

APPLICATION OF UNIVERSAL DESIGN PRINCIPLES FOR PRIMARY SCHOOLS IN KENYA

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Declaration:

This Thesis is my original work and has not been presented in any other University or Institution for the purpose of awarding a degree to the best of my knowledge. This thesis is submitted in partial fulfilment of the examination requirements for the award of the Bachelor of Architecture degree, in the Department of Architecture and Building Science at the University of Nairobi.

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Dedication

For Victor, Pamela, David, Diana, Imani, Cecil, Cyril and Little Joy.

Acknowledgements:

To God, for all this wouldn't be possible but for the gift of life He has granted us,

My tutor, Arch. Kigara Kamweru for your seemingly endless, tireless, helpful, patient, sacrificial assistance, commitment and immense input to this research,

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ABSTRACT

The Universal Design principles only serve as a guideline to designing universally and the practice of design involves more than consideration for usability so designers must also incorporate other considerations such as economic, engineering, cultural, gender and environmental concerns in their design process. One of the arguments against Universal Design for developing countries is that it is too expensive to practice and that designers have other issues to grapple with (Steinfeld 2012) so Universal Design gains little attention in such countries. The irony of this is that developing countries have the majority of the world's neglected disabled persons so they probably need to consider the implementation Universal Design practices much more than the developed countries.

If Universal Design to be viewed differently in the perspective of the developing country such as Kenya this then raises the question if there is such a thing as "*Design for Developed Countries*" vs "*Design in Developed Countries*". In the past, designs for developing countries tended to be short-term ventures where the main goal was to develop a product to solve the problem without economic, cultural and social considerations resulting in unsustainable solutions. An example of an unsustainable project is an expat designing a cargo bicycle for Kenya. Unfortunately, the designer did not think of the maintenance of the design which compelled a villager to voice that "It's fine for you if I buy this product and it breaks because you will go back home. Me? I'm stuck here with it." (Adapted from: Donaldson Krista (2008) *Why to be wary of 'Design for Developing Countries.'* Online Article in The Sanford University Journal [<http://web.stanford.edu/~kmd.htm>])

Inclusive education is concerned with all learners, with a focus on those who have traditionally been excluded from educational opportunities such as learners with special needs and disabilities, children from ethnic and linguistic minorities. Inclusion is about the child's right to participate and the school's duty to accept the child and to reject the use of special schools or classrooms to separate students with disabilities from students without disabilities. A premium is placed upon full participation by students with disabilities and upon respect for their social, civil, and educational rights. Inclusive schools no longer distinguish between "general education" and "special education" programs; instead, the school is restructured so that all students learn together.

The principles of Inclusive Education have been broadly accepted by many developing countries including Kenya since the international Salamanca Statement of 1991 on special needs education. Kenya signed and ratified the UN convention on the rights of persons with disabilities on 30th March and again on 19th May 2008. Inclusive education is a fundamental right in the constitution of Kenya and part of the Kenya Vision 2030 for the equity of all vulnerable groups.

'...other goals include the integration of all special needs education into learning and training institutions.' Adapted from *Education and Training, Chapter 5.1, The Kenya Vision 2030 Document*

Efforts to implement these policies are affected by the very same issues affecting the implementation of Universal Design and Accessible Design because developing countries have the tendency to sign and ratify policies yet they later claim to have no resources to implement them in comparison with the more affluent countries due to various factors. This thesis aims to research, study and discover methodologies for promoting *Inclusive Education* in primary schools through the differentiation and theoretical applications of the *Universal Design* principles in the perspective of a *developing country*, i.e. Kenya through the study of three selected local case studies and two international ones.

