ICT mainstreaming in teaching and learning (Farrell, 2007).

Kenya, like many developing countries, aims to increase education access and has created strategies for expanding school participation. Call for increased access to education dates back to the 1940s with the role of the UN declaring education a human rights issue. There has also been recent international platforms calling for the same objective of increased access to education including the International Convention on the Rights of the Child of 1989, and the Dakar Framework for Action of 2000 (Sifuna, 2007). After independence, Kenya and other African nations pursued human capital and modernizing theories that considered education a profitable investment to both individual and society, with the effect of education touching on economic growth, quality workforce, better health, and child care and reduced fertility (p.691).

Deployment of ICTs in education and improved access to information can produce tangible benefits. Used correctly, ICTs can encourage and support a meaningful two-way information flow between teachers and learners, allowing for critical analysis by the learner. Consistent with human capital theory, ICTs in education can produce ICT literate, versatile students for adaptable workforce. ICTs can help solve endemic educational problems such as high pupil: teacher ratio, shortage of instructional materials, poor physical infrastructure, absence of opportunities in remote areas, and lack of educational content and up-to-date resources (Wims & Lawler, 2007). Many technologies are changing the face of education in Africa. Internet and related technologies offer hope to the extremely poor state of education in SSA (Mbarika, 2004). Though there is a yearning for "high-quality" education in Kenya, other scholars question whether the rush for information technology is a solution to Kenya's education problems. The researchers point out that there are more urgent issues that need to be tackled, besides the paradox of the relevance of ICT-dependent education system especially in rural Kenya where 80 percent of its population unconnected (Amutabi & Oketch, 2003). Uptake of technology in education ought to first consider a number of factors about technology such as the cost of installation, the nature of the country, level of obsoleteness in the near future, relevance to local conditions, and appropriateness and inclusivity of the technology to the poor who form the majority (Amutabi & Oketch, 2003).

Kenya has made remarkable progress in putting in place an ICT policy framework and implementation strategy, complete with measurable outcomes and time frames (Farrell, 2007). George Godia, Kenya's education secretary believes ICTs can greatly facilitate the learning process (Godia, 2006). Limited literature reports that Kenya has made some progress in ICTs, from student's acquisition of basic computer skills to obtaining computer-aided training in the sciences but not in humanities (Ministry of Education, 2006). In January 2003, Kenya introduced the Free Primary Education (FPE) to increase access to primary education primarily for the poor. The initiative witnessed an increase in enrollment in the first year of 1.3 million children, from 5.9 million to 7.2 million. But several years after the program begun, parents are withdrawing their children from FPE opting instead to take their children to private school that have relatively smaller classes (government schools have teacher-pupil ratio at 1:60 compared to 1: 21in private schools) and close teacher attention (Tooley, Dixon & Stanfield, 2008). Somerset (2009) adds that whereas the UPE's capital-grant system provided textbooks and other learning materials

(though with disparities in provision), UPE has created an economic separation in the education sector in the country with the children of the rich going to private schools and those of the poor trying to make it in public schools (p. 249).

In retrospect, Somerset (2009) points that access to primary education has, since independence, preceded quality and despite the fact that the success of UPE has yet to be realized, there is need to change priorities (p. 249). Sifuna (2009) says that political expediency of the National Rainbow Coalition Government (NARC) superseded the need for sound analysis and assessment of needs thus quality was compromised as witnessed by the lack of physical facilities, few teachers, and lack of essential teaching and learning materials. Sifuna's solutions include upgrading infrastructure, hiring and adequately paying teachers, and building sufficient education management capabilities among government officers (p. 697).

The ministry of education policy framework acknowledges challenges on use of ICTs in Kenya, including the high levels of poverty, limited electrification, limited access to computers, insufficient ICT tools for teachers, lack of internet connectivity, lack of teachers, limited national physical telecommunication infrastructure in rural and low-income areas, and limited phone lines (Farrell, 2007 ; Ministry of Education, 2006). Farrell (2007) outlines general factors constraining ICT implementation.

- Inadequacy and cost of bandwidth
- Deficit in human resource capacity (trained teachers, school managers) to lead and support the implementation of ICT
- Lack of fiscal resources
- Lack of content in local languages alongside English
- Duties and taxes on ICT products are currently too high, making them expensive
- Project failure after funding is over

Wims & Lawler (2007) report on a research study that was carried out to evaluate the implementation of ICT projects in three selected educational institutions in Kenya. Using data from personal observations, documentary analysis and interviews, the findings were:

1) No educational software was found to be in use
2) Teachers did not make use of ICT facilities in their schools
3) Private companies charged exorbitantly to provide computer equipment, software and /or personnel to schools

4) Expenditure incurred with the donation of computers could sometimes be equivalent to the purchase of new machines
5) Former students interviewed did not use internet as a source of information on careers or training, though schools had no internet and so meaningful importance of internet was not gained

In another study to investigate the attitudes and perceptions of Kenyan educators towards the introduction of technology into education, Momanyi, et al (2006) found 94% of the educators believed computers can help students learn more relevant information. Besides, leaders in education wanted to see students access learning technology that can empower them in the 21st century world of work. However, teachers were found to have little or no previous experience in training or use of educational computer applications.

The researchers recommend the equipping of schools with computer technology, training of teachers, integration of technology in schools, and development of wireless technologies to reduce the cost of wiring schools to the internet (Momanyi et al., 2006). Wims & Lawler (2007) suggest immediate reform in telecommunication sector to hasten the roll-out of computer technology in education institutions, staff training, availing computer equipment and internet to staff and students. In addition, issues of internet connectivity, importation duties, rural electrification, software provision and financial support should be addressed by the government, private sector and development partners (Wims & Lawler, 2007).

Current education reforms in Kenya are aimed at reducing the problems of education equity, access, relevance and quality of teaching and learning (Ministry of education, 2006). Further, the attainment of these goals will be in synchrony with the demands to achieve Education for All (EFA) by 2015, as well as achieve the goals of MDGs, UPE and Vision 2030. The reforms will involve transmission of digital educational content via the television (Otieno, 2010) and the curriculum will also be in digital form with subject content found on the internet (Omanga, 2009), Kenya Institute of Education website as well as in DVDs (Ratemo, 2009). National and government owned TV station Kenya Broadcasting Corporation will transmit interactive digital learning content to schools in the whole country by 2012 (Obura, 2010).

