Using Smartphone Technology in Environmental Sustainability Education: The Case of the Maasai Mara Region in Kenya

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ABSTRACT

This study engaged key stakeholders in an economically and environmentally fragile region in Kenya in a unique, interdisciplinary, and integrative approach to explore the extent to which the use of smartphone technology helps access the environmental values and sustainability perspectives of the people of the Maasai land. The results of the study indicate that the participants’ environmental values and sustainability perspectives, exposed through photovoice, pertain mainly to issues regarding livestock grazing, deforestation, soil erosion, wildlife and human co-habitation, waste management, afforestation, and the conservation of the natural vegetation. A common theme permeating the participants’ photovoice was their awareness of the intertwining effects of these major environmental issues on the environment. The results also suggest a strong understanding of ecological compositions and connections in the environment by the participants.

Keywords: Environmental Perception, Kenya, Mara, Photovoice, Smartphone, Sustainability

INTRODUCTION

Environmental concerns are attracting increasing attention in the educational and scientific communities worldwide. While climate change is at the forefront of these concerns, other environmental issues such as urban air and water pollution, soil erosion, deforestation, loss of biodiversity, and natural hazards are gaining significant attention from researchers in recent years, especially in developing and transition economies where the impacts of these problems are severe, particularly

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on the poor in society. While efforts are being made to address these problems, they often fail to engage the local communities in meaningful and authentic ways, including learning from and with them in order to achieve long-term resolutions of these environmental problems. In this study, we employed smartphone technology to engage teachers and local community leaders in an environmentally fragile region of Kenya to understand environmental sustainability perspectives of the indigenes in the Maasai Mara land. Our aim is to share these understandings with the local groups so as to generate a locally constructed meaning of environmental conservation and sustainability among the communities in the Massai Mara region and the adjoining pastoral ranches.

The Narok district, which contains some of the world renowned natural resources such as the Mau forest and Maasai Mara National Reserve, faces severe environmental problems. The extant literature reports that more than one million acres of the vegetation have been destroyed in the Mau forest and Maasai Mara National Reserve for land development, farming practices, and livestock grazing (Glasson, Evans, & Phiri, 2008). This deforestation practice has destroyed crucial watersheds, ecosystems, and wildlife as well as sacred lands of the Maasai people (Glasson, Mhango, Phiri & Lanier, 2010). Although the government has attempted to address this problem by limiting the land that pastoral communities such as the Maasai people can utilize for animal grazing, these land use regulations do not attend to the ways of pastoral living by the Maasai (Davis, 1993). This lack of attention to local ways of living created a dis-engagement towards sustainability and environmental sustainability education.

In order to re-engage the community on these issues, we employed the photovoice methodology, a technique of recording and sharing photographs and text to reflect community concerns (Wang & Burris, 1994), to understand the environmental perspectives of the people in the Maasai land. We modified the photovoice approach to include the use of mobile technology, and positioned the participants as researchers. Specifically, we explored the extent to which use of mobile technology engages the local communities to generate a locally constructed meaning of what constitute their environment, and their perspectives on environmental sustainability. We chose to use mobile phone technology in this study because of its proliferation in many economies in recent years, especially in developing economies where over 90% of adult citizens are mobile-phone users (International Telecommunication Union, 2012). Additionally, the mobile technology was suitable for this study because of its portability, which allows users to carry devices everywhere they go, and to collect data whenever they are struck by a thought, emotion, or opportunity.

CONTEMPORARY USE OF MOBILE PHONES

Wireless communication diffused faster than any other communication technology in history. Within 10 years, mobile phones moved from being a technology of the privileged few to a mainstream technology (Castells, 2007). In 2010, the ITU reported that there were 5.3 billion mobile cellular subscriptions worldwide, including 3.8 billion in developing countries. It was also estimated that, access to a mobile network was available to 90% of the world’s population, including 80% of the population living in rural areas (International Telecommunication Union, 2010). The explosive growth in the use of this technology in the developing nations has opened up opportunities for improving the quality of lives of users. At the basic level, many people use mobile phones to communicate with friends and families, send or receive text messages, listen to radio, or take pictures (Goodman, 2005; Molony, 2008). With the new world of smartphones (which offer computer-like functions), mobile technology applications are becoming boundless as they are equipped with a rich set of embedded tools such as accelerometers, digital compasses, gyroscopes, global positioning system (GPS), internet capabilities (Lane et al., 2010) etc., thus...
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