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DEFINITION OF TERMS AND ACRONYMS

ADA :	Americans with Disabilities Act
ADAAG :	ADA Accessibility Guidelines for Buildings and Facilities
CEBE :	Center for Education in the Built Environment
COE :	Council of Europe
DDA :	Disability Discrimination Act
EFA	Educational Funding Agency
FPE	Free Primary Education
ICF	International Classification of Functioning
IE	Inclusive Education
IEP	Individualized Education Programme
UD	Universal Design
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF:	United Nations Children's Fund
SEN	Special Educational Needs
WHO	World health Organization

CHAPTER ONE

1.1 INTRODUCTION

'A nation will not be judged by its success in the sciences, technological prowess, and its economic prosperity or even by its vast knowledge base. It will be judged by the way it takes care of its weakest citizens the young, the elderly, the sick and the disabled, the weak links in the chain. A chain is broken - even if one link in it is broken'

Professor Singapalli Balaram, National Institute of Design, Ahmedabad.

In developing countries such as Kenya, persons with disabilities face a multitude of obstacles and difficulties in their physical environment preventing them from fully participating in their educational, social, cultural and professional life. Currently around 10 per cent of the total world's population, or roughly 650 million persons, live with a disability (Disabled World 2011). They experience some form of exclusion from basic necessities such as *education*, employment, health care, social services as well recreational activities.

There has been progress in reducing barriers to promote *inclusion* in the built environment particularly in high-income countries, and many of the low and middle-income countries have also adopted accessibility policies (The World Bank 2008). In the world's affluent countries, implementation of accessibility standards has evolved overtime and they are implemented well through various types of disability systems. These types of disability systems have tended to be beyond the reach of developing countries because of their limited resources as well as the inadequate monitoring and enforcement of these policies.

Inclusion has become a widely discussed theme of *Inclusive Education (I.E)* practices both internationally and in Kenya, as well as a central theme for the *Universal Design* approach. In education, *Inclusive education (IE)*, also known as mainstreaming, means putting special education students into regular classrooms instead of separating them through placement in special education schools. *Inclusive Education* implementation is a challenge which calls for a comprehensive institutional restructuring and demands adaptations in the physical education environments to suit the diverse needs of the users. However, as with reducing barriers in the built environments for the disabled in developing countries, Inclusive Education principles remains difficult to implement in Kenya and other developing countries due to financial constraints and other factors.

This thesis aims to research, study and discover methodologies for promoting *Inclusive Education* in primary schools through the differentiation and theoretical applications of the *Universal Design* principles in the perspective of a *developing country*, i.e. . Kenya through the study of three selected local case studies and two international ones.

Keywords: Disabilities, Inclusion, Universal Design, Inclusive Education, Developing Country.

1.2 BACKGROUND OF STUDY

Universal Design is defined as the process of creating products and spaces that are usable by persons with the widest possible range of abilities and operating within the widest possible range of situations i.e. it makes things accessible to persons whether they have a disability or not. It is related to accessibility which is the development of products and spaces specifically for persons with disabilities and special needs. Its seeks social inclusion through design and is based on the idea of the design for the diverse.

In the 1970s, an American architect, Michael Bednar, introduced the idea that everyone's functional capacity is enhanced when environmental barriers are removed. He suggested that a new concept beyond accessibility was needed that would be broader and more "universal". Later, Architect Ronald Mace, an architect who had polio as a child and used a wheelchair and a ventilator, started using the term Universal Design and figuring out how to define it in relation to accessible design. He made the case that Universal Design is "not a new science, a style, or unique in any way. It requires only an awareness of need and market and a commonsense approach to making everything we design and produce usable by everyone to the greatest extent possible." (Source: <http://www.humancentereddesign.org/universal-design/history-universal-design>)

Schools are ideal settings to foster the Universal design principles. They have the most extensive experience with the broadest range of diverse needs. In educational settings, persons with disabilities require individualised semi permanent accommodation. In comparison, commercial environments are also used by a large number of diverse persons but in a brief transitory fashion. On the other hand, in employment settings, the physical environment will need to be adapted to meet the individuals needs but the employer rarely experiences the need to cater to a large population of diverse needs. In educational settings, the population is much more numerous now with the introduction and implementation of Inclusive Education (I.E) and much less transient than employment settings. This diversity of individual experiences creates a valuable source of Knowledge and constituency for Universal Design.