The changes in education will require teachers to have computers so as to access the curriculum content as well as embrace knowledge and values of the "knowledge economy". Teacher training in ICT will be required to enable teachers use technology (Kioni, 2009). The

money the government disburses for book purchase will now be used to purchase diskettes for the curriculum (Omanga, 2009). The director of the Kenya Institute of Education- the curriculum designing outfit- said the digital curriculum will enable learners access lessons cheaply compared to books as the subject modules will be found on the website, complete with demonstrations, and explanations (Ratemo, 2009). Sam Ongeri, Kenya's Minister of Education touted the changes in education as a revolution in teaching and learning and that access, quality, relevance and equity of education will be enhanced by the new changes (Omanga, 2009). Ongeri justified investing in ICTs as a venture that the rest of the world is doing besides it enabling teachers and learners in remote areas access teaching and learning resources (Miruka & Nyasato, 2009).

Despite the nascent stage of education reforms, challenges are already dogging it. Four years after the government launched a digital learning policy and planned to spend 1.3 billion shillings (16 million dollars) on computer laboratories in public schools, nothing has taken off. The permanent secretary for information, Bitange Ndemo, accused members of parliament of frustrating the project by not prioritizing electricity supply in their areas and in urban slums, a situation that has left thousands of donated computers gathering dust in schools for lack of use, maintenance or absence of tech-savvy teachers. Lack of funds from the government and donors shying away from rural areas because of poor infrastructure has slowed the school digitization program. More than 20,000 computers have been supplied to schools by Computers for Kenya, a local non-governmental organization but most initiatives have failed due to poor maintenance and absence of technical support (Ayodo, 2009). Kenya's president, Mwai Kibaki said the challenge now was how to put ICT tools to the best use so as to empower the teacher and the learner (Otieno, 2010). Interestingly, e-learning has picked up in private schools more than in public schools but principals of private institutions decry the high cost of importing computers and other electronic learning materials and have asked the government to exempt them from taxes and rates to encourage their efforts (Ayodo, 2009). In spite of these initial challenges, Kenya has been nominated as Common Markets for Eastern and Southern Africa (COMESA) - a regional trading block- e-learning hub that will coordinate implementation of the regional body's e-learning program for 19 African countries.

Media and Development

The mass media helps to inform educational professionals, interest groups and other members of the public about educational concerns and educational policies of the central government. Conversely, the mass media are a source of information for policy makers about public opinion on existing policies and need for new initiatives (Wallace, 1994, 1993). Finding themselves between education policy makers and education interest groups, the mass media and policy makers relate in what Wallace (1998) calls "mutual parasitism and symbiosis" whereby media professionals rely on politicians or central government ministers and education professionals as sources of their stories, and in turn, policymakers use the media to relay their messages to the educational professionals and members of the general public. Wallace (1994) sums up this relationship saying "The media lie at the center of a web of relationships between the diverse interest groups with a stake in the policy development, and its implementation". While the formal link between policymakers and implementers do not include media involvement, the media form a major communication channel between the various players (p. 8). The media is present in the selection of issues, according to news and other media professionals' values.

The media play a supporting role in education issue debates within the public arena through the articulation of various standpoints. In the education debate, the media are instrumental in the context of text production, and their influence on a wide range of written texts, oral and visual equivalent in varying degrees has come to represent education policy (Wallace, 1993). Thus, media coverage can shape policy agenda. Media creates and constrains the way we perceive the social world and so may influence how we act. Coverage by the media contributes both to the formulation of the education policy and the creation of conditions where the policy will be accepted by educational professionals, politicians, and other interest groups such as teacher unions (Wallace, 1995). The role of the media is important in policy making. A link exists between media performance, policy presentation and public perception (Gewirtz, Marny & Power, 2004). Despite this central role played by the media in the education policy process, significance of the media has been underplayed in studies of the education policy process (Wallace, 1993). The media constitute a hitherto unseen hand that steers education policy (Wallace 1995). The media are part and parcel of the education policy process in each

country and engage in international exchange of ideas and experiences between them through mutual "policy borrowing"(Wallace, 1998).

Much of what has been discussed in previous sections focused on the link between the mass media and education policy. The next section deals with theories and models pertinent to this study namely: diffusion of innovations, technology-acceptance model and agenda setting model.

Theoretical Framework of News Media Portrayal of e-learning in Kenya

Background

Currently, educational reform is taking place in Kenya, in tune with the national and international demands for greater access to education for the greater portion of the nation's children. As stated earlier in this treatise, Kenya formulated a national ICT policy in January 2006 that aims to see the accessibility, efficiency, reliability and affordability of ICT services in the country. The policy deals with a wide range of other issues such as information technology, broadcasting, telecommunication and postal services. But the section on information technology sets out the strategies concerning ICTs and education by stating that the government will encourage the use of ICTs in schools so as to raise the quality of teaching and learning. In the policy also, are the strategies concerning e-learning. This study attempts to find out the kind of mediated stories about e-learning that the news media passes to its audience.

Diffusion of Innovations Theory

Diffusion of innovations theory provides a useful conceptual foundation to study how technologies such as ICTs is evaluated, adopted and taken up by the target group- teachers, school administrators and managers, the local community, the students and all other stakeholders in the education system. The term diffusion is used to mean the process an innovation or a new idea or practice spreads through a social system over time. Diffusion research has its origins in the 1940s and 1950s in Europe when Sociology and Anthropology were emerging as disciplines within social sciences. The central tenet of the research was how new innovations produced social change in society. In the United States, scholars of Anthropology picked up from the "European diffusionists", as they were called, in the 1920s examining the diffusion of

innovations and resulting indirectly in the investigation of the hybrid seed corn in Iowa (Rogers, 2003 p. 43).

Four vital components are involved in the diffusion process namely, the characteristics of the innovation itself, the communication concerning the innovation, the nature of the social system in which innovation is diffused and the time dimension of the process (p.222). Rogers explains that diffusion of innovations is an uncertainty-reduction process where individuals seek information that decreases their uncertainty about the relative advantage of an innovation. Beside relative advantage determining the rate of adoption there are four additional variables about an innovation including its compatibility, complexity, trialability and observability.

