

Distance Education and Global Warming in Kenya

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ABSTRACT

In many countries distance learning has been adopted as an alternative or complementary mode of education delivery and has had significant success in terms of accommodating large numbers of students and at the same time yielding the expected outcomes. Studies carried out have been done on issue of superiority of various modes of delivery in terms of quality effectiveness, performance, satisfaction and cost among other dimensions have yielded conflicting results. However, the distance mode of delivery has been proved to be superior to face to face mode of delivery in one dimension of environmental conservation, it provides mitigation of anthropogenic carbon dioxide emissions through reduced travel trips by students and staff, reduced heating and ventilation generation of waste. This paper focuses on another dimension of environmental conservation that is vegetation preservation or land use. The paper specifically focuses to establish the relationship between provision of education through distance mode of delivery and Global warming. Case study design was used to explore the phenomenon. The study established that adoption of distance mode of delivery in teaching at tertiary level of education reduce global warming through reduction of carbon dioxide emissions and also through vegetation preservation.

Key words: Mode of delivery, Effectiveness of education mode, enrollment Asynchronous, performance of education delivery mode, Global warming

INTRODUCTION

Distance Education has taken different paths of development and the history of distance mode of delivery is long, albeit the mode is gaining popularity worldwide due to the changing education environment which requires different approaches in teaching and learning to cope up with ever changing environment.

Currently (2019) millions of students are acquiring certification, personal educational enrichment and advanced degrees through the Distance Learning mode of delivery. Different technologies are being applied to offer education through different methods of delivery ranging from print materials, online chat, advanced email services, to conferencing media (synchronous, and asynchronous). With these combinations “Mega” universities have been established all over the world, serving more than 100,000 students at any given time. These include: The Open University of the United Kingdom, the Indira Gandhi Open University, the University of South Africa and the Africa Virtual University (Daniel, 1996).

The Distance mode of teaching and learning is associated with a variety of benefits including reduced use of campus facilities, increased accessibility and control of diseases transmission and finally the additional benefit of mitigation of anthropogenic carbon dioxide emissions contributing to global climate change (Campbell & Campbell 2011).

Most countries consider education as the most instrumental factor in determining the character and pace of a country’s economic and social development. In support of this argument a sizeable portion of the public budget is allocated to education with the belief that the rate of return from education is higher than returns from physical investments (Hossain & Psacharopoulos, 1994; Psacharopoulos, 1985).

The government of Kenya like other contemporary governments through the Ministry of Education allocated a sizeable amount to education in fiscal year 2010/2011, 2015/2016, 2017/2018 and 2018/2019. In 2007/2018 KShs. 125.28 billion was allocated which was an increase from KSh. 144.7 million allocated to education in the financial year 1963/64 which translated to 25.7% of the total budget compared to 37.7% of the 1987/88 budget. The increase in allocation was attributed to teachers, civil servants and lecturers’ salaries. All these vote heads are recurrent expenditure items (World Bank, 2003). More recent data indicates that of the 2.62 trillion budget plan of 2017/2018, 202 billion was allocated to various sectors of education. While the goal of ensuring the education is accessible to all is achieved, it is equally critical to take mitigation strategies that control the negative impact that may be associated with the implementation of such a programme. It is no secret therefore that the Distance mode of delivery has been viewed as a panacea for the high cost of education delivery in the long run owing to the economies of scale associated with the distance mode of delivery. The Distance mode of delivery has been identified as a more environmental friendly mode, compared to the face to face mode especially in developed countries, albeit not much has been done in this area in developing countries.

LITERATURE REVIEW.

A lot of studies have been undertaken on distance education mode of delivery focusing mainly on cost, performance, quality, satisfaction, support and recently its environmental impact (Campbell & Campbell 2011) Most of these dimensions are analysed in comparison to face to face mode of delivery, the findings of these studies have shown no significant difference between the two modes of delivery and where there was any difference it was in favour of distance mode of delivery. A few of these studies have been highlighted here.

In regards to Costs distance mode of delivery has been viewed by many studies as more economical than the conventional mode (Wagner, 1972, 1977; Ostman and Rumble, 1989; Knight, 1993; Phelps et.al. 1991; Cushman, 1996; Arvan, 1998; Bates, 2000; Wagner, 1987 and Parraton, 2000).

Studies on students' academic performance established no significant difference in students' achievement, regardless of the mode of study, that is face to face or distance mode (Capper and Fletcher, 1996; Moore and Thompson, 1997; Schutte, 1997; Morrissey, 1998; Bradford, 1999; Paskey, 2001; Parker and Gemino, 2001). Others studies (Daugherty and Funke, 1998; Hiltz, 1994; Harting and Erthal, 2005 and Janassen et.al. 1999) found that learners in the DE mode of delivery were better than learners in the conventional mode in terms of performance in examinations performance especially in solving complicated problems.

In regards to satisfaction with distance mode of delivery, there has been a non-supportive attitude among the public decision makers as well as professionals, towards distance education mode (Mathews, 1999). This influences their support for the adoption of the the DE as an alternative or complimentary method of teaching (Mathews, 1999 and Miller and Pilcher, 1999). Mbugua (2012) established that educational manager's support the for DE mode of delivery is conditional, depending on the learners' characteristics or prevailing environment.