Connell defined the concept of Universal design as "the design of products and environments to be usable by all persons, to the greatest extent possible, without the need for adaptation or specialized design" (Connell, et al. 2008). Universal design ranges from inclusive and non-discriminatory design of products, cars, architecture, and urban environments and infrastructure, all the way to information technology and telecommunications (Nasar and Cowley 2007).

However, according to Erlandson 2007 Universal Design takes on a different meanings depending on the economic development of a country. While the goals of Universal Design are noble in seeking social justice, it is clear there are goals only relevant to high income countries. This raises the question whether design goals for middle and low income countries may be different? If so how? This implies that the applications of the Universal Design Principles will have to take into account the differences in economical, social and cultural context of the economic status of the design issues in question...

Year	Legislations and events
1981	UN International Year of persons with disabilities
1983-1992	UN Decade for persons with disabilities
1990	ADA (Americans with Disabilities Act) and Amendments Act of 2008
1992	Council of Europe_ First European Conference of Ministers re commendations R(92)6 a policy for persons with disabilities.
1993	UN Standard Rules on the equalization of opportunities for persons with disabilities.
2003	Council of Europe- Second European Conference of Ministers
2005	European Commission's Directorate- General for employment, social affairs and equal opportunities for all
2006	UN Convention on the rights of persons with disabilities entered into force in 2008)
2006-2015	Council of Europe Disability Action plan

Table1.Legislations and events regarding the rights of persons with disabilities

The Universal Design principles only serve as a guideline to designing universally and the practice of design involves more than consideration for usability so designers must also incorporate other considerations such as economic, engineering, cultural, gender and environmental concerns in their design process. One of the arguments against Universal Design for developing countries is that it is too expensive to practice and that designers have other issues to grapple with (Steinfeld 2012) so Universal Design gains little attention in such countries. The irony of this is that developing countries have the majority of the world's neglected disabled persons so they probably need to consider the implementation Universal Design practices much more than the developed countries.

If Universal Design to be viewed differently in the perspective of the developing country such as Kenya this then raises the question if there is such a thing as "*Design for Developed Countries*" vs "*Design in Developed Countries*". In the past, designs for developing countries tended to be short-term ventures where the main goal was to develop a product to solve the problem without economic, cultural and social considerations resulting in unsustainable solutions. An example of an unsustainable project is *an expat designing a cargo bicycle for Kenya. Unfortunately, the designer did not think of the maintenance of the design which compelled a villager to voice that "It's fine for you if I buy this product and it breaks because you will go back home. Me? I'm stuck here with it."* (Adapted from: Donaldson Krista (2008) *Why to be wary of 'Design for Developing Countries.'* Online Article in The Sanford University Journal [<http://web.stanford.edu/~kmd.htm>]

Inclusive education is concerned with all learners, with a focus on those who have traditionally been excluded from educational opportunities such as learners with special needs and disabilities, children from ethnic and linguistic minorities. Inclusion is about the child's right to participate and the school's duty to accept the child and to reject the use of special schools or classrooms to separate students with disabilities from students without disabilities. A premium is placed upon full participation by students with disabilities and upon respect for their social, civil, and educational rights. Inclusive schools no longer distinguish between "general education" and "special education" programs; instead, the school is restructured so that all students learn together.

The principles of Inclusive Education have been broadly accepted by many developing countries including Kenya since the international Salamanca Statement of 1991 on special needs education. Kenya signed and ratified the UN convention on the rights of persons with disabilities on 30th March and again on 19th May 2008. Inclusive education is a fundamental right in the constitution of Kenya and part of the Kenya Vision 2030 for the equity of all vulnerable groups. *'...other goals include the integration of all special needs education into learning and training institutions.'* Adapted from *Education and Training, Chapter 5.1, The Kenya Vision 2030 Document* Efforts to implement these policies are affected by the very same issues affecting the implementation of Universal Design and Accessible Design because developing countries have the tendency to sign and ratify policies yet they later claim to have no resources to implement them in comparison with the more affluent countries due to various factors.