The compatibility of ICTs in the education system comes into question especially because teachers perceive the new technology as usurping their traditional role as sole conveyors of knowledge. In a country where jobs are scarce or hard to come by, and coupled by a pervasive negative attitude towards new technology (owing to the fact that the use of new technology in education has not taken hold), the new technology has stoked fears among teachers that the new technology will take over their jobs. The extent to which ICTs impinge on teachers' values, esteem, authority and their roles in education will determine how quickly they are going to embrace the new tools for teaching and learning.

The diffusion of ICTs in the education sector is further determined by the "8Cs", a set of eight factors adapted from Rao (2005) that are used to gauge a country's success in implementing ICT programs be it in education or in other sectors. The eight factors are: connectivity, capacity, content, community, culture, cooperation, capital and commerce.

Innovations diffusion theory proposes tools for assessing the likely rate of adoption of technology as well as the factors that facilitate or hinder technology adoption and implementation. Of particular relevance in this theory to the adoption of e-learning in education setting is how the theory deals with aspects of communication channels diffusing the innovation at various stages of the innovation process not to mention the nature of the change agent's promotional efforts that determines the rate of diffusion and the perception of the receiver. Diffusion of innovations provides a useful perspective to assess why the use of e-learning has not caught on several years since the inception of the national ICT policy on education.

Technology Acceptance Model

Davis, Bagozzi and Warsaw (1989) state that technology acceptance model (TAM) derives its theoretical basis from the theory of reasoned action. According to the authors, TAM attempts to specify the causal linkages between perceived usefulness and perceived ease of use as well as user's attitudes and intentions and actual adoption of technology behavior. TAM looks at cognitive aspects of user behavior that determines the acceptance of technology including tracing the impact of external factors on universal beliefs, attitudes and intentions. In order to determine this, TAM identifies variables that are related to cognitive and affective determinants of technology usage. Particularly, TAM considers two variables or beliefs – the perceived usefulness and perceived ease of use as of primary relevance to technology uptake.

Perceived usefulness is defined as the prospective user's subjective probability that using a specific application will assist while perceived ease of use refers to the degree to which a prospective user expects the target system to be free of effort.

Many questions are going to arise when teachers start to interact with the new tools or when the central government starts the big push to have ICTs accepted in the teaching profession. Such questions for example, are how teachers and students perceive ICTs to be easy or complex to use in their teaching and learning especially in situations where the practice of teaching and learning has always involved the use of rudimentary tools and old practices. Even more critical than the usefulness or ease of use of the technology, will be the beliefs and attitudes among teachers that ICTs are a threat to their jobs, authority and status. In this context, it would be useful to know the kind of messages about ICTs from teachers and students using ICTs in their schools particularly in the six NEPAD demonstration schools spread around the country who are already converted to NEPAD e-schools.

Given the importance of cognition in individual and group decision making, it is likely that the slow embrace of technology by teachers, school administrators and students in the school system could be traced to the kind of mental dispositions of these parties about the new technology. This is the point that the news media comes in to create awareness to the concerned groups about the benefits of ICTs.

Agenda Setting Theory

According to McCombs & Shaw (1993), since its official grounding in 1972, the agenda setting theory has witnessed a proliferation of studies associated with it. Nonetheless, agenda setting has gone beyond the classical postulation that the news media tells us what to think about, to now include telling us how to think about it. In essence, how the media audience will think about issues is dependent upon the manner in which those issues are framed. Framing, according to these authors lies at the root of the second level agenda setting theory.

Entman (1993) conceptualizes framing as the selection of an aspect of perceived reality and presenting it in such a way as to compel or draw attention. Framing revolves around the concerted effort to select and highlight issues the media place in the news arena. It also involves the aspect of journalistic bias arising out of some application of moral judgment on the part of the journalists. The basic tenet of the second level agenda setting is the transfer of salience and use of frames which enable the news media audience to look at its attributes. The mass media creates frames around issues which makes the public think in particular ways about these issues. Thus frames are like lenses through which the discursive space constructs an issue and therefore they provide meaningful ways of looking at a topic or issue (Entman, 1993). In the current context, frames provide the parameters for looking at the incorporation of technology in education and attaching meanings to the project.

Apart from first hand experiences, much of the information received on education policy process is gleaned from media output-television, radio and the press (Wallace, 1998, 1994). The media help to frame the debate about education policy by making it subject of news, current affairs programs and articles and through withholding other debates from the public domain. Media professionals wield considerable power over what is covered and how it is presented. Descriptively, the media operate as a 'loose cannon' that frames the communication of messages according to various interests from within and without it (Wallace, 1994).

The media, politicians and all other interest groups often use "spin", the process and product of purposely managing information in order to present institutions, individuals, policies, practices or ideas in favorable light and thereby mobilizing support for them (Gewirtz et al., 2004 p. 321). Restricting the range of interest groups whose views are portrayed to the media audience is within the powers of the media. The media can equally create educational stories that favor and damn others or ignore issues they do not wish to publicize (Wallace, 1993).

The place of the media in the education policy process brings to the fore issues of selection and how selection and "angle" (bias) of the media output may influence policy intentions, the form taken by official texts and the practices of those who are required to implement the policies (Wallace, 1995, 1994). Apart from framing our perceptions of the education issues and how the issues may be resolved, media output contributes unofficially to the policy process through selective coverage and interpretation of event by media professionals (Wallace, 1998). Media professionals can subscribe to values unlike those of the education policy makers or people on the receiving end of these policies, thereby constituting an interest group that conveys, reinterprets and withhold messages of other groups.

Media influence on the content of education policy relates to which ideologies receive an airing and which are repressed, depending on the prevailing mix of news and other media values, their impact on the mass audience and the significance of this impact on the various interest groups (Wallace, 1995). Following on from these issues, and on the question of e-learning, a series of questions remain unanswered such as; who is setting the agenda and how does the nature of this kind of agenda setting help or limit the take up of ICTs in schools in the republic? Which voices are promoting ICT use? How is it being done and to what effect? Are there multiple voices promoting ICT use or is there a single voice confronting this potentially difficult issue in the education circle? What is the professional status or level of expertise of journalists covering the discourse about this intricate topic about the use of technology in education?