Recently studies have been conducted on the advantage of distance mode of delivery in the preservation of the environment (Campbell & Campbell 2011) in their study of 100 students taking their course through distance mode of study established that carbon dioxide emissions reduced as a results of reduced students trips to school in search of knowledge after opting for programmes were offered through distance mode of delivery as opposed to Face to face mode. The study indicated a reduction of CO₂ emissions of 5-10 tons per semester. Earlier (2008) Roy and potter had carried out a similar study in Open University and established a reduction of 87% in energy use and reduction of 85% of Co₂ emissions after programmes were offered via the Distance mode of delivery as opposed to full time mode on campus. Ozawa-Meida at.el (2013) in a study on carbon emissions in the university of De- Montfort established that in the academic year 2008/2009, 300Kg of CO₂ per student for student commute was emitted while 750Kg Co₂ per staff members was emitted. The total travel related to emissions was reported to be 15000tons of CO₂ which accounted for 30 per cent of the total emissions in the University

that year. Environmental degradation is also induced by change of land use or management of land use. It is from this perspective the paper reports its exploration of the influence the adoption of the distance mode delivery on global warming. Economic factors such as market growth, commercialization and industrialization as well as infrastructural extensions have been identified as some of the major causes of environmental degradation that contribute to global warming (Republic of Kenya, 2016). The institutions of higher learning seem to be contributing to change of land use through emissions of carbon dioxide and other forms of pollution and yet they should be taking leadership in the search for innovative technologies that are environmentally sustainable. One such move would be through transformation of teaching through technologies that are more environmentally friendly such as e-Learning and print in addition to the traditional approaches of planting trees to conserve the environment.

METHODOLOGY AND FINDINGS

The study adopted the case study design. Two Public universities in Kenya were selected, First the University of Nairobi which is the oldest Public University with the highest number of registered students as well as pioneer University to offer programmes through blended mode of delivery. The University has its headquarter at Nairobi which is the capital city of the country. The second University selected was Egerton University representing universities which represented universities located in the rural areas of Kenya.

The University of Nairobi has real estate portfolio estimated at KSh 100 billion comprising 118 parcels of land totaling an acreage of 13,425 out of which 13,316 is dedicated to teaching and research, while 109 acres is utilized as residential. The total built up areas for teaching, learning and administrative offices is approximately 142,199 square meters (Thuita 2015). The university of Nairobi owns huge piece of land dedicated to extra curriculum activities including play grounds, recreational facilities, parking grounds most of which are replicated in the six colleges that are located in different parts of the city. Open and distance and e-Learning campus which is the seventh college has not been allocated any specific land despite the fact that there are over 13,000 students enrolled in the distance or blended mode of delivery. These students share facilities with other students on the face to face mode of delivery, in addition to interaction with lecturers through appropriate technologies. According to University of Nairobi Annual report of 2014/2015 there are 79,000 registered students translating to an average of 0.17 acre per student. This figure would significantly increase if the figure for students enrolled for distance or blended format was incorporated and adjusted for accordingly.

Egerton University was first established in 1938 by Lord Maurice Egerton of Tatton national, as a farm school and later upgraded in 1950 to an agricultural college. By 2015 the total number of students registered for various programmes were 19,000 mainly accommodated at main Campus whose total acreage is 4,000. This translates to an average of 0.21 acre per student. This land does not consider constituent colleges and research fields such as 170 acres in Lamu where there was

reported ownership conflict between the University authority and local community that had settled in the area prior to the allocation of the land to the university. Kenyatta University experienced a similar situation with community living around the institution. Similarly University of Nairobi and Moi University have experienced the same over land ownership and land use.

According to the Commission for Higher Education by 2012 now Commission for University Education there were 7 public chartered universities with 24 constituent colleges and 14 private Chartered universities further there were 11 with letters of interim authority (CHE, 2012). This number has grown to a total of 74 institutions, comprising of 31 public chartered universities, 6 public constituent colleges, 18 private chartered universities 5 private constituent colleges while institutions with interim authority were 14 (CUE, 2017). This implies that more land had converted into building (change of land use) and there was more travel by both staff and students resulting in increased carbon dioxide emissions leading to high level of global warming. If a few of these universities embraced the existing modern technology and offer programmes in the blended or distance mode as opposed to face to face mode, then the impact on environment will drastically be reduced through reduced travel costs, emission of carbon dioxide, change of land use, use of energy through lighting and ventilation and waste management associated with conventional mode of programmes offering. The amount of land used for education provision would be reduced through application of principle of specialization, comparative advantage and economies of scale. This can be achieved through the use of more environmental friendly approaches such as the e-Learning mode, Print and other more recent technologies that benefit from the economies of scale.

RECOMMENDATIONS.

The demand for education in the developing countries, continues to increase as a result of government change in ideologies and philosophies. In an attempt to meet this growing demand for education a huge amount of resources have been allocated to the education sector and the government and private enterprises have partnered. The processes of provision of education contribute towards global warming mainly through carbon dioxide emissions and change of land use (deforestation)

It is recommended that more friendly approaches are adopted as part of reducing carbon dioxide emitted into the environment by learning institutions this can be achieved through reduction of travel distance by staff and students. Further invest more on technologies to facilitate telecommuting that has been applied and succeeded in some industries.

The distance learning mode of learning should be supported through provision of adequate financing in the short run since the capital outlay required for distance learning mode to be established is enormous and yet education providers view the distance mode of delivery only as a cost cutting strategy failing to appreciate its advantage of curbing global warming. More

resources should be invested in technology as opposed to the physical infrastructure that changes land use thereby contributing to global warming.

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