With Kenya's ratification of the UN charter on the Bill of rights for the disabled, the country has a mandate to accommodate all individuals with disabilities in any school. This has created a frustration of accommodating these individuals especially when their population is large and diverse. Experiences within the Inclusive education setting has shown many advantages (Tepfer 2013). Educational institutions act as an example to its students. Children and young adults spend most of their formative years learning from many sources and the environment in which learning occurs is a powerful educator (Tepfer 2013). Therefore, Inclusive education provides a basis of understanding about inclusion and acceptance of the diverse human condition. The inclusive physical environment allows children with disabilities to interact side by side with other children.

The Kenya national survey for Persons with disabilities carried out in 2008 found that at least 4.6% of Kenyans experience some form of disability. The Kenyan education system is more often than not based on capitalism with the view that more education leads to higher returns. This focus has led to various challenges in implementing inclusive education in parts of the country. Other challenges include lack of funding for the renovations needed to transition the physical environment and the social views that children with disabilities are a burden and shouldn't be educated in an inclusive setting. Teachers in Kenya are currently struggling in delivering the assigned information due to their pupils in inclusive settings due to large class sizes, lack of appropriate SEN training, negative attitudes towards disabled children and the lack of the proper physical environment and infrastructure. (Ramtu Salim, 2014, *Educational Reform on Inclusive Education in Kenya*)

Therefore, the aim of UD is to guide the potential architectural means of creating spaces that can serve the diverse range of users in an inclusive classroom. I.E, a recent and developing concept, creates the challenges of creating comprehensive institutional performance and calls for the adaptations in the physical school environment to create spaces that cater to everyone whilst reducing the potential for conflicting spatial needs of specific users. The relationship between the diversity of the users and the diversity of their physical environment is crucial in creating a conducive physical environment for I.E to take place.

Three local public primary schools within Nairobi and two international public school models from Myanmar and the other from Liberia were selected and analyzed. The local case studies were selected because they implement principles of inclusive education mandated in the legislations during the process of integrating all students into primary education system. This thesis methodology involves open ended questions which aim to identify the participants (teachers), to describe their critical views and ideas about inclusive education practice and its general principles, to reveal teachers', students' and other participants' use of physical environments in the school, photographs and measurements of the physical environment of the school, the spatial organisation of the school and the various changes and adaptations made to the school infrastructure in the aim of promoting Inclusive Education.

1.3 PROBLEM STATEMENT

The United Nations (U.N) under UNESCO perceives the concept of inclusive education as inseparable from the concept of quality education: education cannot be considered good quality unless it meets the needs of all learners. Making education more inclusive requires schools and education authorities to remove the barriers (especially physical ones) to education experienced by the most excluded children – often the poorest, children with disabilities, children without family care, girls, or children from minority groups. This process aims to ensure that all children get a good education of a similar standard, without being cut off from other children or the rest of society.

Inclusive education can be seen as a luxury in developing countries. Governments and donors in developing countries sometimes take the view that they cannot afford to educate all ‘mainstream’ children, let alone those considered to need extra support needs. They may believe that barriers caused by lack of funding, such as large class sizes caused by FPE in Kenya, make inclusive, diversity-friendly education impossible particularly for disabled children, who are seen as needing expensive physical adaptations, expensive fittings and furniture, expensive equipment and one-on-one teaching from specially trained professionals. Often there simply are no appropriate or affordable special schools or classes for children with disabilities. Making every school inclusive is the best way to reach and teach all girls and boys, disabled or not. However, There is a wide variety of different types of users with conflicting needs in the Inclusive learning environment. ..

Kenya recently updated the Special Needs Education in 2009 to create a driving force to encourage the transition of schools from regular to inclusive. Even so, Inclusive Education in Kenya...and most developing countries still generally remain in the realms of theory and policy and is still far from full practice. Kenya is still grappling with policy implementation of inclusion in both the built environment and the education sector. The Success of inclusive education is hindered by factors such as negative cultural attitudes towards the disabled, lack of adequate involvement of all stakeholders and the lack of the proper infrastructure and built environment which is the focus of this thesis.