Kalyango & Eckler (2010), in their characterization of the East African press state that the press in East Africa still relies on official sources of the state agencies for information. Government officials set the agenda not only on education but other issues. This study looks at how the media frames the use technology in education. Based on the existing literature on media and development, the following research questions will be posited regarding the interplay between government policy promoting the use of ICTs in education and media depiction of the use of the same.

Selwyn (2010) cautions against looking at technology as a means to an end and suggests the need to scrutinize the motives of the framers of educational technology who include commercial and industrial marketers, politicians, ICT experts, journalists, government agencies and bureaucrats, teacher unions and consumer interest groups among others. Thus, this study asks:

RQ1: *Given that the news media relays information related to education policy from various interest groups, who are the main actors who drive the contemporary discourse and provide the bulk of e-learning news?*

RQ2: *What issues are emphasized in Kenyan news media coverage of e-learning and how do those issues compare to the issues identified in best practices of e-learning and National ICT policy on education?*

Rao (2005) and Selwyn (2010) explain that technology- centric postulations (also called technological determinism) entails singular discussion of the social transformation that technology will bring, rather than pinpointing too, the negative aspects of technology such as continuing the digital divide, inappropriate content, cultural attitudes, commercial motives to name a few. Pittard, et al. (2003) and Tolani-Brown et al. (2009) assert that it is naive to oversimplify the positive effects of ICT use because ICTs alone cannot produce education results because other mediating factors such as teacher training and support, school leadership, ICT culture of the school, student's ICT experience, to name a few, also play a vital role. Based on the above explanation, this study asks:

RQ3: *In their coverage of e-learning, what kind of tone does the news media in Kenya adopt?*

Thus far, the chapter has focused on the relationship between ICTs and development, together with ICT best practices. Also given attention is the current ICT education transformation in Kenya and the link between mass media and development. In the next chapter, the method for conducting this study will be discussed.

Chapter 3 - Methods

Content analysis

This study uses content analysis in order to answer the three research questions. Content analysis is a popular method with mass media researchers because it is an efficient way to investigate the content of media (Wimmer & Dominick, 2006). Recognizing the centrality of media content, Rife, Lacy, & Fico (2005) offer a definition of content analysis as the "systematic and replicable examination of symbols of communication, which have been assigned numeric values according to valid measurement rules and the analysis of relationships involving those values using statistical methods, to describe the communication, draw inferences about its meaning, or infer from the communication to its context, both of production and consumption" (p. 25). As a reality check in which the portrayal of an issue is assessed against a standard taken from real life, quantitative content analysis allows the assessment and discussion of media presentation versus the actual situation. Through quantitative content analysis, an accurate and precise representation of a body of messages is possible (Wimmer & Dominick, 2006 p). The advantages of content analysis of manifest content is that it is a unobtrusive and nonreactive technique which enables a researcher to analyze messages away from communicators which, when backed with a strong theoretical basis can allow a researcher to draw inferences without contact with communicators who may be unwilling or unable to be examined directly (Riffe et al., 2005; Rife, Lacy, & Fico,1998).

Sampling

This study used content analysis and drew a purposive sample of articles from two national newspapers in Kenya - the *Daily Nation* and *the Standard,* the only two key independent newspapers in the country. Both dailies are English language newspapers (though *Daily Nation* has a Swahili print) and besides controlling the greatest segment of newspaper circulation in both rural and urban areas of the country, the two dailies are widely read and regarded as the most prominent newspapers in Kenya in line with (Riffe et al., 2005; Simon, Fico & Lacy, 1989). The *Daily Nation* has a daily circulation of above 200,000 copies but the copies are often read by many people meaning that the actual readership could be much higher. The newspaper has a market share of almost 75% and maintains a website that publishes many articles from the

newspaper and which garners over 3 million daily page views (Kenya Advisor, 2007-2011). *The Standard* on the other hand is the oldest news daily with a daily circulation of over 54,000 copies (Press reference, 2011).

Lately, the *Daily Nation* has ventured in the whole East African region and both dailies are not only read by a huge segment of the population (Kenya has a relatively high literacy rate) but they also have radio stations and an internet presence. Given the circulation and wide readership of the two dailies, these newspapers can be regarded as the flagship of news messages about e-learning in Kenya and they consequently represent the national media agenda. This study audited the two newspapers; *Daily Nation* and *the Standard* to examine the reporting frames adopted by Kenyan newspapers against the best practices of e-learning and the education policy on ICTs and education. Content analysis adopted in this study is quantitative and is based on purposely selected news reports to identify issues surrounding e-learning including the national policy that frame e-learning and how e-learning is framed by key actors.

Articles were scanned from the archives of the two newspaper dailies with the key phrase "e-learning". The author, in the case of the *Daily Nation* purchased a thirty-day pass so as to scan online archives for stories of e-learning as well as access articles not open to everyone called "premium" content. Only articles relating to e-learning were selected from news stories that appeared in print between January 1, 2006 and December 31, 2010. The choice of the time range for the present study has deliberate technological and political connotation. This period marks the start of an interest by the government of Kenya to incorporate new technology in education, coinciding as it did with growing worldwide dependence in ICTs (e.g. mobile telephones, computers and internet) to provide solutions for many of society's problems. The time range then offers a platform during which e-learning debate was likely to be present in newspapers with the climax provided by government's inception of the national ICT policy focusing on education, an initiative (instituting the program in schools) whose completion time would take about five years. Articles discussing ICT as an industry without any reference to the education sector were excluded.

Selection of medium

The use of the print medium will be selected for this study because many Kenyan media houses rely heavily on print newspapers to disseminate news. Awareness of central government

education policies among members of the public is based on media coverage and the media are an important source of information for educational professionals and other interest groups (Wallace, 1993). Newspaper readership in Kenya is still at an all time high. Newspapers also gather and transmit original information from sources. Compared to other sources of news such as television, newspapers reach a wider coverage and are a cheaper source of information for many people even in the rural areas. At the same time there is no gain saying that what is reported in the newspapers sets the agenda for various discussions and point of views of many ordinary people. Broadcast media have also been known to rely on the print media for its news agenda.

Coding and unit of analysis

The primary unit of analysis was the entire article and instructions were given to the two coders chosen to read each article and code the articles based on whether it carried details of e-learning as guided by the coding sheet and the coding protocol. The articles were obtained using various search terms including "e-learning and education", "ICT and education", "use of technology in teaching and learning", "e-learning in primary" and "secondary schools". Hard news stories as well as editorials were included in the study. Stories that mentioned any of the search terms but did not dwell on the specific subject were excluded from the study. The initial search returned more than 200 articles but most of the articles were either repeated or irrelevant. Consequently, the search yielded 60 applicable articles for the study.

The frames used such as the type of story, the location of the story, event surrounding a story, main actors in the story and story tone were all developed by the researcher. The story theme category used in the study was adapted from Rao (2005); a set of eight factors commonly called the "8Cs" used to gauge a country's success in implementing ICT programs. The eight factors are: connectivity, capacity, content, community, culture, cooperation, capital and commerce.

Operationalization of the variables

Type of story

The articles were classified into one of the four categories namely, news, features, opinion or business.

Location of story

The article placement had five options namely, front page, inside news pages, editorial pages, feature pages and business pages.

Story themes (8Cs)

The theme of "connectivity" identified any discussion in the news articles of problems that make people fail to connect such as lack of internet, hardware, software, electricity among others.

"Capacity" identified any mention of the low technical capacity or know-how of teachers that make them not benefit or use ICTs.

"Community" dealt with any discussion of the need for broad consultation among diverse sections of the community such as national government, local education office, school principals, teachers, parents, students, policy makers, surrounding community that ensures success of ICT projects in schools.

"Cooperation" identified any discussion pointing at the need for public-private partnerships in ICT projects that are necessary to pull resources together to finance ICT projects.

"Capital" identified articles that discussed the need for the government to promote skill acquisition among teachers and other nationals to make ICT use sustainable locally.

"Commerce" pinpointed articles that discussed the need to promote the instrumental use of ICT in other day-to-day operations such as in investments and business.

Story actors

Main actors, whose points of view are taken up by journalists, will be coded as government agency, industry marketers, government official, teachers' union, civic organization, ICT expert, or journalist.

"Government agency" included individuals in the government departments for example the ministry of education and other governmental departments or bodies formed to deal with ICT mainstreaming in the country such as Kenya Institute of Education and ICT Board among others.

"Industry marketers" included representatives of corporations that sell, donate or service ICTs products such as Microsoft East Africa, Intel or Google.

"Government officials" included authoritative government bureaucrats such as department secretaries and their assistants who head government departments in the ministry of education.

"Civic organization" is defined as nonprofit organizations that have been set up to provide any services to the general public e.g. agitate for their rights.

"ICT experts" are professionals in the ICT industry.

"Journalist" included media professionals writing about ICT use in education.

"Other" took in other individuals not falling in the above categories such as members of the general public.

Story tone

The tone for each article toward use of ICTs in education was coded as positive, negative, neutral or unknown based on how the article appraised the new technology and how the technology will impact teaching and learning in the country.

Articles that contained language written to convey a positive connotation as to the use of ICTs were coded as positive. Such articles were written with language such as "ICT will revolutionize learning" or "ICTs are necessary for the country's competitiveness" or ICTs will ensure quality education".

Articles written portraying ICTs as expensive or as tools that may not be a panacea to problems facing education were coded with a negative tone. Articles were coded as neutral due to the absence of language slanting for or against the use of technology in education.

Two coders independently coded each article after two hours of training in coding norms was done; investigating the characteristics cited earlier and guided by the coding sheet and the coding protocol guidebook. A meeting was arranged to determine consensus and iron out sources of differences in the coding. The first inter-coder reliability using Scott's pi yielded .75 owing to two confusing elements in the rubric. The first was whether an article discussing an event such as laptop donation in a school or an event to announce a laptop scheme for teachers constitutes "connectivity". The other concern was the difference between "capital" and "capacity". Once these concerns were addressed, coding resumed successfully and all the 60 articles attained the generally accepted minimum agreement of .86 percent among coders (Riffe, Lacy & Fico 1998, 2005). The administrative details including story number, publication name, date of publication

and placement of the story, attained the maximum agreement score of 1.00. The reliability scores for other variables were: story theme (.82), story event (.92), main actors in the story (.85), and story tone (.85).Taken together, the combined reliability score was .86, which is well within the acceptable range.

The main ambition of this chapter has been to highlight the method used in the study together with how selection, sampling and coding were done. In the next chapter, the descriptive data analysis is given.

Chapter 4 - Results

The data used in this study was collected from online articles of two leading newspaper dailies in Kenya notably the *Daily Nation* and *the Standard*. A total of 60 stories published between January 1, 2006 and December 31, 2010 were analyzed for main actors in the stories, story themes, and tone of stories. Also discussed were the categories of the stories and their relative placement.

Apart from total frequency, two characteristics of the press content were analyzed for prominence - type of story and location of story. More than half (60%) of the articles about e-learning were presented to readers as news. However, close to half or 45% of these articles were placed not on the front page but on the inside of the news pages. Though this study did not consider the amount of content in each article, it is evident that the two media houses preferred to inform its audience about all that was going on around e-learning. However, in an apparent consideration of what is more important, the stories on e-learning did not make it on the front page of news but were relegated to the inside pages of news.

The results of the analysis show that of the four story types, the "news" category had the highest score comprising 60% of the articles, 8.33% were "features", 25% were "opinion" pieces and 6.67% were "business news". On where the articles were located in the newspapers, 15% were on the front page, 45% were inside the news pages, 25% were in the editorial pages, 8.33% were in the features pages, and 6.67% were on the business pages.

The first research question (*RQ1*): *Given that the news media relays information related to education policy from various interest groups, who are the main actors who drive the contemporary discourse and provide the bulk of e-learning news?*

The sources of e-learning news were taken from the following sources: government agency, industry marketers, government official, teachers' union, civic bodies, ICT expert, journalist, and "other" (see table 1).

Table 1 Count and percent of story actors

Story actors	Number of stories	Percent of stories
Government agency	12	20
Industry marketers	10	16.67
Government official	15	25
Teachers' union	2	3.33
Civic body	3	5
ICT expert	11	18.33
Journalist	4	6.67
Other	15	25

Note: Number of stories exceed 60 and percent of stories exceed 100 because a single Story carried more than one main actor

The researchers coded all sources into one or more of these eight categories. Of the 60 articles coded, 15 (25%) were government official, followed closely by government agency at 12 (20%), 10 (16.67%) were industry marketers, 2 (3.33%) were teachers' union, 3 (5%) were civic organization, 11 (18.33%) were ICT expert, 4 (6.67%) were journalist, 15 (25%) were classified as "other" comprising university scholars, project experts, researchers and ICT enthusiasts. The results of this study also indicate that government officials including department secretaries and other government functionaries were the most relied-upon sources of news about e-learning.