Universal Design and Inclusive Education have the same fundamental goal which is the creation of an equal and inclusive environment (built and learning) for everyone. Despite both principles having been developed in high income countries the aspects of equality and equitability still suits the dire needs of the developing world. There is a wide variety of different types of users with conflicting needs among persons with Special Educational Needs in the Inclusive learning environment. The concept of inclusive educational environments is new relative to the age of most school buildings in Kenya because Inclusive Education principles call for the integration of *education, health-care and community facilities*. Universal Design has the intent to address these conflicting needs to the greatest extent possible but with the inclusion of other considerations such as economic, engineering, cultural, gender and environmental concerns factors put in perspective of the developing country.

1.4 RESEARCH QUESTIONS

1. What is the definition and meaning of the notion of inclusion and what is its framework in architecture and in the education sector?
2. What are the aims of The Universal Design Principles and why is it necessary to apply these principles in the perspective of a developing country such as Kenya? What is unique about the practical applications of Universal Design in developing countries in comparison to developed countries? Why is Universal Design a cheaper approach than specialised design?
3. How can the Universal Design Principles be differentiated and practically applied to suit the needs of a developing country such as Kenya to better promote an Inclusive learning environment in Inclusive Schools in accordance with the principles and practises of Inclusive Education in the perspective of a developing country?

1.5 RESEARCH OBJECTIVES

1. To establish the definition and meaning of the notion of inclusion and its framework in architecture and in the education sector.
2. To establish the aims of The Universal Design Principles and if it is necessary to apply these principles in the perspective of a developing country such as Kenya. To establish what is possibly unique about the practical applications of Universal Design in developing countries in comparison to developed countries. To establish why Universal Design is a cheaper approach than specialised design.
3. To establish how the Universal Design Principles be differentiated and practically applied to suit the needs of a developing country such as Kenya to better promote an Inclusive learning environment in Inclusive Schools in accordance with the principles and practises of Inclusive Education.

1.6 JUSTIFICATION OF THE STUDY

Anyone can be disabled at any unexpected point in their life (WHO 2001) and a lack of education for anyone is the greatest disability compounding all disabilities. The aim of Inclusive Education is to enable and empower the society at an early age which is essential for the sustainable growth of a country as it develops. However, implementing Inclusive Education has been patchy for most developing countries due to various factors ranging from negative attitudes to the lack of the proper infrastructure and equipment which are deemed too expensive. This however shouldn't be the case especially when Universal Design may offer a diverse range architectural solutions to some of the challenges being experienced in Kenya trying to implement Inclusive Education.

1.7 RELEVANCE OF THE STUDY

The demand for Inclusion and Inclusive Education is increasing in Kenya as the country tries to keep up with international standards of what defines quality education. There is a need to understand the Principles and practice of Inclusive Education in order to understand the design issues involved in creating inclusive learning environments to at least solve some of the problems being currently experienced in the education sector. The practical applications of the Universal Design principles are dependent on the understanding of Inclusive Education practices. There is a need to re-conceptualize the school as we know it today as Inclusive Education calls for the integration of education, medical and social facilities for a truly inclusive educational environment.

1.8 SCOPES AND LIMITATIONS

The term children used through out the entity of this document is used to cover young children in the early year settings and pupils of school age 6-15 years old. The phrases "disabled children" and "Children with Special Educational Needs" are used independently of each other but it should be noted that a child can be both disabled and have special educational needs. The Case studies selected in this thesis may not entirely meet the international standards of Inclusive Education, Time limitations and finances may hinder the full study of Inclusive Schools across the country. The applications of Universal Design Principles are dependent on the understanding of the principles and practices of Inclusive Education. This thesis however only gives a general overview on the fundamentals of Inclusive Education principles and practices. Local case studies will be limited to Nairobi City Council Schools due to financial constraints.