A range of issues were discussed by these civil servants and bureaucrats in forums that included local and regional e-learning conferences, national head teachers conferences, launch of ICT projects in secondary schools, inauguration of NEPAD e-learning demonstration project, ICT workshops, launch of digital publishing ventures, and media briefings. Chief among the "talking points" by government officials was the positive view about e-learning; that delving into the brave new world of new media technology would usher in a much needed change from the traditional methods of teaching, complete with a change of attitude and approach toward new pedagogy. E-learning was touted as instrumental in enhancing teachers' technological skills or competence. In addition, e-learning was perceived as necessary to raise the quality of education

in the country, as well as ensure equitable access to education for many students locked out of school, especially those in remote and rural locations. Besides this, ICTs were considered cheap and cost effective alternatives to education when compared with the current modes of teaching used in schools. The secretary for education, Sam Ongeri, considered investment in ICTs a worthy cause because the initiative was in line with what the rest of the world was doing. The new media technologies were further thought to be capable of fostering creativity and innovation in schools, skills considered relevant in a "changing society". ICTs would also offer a host of other advantages: provide knowledge to students wherever and whenever; reduce the cost of books and publishing through curriculum digitization, and provide a wider range of up-to-date learning materials such as on the internet.

Interestingly, the least source of e-learning news came from the teachers' union with as little as 2 articles or 3.33% of the total news articles analyzed.

The second research question *(RQ2*): *What themes are emphasized in the Kenyan news media coverage of e-learning and how do these themes compare to the issues identified in best practices of e-learning and National ICT policy on education?*

The second research question sought to identify the issues concerning e-learning that are covered in the print media as well as the amount of coverage. There were 9 categories under story themes namely connectivity, capacity, content, community, culture, cooperation, capital, commerce all adapted from Rao (2005).

Out of the 60 articles analyzed 36 (60%) were on connectivity, 26 (43.33%) were on capacity, 16 (26.67%) were on content, 7 (11.67%) were on community, 12 (20%) were on culture, 18 (30%) were on cooperation, 24 (40%) were on capital, 7 (11.67%) were on commerce, and 8 (13.33%) were on "other". From the result, it would show that stories about connectivity dominated the rest of the articles while the least discussed frame was that of "community" (see table2).

Table 2 Count and percent of story themes

Story theme	Number of stories	Percent of stories
Connectivity	36	60
Capacity	26	43.33
Content	16	26.67
Community	7	11.67
Culture	12	20
Cooperation	18	30
Capital	24	40
Commerce	7	11.67
Other	8	13.33

Note: Number of stories exceed 60 and percent of stories exceed 100 because a single Story carried more than one theme

"Connectivity" received the highest percentage score of 60% followed by "capacity" at 43.33%. While "connectivity" dealt with any discussion of problems that make people fail to "connect" such as the absence of internet, PCs, telephone lines, modems, electricity and so on, "capacity" was concerned with the mention of low level of technical capacity of teachers to benefit from the technology. On "connectivity", most of the articles cited the poor infrastructure, particularly lack of electricity (80% of primary and 35% of secondary schools are not on the national electricity grid) and communication lines in rural and remote areas. Lack of internet connection, again in rural areas was another issue, as were the following factors that impinge on ICT use: high cost of computers and other ICT equipment, high internet cost, lack of sufficient bandwidth, high cost of learning software, obsolete hardware, bureaucracy in the ministry of education, and lack of culturally relevant content on the World Wide Web.

The issues that were cited in many of the articles about "capacity" included the inadequate training of teachers owing to lack of resources for the training of human workforce, inadequate educators of e-learning curriculum and absence of technical support and technicians to maintain ICT equipment. When we compare Kenya's news media coverage of e-learning

against the issues covered in the National ICT policy on education and the e-learning best practices of Khanya and Mindset projects of South Africa, we see a similarity in terms of what e-learning initiatives in Kenya and South Africa are set to attain as well as the challenges dogging the two initiatives. For instance, both countries mention the objectives of ICT: improve teaching, access to education, modernize learning etc and challenges: lack of tech savvy teachers, lack of electricity in rural areas or high cost of electricity among other problems. However, two pertinent challenges namely the loss of focus in education by technology companies or public- private companies that partner with the government in funding ICT projects and the lack of sustainability of ICT projects that were witnessed in the South African case study do not find coverage in the Kenya's news media.

Research question three (*RQ3*): *In their coverage of e-learning, what kind of tone does the news media in Kenya adopt?*

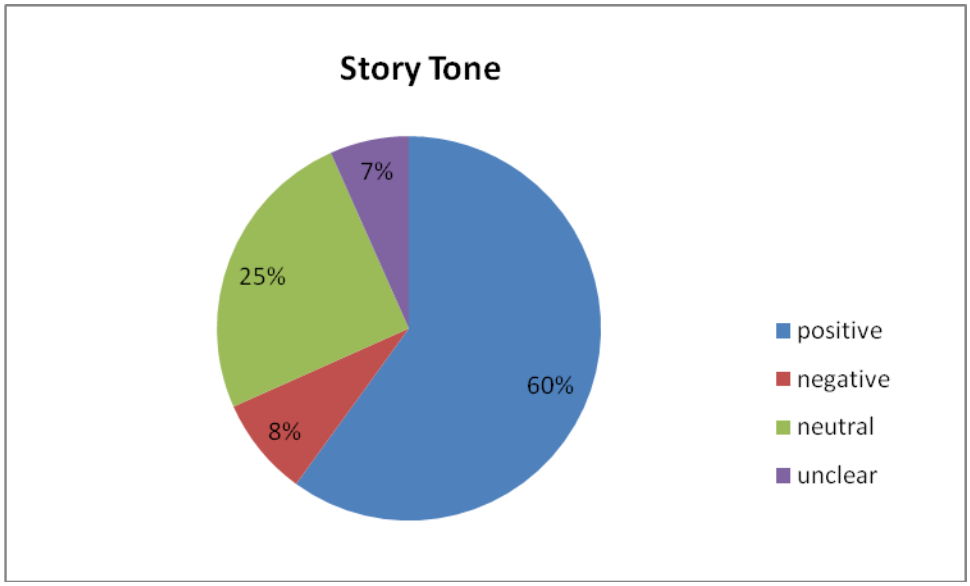

Figure 1 Story Tone and percent

The tone for each article toward use of ICTs in education was coded as positive, negative, neutral or unknown based on how the article appraised the new technology and how the technology will impact teaching and learning in the country. These categories were devised by the researcher.

The majority of the newspaper articles were written with an overall positive tone towards the adoption of e-learning in elementary and secondary schools in Kenya. Of the 60 articles, 39 (65%) were positive, 7 (11.67%) were negative, 5 (8.33%) were neutral, and 9 (15%) could not

be placed in any category because they made no mention of the advantages or limitations that ICTs will bring into education (see figure 1).

The majority of the articles seem to have deviated from the two- sided coverage of an issue as depicted by the tone of the articles that found 65% of the articles with a positive tone to describe the changes that educational technology would bring into learning. Majority of the positive appraisal about e-learning came from government bureaucrats and heads of government agencies who said that the new technology would ensure that the quality of education is raised in the country. The secretary of education, for example, asserted that the "current technology will ensure learners fit into the world market". Many of the articles written with a negative tone described ICTs as expensive and off- target tools that will not solve the many challenges facing education in Kenya.

Chapter 5 - Discussion and conclusion

The adoption and use of ICTs has been associated with social and economic development, not least in education, which this study focuses on. Very little research has been done concerning the presence or absence of a link between use of ICTs in education and media coverage of it. The purpose of the current study was to (a) determine who among the various interest groups in education provide the bulk of e-learning news, (b) identify the issues about e-learning that are emphasized by the print media in Kenya, (c) ascertain the kind of tone the print news media in Kenya adopt in their coverage of e-learning debate.

The most significant finding in this study is that journalists in Kenya, while reporting on e-learning borrow the framework offered by the authoritative government officials including department secretaries, permanent secretaries and other civil servants or bureaucrats. This particular observation means that government officials set the agenda on e-learning. A surprising scenario is the near absence of articles quoting educational professionals including teachers who teach either in elementary or high school levels, or even parents, as sources for the articles investigated in this study despite their central role in education. Based on this evidence, a safe conclusion that can be made is that the discourse of educational technology is singularly driven and constructed by government officials thereby shaping how the rest of the stakeholders in education sector perceive e-learning.

It could be argued that by using official sources, journalists consciously or unconsciously exclude other viewpoints in this vital discourse on inclusion of technology in pedagogy. With clear evidence of lack of communications from parents or teachers- themselves vital stakeholders in education- it appears other voices could be making decisions on behalf of these stakeholders.

A lot of time has elapsed since the inception of the ICT policy on education with little to show on the ground which raises the question of the efficacy of the government machinery to promote or diffuse the use of ICTs as new innovations in the school system. Keeping all other variables constant, this fact could partly be attributed to the manner in which this diffusion is being carried out as well as how the end users of ICTs perceive these technological artifacts as beneficial and easy to use. The present mechanism of government officials disseminating policy messages through seminars, media briefings, and political forums speaks volumes about the

impact of the communication channels diffusing these innovations. Such mechanisms need to be replaced by direct engagement through participatory communication with all stakeholders in education, and more so teachers, parents, students and local education officials so as to get their opinions on the subject. Also lacking is government message management system that can channel impressions of learners and teachers who already use ICTs particularly in the six NEPAD e-schools found across the country as well as those without them. Even so, government officials need not be the only conveyors of messages on e-learning because without the involvement of teachers in the whole process, the diffusion of ICTs in the education sector is seriously constrained. To emphasize, the absence of opinions from teachers on the ground about ICTs implies that no one is able to know the kind of cognitive or mental dispositions that teachers have towards ICTs. Basically, there appears to be a disconnect between the government functionaries who have a positive view of ICTs and the end users on the ground who are expected to use the technological tools in the end.

Coincidentally, this study appears to lend credence to the assertion by Kalyango & Eckler (2010) that the press in East Africa still relies on official sources and state agencies for information. These authors assert that owing to inadequate professional training of journalists, itself a disempowering situation, journalists propagate government agendas by not investigating and ascertaining facts. A big question at this point is whether the media by excluding other voices are presenting a simple strait-jacket conceptualization of e-learning. A further elephant in the room is the question: are the news media a parrot of the government administration? It should be noted that the two newspapers used in this study are privately-run media houses and are therefore expected to be independent from government control and censorship.

The themes of "connectivity" and "capacity" received the highest scores compared to the other remaining six variables. What can be inferred from this statistic is that the news media are well aware of the root problems that bedevil any form of technological development in Kenya namely poor ICT infrastructure, lack of technical capacity of the human resources among other problems (e.g. Amutabi & Oketch, 2003; Gulati, 2008; Maritim, 2009; Rao, 2005; Ya'u, 2004). However, the news media displays a dismal coverage of the myriad other challenges that are likely to confront the government in its quest to mainstream ICTs in education. For example, there is no discussion about how ICTs projects will survive once donors and other private development partners pull out of ICT projects after funding the projects. Also missing is the

issue of fixation on technology rather than education improvement by private partners (as was the case in the South African case study), most of whom are technology companies. There is no mention too, about negative attitudes among teachers and students as well as their social and cultural restrictions that can constitute stumbling blocks to the use of ICTs (see e.g. Evoh, 2007a; Gulati, 2008; Light, 2009).

The theme of "community" received the least score (11.67%) despite the centrality of involving the diverse stakeholders of the community such as local education offices, school principals, parents, and the local community where the school is located in ICT projects which ensures the success of such initiatives (e.g. Opoku-Mensah, 2004; Rao, 2005).

On the overall, majority of the articles seem to have deviated from the two-sided coverage of an issue as depicted by the tone of the articles that found 65% of the articles with a positive tone to describe the changes that educational technology would bring into learning.

This particular finding can be inferred to be some kind of excitement or even euphoria towards novel innovations given the near complete dearth of any attempt to incorporate technology in teaching and learning in Kenya. The findings further demonstrate that Kenyan media engage in uncritical embrace of perceived benefits of educational computing. The irony of this sense of optimism in educational technology is that it flies in the face of utter paucity of technological access, let alone use in many schools across the country. The reality on the ground for example, is that the only computer many students touch is at the high school (for high schools that are lucky to have computers; the number of primary schools with computers are negligible). Furthermore, many schools, especially in the rural and remote areas do not have internet at all (see for example Amutabi & Oketch, 2003; Wims & Lawler, 2007). This contradiction between hype and reality may provide a window into the professional standing of journalists covering the issue of e-learning. Several thorny issues arise with implications about the performance of media houses and by extension the journalists who work in these media houses for example, what is the nature of training of journalists? Are journalists covering e-learning treating this area as specialty one? Are the journalists writing on ICTs conversant with the intricacies of the topic? Do journalists covering e-learning read widely about issues surrounding ICTs?

At a time when internet access is no longer a luxury but a vital utility, there is an urgent need for the government to improve internet access, particularly in rural and remote areas. The benefits of internet access go beyond education and the government must make good the promise

made during one budget year when it made plans to roll out public computer points all over the country and especially in schools. Still, as Selwyn (2010); Pittard et al. (2003); Tolani-Brown et al. (2009) note, there is need to avoid one-directional and determinist discourse about the consequence of technology in any setting because it is not only naïve and simplistic but also because such a discussion limits rather than expand the notion of the benefits of technology.

Overall, the findings of this exploratory study indicate a proclivity of the news media in Kenya to borrow the framework offered by government officials in their discussion of e-learning. Most of the agenda on ICTs is almost exclusively set by government establishment who largely offer a positive portrayal of the effect of use of technology in education. Two major challenges facing use of ICTs- the issue of connectivity and the lack of human capacity to effectively make use of ICTs are addressed by the media. Nonetheless, there is need to encompass the voices of all the stakeholders in education than is currently the case in order to have a balanced debate on e-learning. The media too, ought to adopt a broader conceptualization of perceived benefits of use of technology in education.

Limitations and future study

This study analyzed print news stories of two leading media houses that have a presence on the web. Although the *Daily Nation* and *the Standard* are the two leading newspapers in circulation in Kenya, there are other news outlets that may have discussed e-learning as a subject (for example the many FM radio and Television stations that have sprang up in the recent past) and future studies could center on how the stories on e-learning are described in these news outlets.

By focusing on the two available publications, this investigation has allowed for a deeper analysis of the articles in question. However, future investigations could adopt a qualitative approach which the researcher in this study could not undertake owing to logistics of travel. Such qualitative analysis would better illustrate how the news readers in their interaction with the news stories perceive e-learning or even how tone impacted how different stakeholders in education perceive e-learning. Finally, future studies could investigate the nature of prior knowledge of journalists covering e-learning as a subject.

That said, this study which represents one focus within a broad area of future research, adds to literature on the interplay between the news media and e-learning, contributing to an area

that has received scant research attention despite its importance. The results of this quantitative investigation ultimately enrich our understanding, and invite further reflection on the power of journalists and news outlets in constructing the debate about educational technology.

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Appendix A - Content analysis protocol

Section A – Background to the topic

This study uses content analysis, a research technique that aims to analyze the meanings and characteristics of news media messages, to examine news media depiction of e-learning in Kenyan schools. Generally put, e-learning refers to the use of Information Communication Technology (ICTs) to support teaching and learning.

Coders will read, analyze and code 60 newspaper articles taken from two key newspaper dailies in Kenya printed between 2006 and 2010. The articles for analysis highlight the topic "e-learning". The research aims to investigate how journalistic texts portray or frame news pertaining to the use of ICTs to aid teaching and learning in primary and secondary schools in Kenya. Of central interest is how the stories on e-learning in education are described and told.

The government of Kenya has committed substantial resources to build ICT and specifically in government- run public schools to enhance or catalyze education. There have been regional and international initiatives, as well, focusing on mainstreaming ICTs in schools such as that of the New Partnership on Africa's Development (NEPAD), and the United Nations through the Millennium Development Goals (MDGs).

Section B – Identifying information

1) Story ID # - identification number of newspaper story/article
2) Name of newspaper (either DN or ST)
3) Date of publication: when the story was published (Month/ Day/ Year
4) Title or heading of the story
5) Type of story (classify the story): CODE
    a) News
    b) Feature
    c) Opinion
    d) Editorial
    e) Business
    f) Other
6) Placement of the story: CODE
    a) Front page
    b) Inside news pages
    c) Editorial pages
    d) Features pages
    e) Business
    f) Back pages
7) Theme of the story: CODE
    a) Connectivity
    b) Capacity
    c) Content
    d) Community
    e) Culture
    f) Cooperation
    g) Capital
    h) Commerce
    i) Other
8) Event surrounding a story

a) Political rally
b) Press conference
c) Educational seminar or conference
d) Other

9) Main actor(s) in the story
   a) Government agency
   b) Industry marketers
   c) Government official
   d) Teachers' union
   e) Civic organization
   f) ICT expert
   g) Journalist
   h) Other

10) Story tone
   a) Positive (optimistic on changes to education)
   b) Negative (pessimistic on changes to education)
   c) Neutral
   d) Can't tell

Section C – Explaining terms in categories

Connectivity – discussion of problems that make people fail to "connect", such as absence of internet, PCs, telephone connection, modems, bandwidth, and electricity etc

Capacity – mention of the low level technical capacity of teachers (e.g. IT literacy) to benefit from "internet age".

Content – mention of lack of local content in the internet and any other form of exclusion that may hamper ICT adoption e.g. lack of local language in internet

Community - any discussion pointing that success of ICT projects hinges on broad consultation between diverse sections of the community such as national government, school principals, teachers, BOGs, students, policymakers

Culture – mention of socio-cultural restrictions that may hamper ICT adoption such as attitudes towards technology, gender issues, ICT culture, nature of social system and power dynamics

Cooperation – discussion of need for cooperation either between schools, government and private sector, African countries needed to pull resources to set up expensive ICT projects

Capital – need for government to promote skills acquisition among its people; skills needed to sustain ICTs locally

Commerce – Kenya must go beyond just buying ICT tools which boosts foreign economies, and instead promote investment and business in ICTs within its borders e.g. e-commerce that enables online payments etc