UNIVERSITY OF CAPE COAST

MOBILE PHONE USE AND PHYSICAL MOBILITY AMONG YOUNG

PEOPLE IN THE KWAHU WEST MUNICIPALITY

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

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Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

It is an undeniable fact that the mobile phone technology has become part of the young people and the younger generation at large. In Ghana, mobile phone use is now in excess of 36 million regardless of one's age, gender, educational level and/or economic status. Since young people mostly engage in travelling and have unlimited opportunities for mobility, this study was conducted in the Kwahu West Municipality to investigate whether the use of mobile phones has had an impact on young peoples physical mobility. With the use of a multi-stage sampling procedure, the municipality was clustered into an urban area, peri-urban area and two rural areas. 243 questionnaires were used to obtain data from young people between the ages of 10 and 25 who were selected random method. The findings from the study was presented using descriptive and inferential statistics. It was found that males and persons between 20 and 25 made much use of their phones prior to the study, and also made claims of reduced physical travels with respect to their short and long journeys. However, there was not enough evidence to show that their overall physical travels had reduced with the use of mobile phones. But the findings invariably revealed that as the age and educational levels of the respondents increased the overall journeys embarked on also reduced. Therefore, the study recommended a continuous education for young mobile phone users by mobile telecommunications companies and other social bodies on how to use their phones for activities other than engaging in physical travelling. Also more studies be conducted in other areas of the municipality to gather enough data to clearly reveal the impact of mobile phone use on the physical mobility/travels of young people.

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KEY WORDS

Mobile Phones

Mobility

Mobile phone usage

Travels

Transport

Young people

DEDICATION

To my son, Kwame Ameyaw-Akumfi Ntim-Kodua Junior.

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LIST OF ACRONYMS

1G	First Generation
2G	Second Generation
3G	Third Generation
4G	Fourth Generation
AU	Actual System Use
BI	Behavioural Intension
CAMHS	Child and Adolescent Mental Health Service
DF	Demographic Factors
DGRP	Department of Geography and Regional Planning
EFA	Education for all
FC	Facilitating Conditions
GCASH	Globe Cash
GDP	Gross Domestic Product
GIS	Geographic Information System
GSM	Groupe Spéciale Mobile
GSMA	Groupe Spéciale Mobile Association
GSS	Ghana Statistical Service
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
JIM	Jugend Information Media
MOPTAM	Mobile Phone Technology Acceptance Model
M-PESA	Mobile Payment
MTN	Mobile Telephone Network

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PEU   Perceived Ease of Use

PF   Personal Factors

PHC   Population and Housing Census

PU   Perceived Usefulness

SEXINFO   Internet Sexuality Information Services

SF   Socio-economic Factors

SI   Social Influence

SIG   Signature

SMS   Short Messaging Service

STI   Sexually Transmitted Infections

TAM   Technology Acceptance Model

TOP   Teen Outreach Program

TV   Television

UN   United Nations

UNESCO   United Nations Educational, Scientific and Cultural
                Organization

UNFPA   United Nations Fund for Population Activities

UNICEF   United Nations International Children's Emergency Fund

USA   United States of America

USB   Universal Serial Bus

UTAUT   Unified Theory of Acceptance and Use of Technology

WHO   World Health Organization

WTO   World Tourism Organization

CHAPTER ONE

INTRODUCTION

Background to the Study

For one thing, human communication, and especially machine-mediated human communication, is an old reality having its origins in the very beginning of our species, some 50,000 years ago, in the African savannah (Lorente, 2002). Just two novelties have been developed recently: first, Meucci (not Graham Bell, as it is now known) discovered the possibility of modulating human voice within an electric wire (that is, the telephone), in the fourth part of the 19th century; and second, barely a few decades ago when the mobile phone was finally developed whereby the human voice can be modulated through air waves (Lorente).

Mobile phones have become the primary form of telecommunication in both developed and developing countries. Globally, mobile phone networks play the same role that fixed-line phone networks did in facilitating growth in Europe and North America in the 20th century. The industry has experienced explosive growth in a relatively shorter time span. The first billion mobile phones took around 20 years to sell worldwide. The second billion were sold in four years. The third billion were sold in two years. Coverage has expanded and mobile phone subscriptions in developing countries have increased by over 500% since 2000 (Thompson & Garbacz, 2007).

According to industry estimates, there were more than 500 million mobile phone subscribers in Africa as of 2011, up from 246 million in 2008. The four biggest mobile phone markets in Africa are Nigeria, South Africa, Kenya, and Ghana. Strategic investors in Africa's mobile industry include

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South Africa's MTN, India's Bharti Airtel, France Telecom (via its Orange brand), Britian's Vodafone and Luxembourg's Millicom. The mobile innovators' network Mobile Monday is now in seven cities in Africa and targets a dozen cities in the coming years (Rao, 2011).

The largest fixed line broadband market is South Africa, followed in order of market size by Egypt, Morocco, Algeria and Tunisia. According to Facebook statistics tracker Social Bakers, there were around 10.5 million Facebook users in Africa in 2010. Mobile broadband subscribers in Africa -- users of data cards and Universal Serial Bus (USB) devices via cellular 3G networks – crossed 3 million in September 2009. In total, 4.54 Terabytes of cable capacity is available across 13 submarine cables in Africa. These were further expand to 24.5 terabytes by 2011 (Rao, 2011).

Before the development of mobile phone technology, access and usage of land lines across Africa was limited by poverty, inadequate infrastructure and widespread corruption in the sector, often seemingly encouraged by the illegal associations of corrupt politicians, state bureaucrats and staff of established commercial providers (Smith, 2006). Because they were considered strategically important, services were initially state-run, though privatisation of the telecommunication sectors began in many countries in the 1980s and 1990s, as externally-imposed structural adjustment programmes required liberalisation and reduced state participation (Shanmugavelan & Warnock, 2004).

The above led to the demand for better communication within Africa. This was manifested in the speed and scale at which the mobile phone 'revolution' occurred, following the first mobile call in 1987 (Vodafone, 2005). Mobile subscriptions first overtook fixed-line connections in Africa in 2001 (Castells, 2007). By 2005, mobiles accounted for at least three-quarters of all telephones in 19 African countries (Castells).

According to the Ghana Statistical Service (GSS) Summary Report of the final results from the 2010 Population and Housing Census (PHC), only 2.3 percent of households in Ghana have fixed telephone lines while 7.9 percent of households own either laptops or desktop computers. The proportion of households with these facilities was substantially low in most of the regions in the country. However, in Greater Accra and Ashanti, relatively higher proportions of households owned either laptops or desktop computers (16.8 percent and 9.3 percent respectively). Also, about 48 percent (8,049,408) of the population 12 years and older owned mobile phones while only 8 percent used the internet facility. Ownership of mobile phones by individuals was much higher in Greater Accra (73.5%) and Ashanti (56.1%). It was found that urban dwellers were more likely to own mobile phones (63.4%) and use the internet (12.7%) than rural dwellers (29.6% and 2.1% respectively). The above statistics implies that ownership of mobile phones in the country has now increased compared to some years ago when mobile phones was only an asset for the rich.

The United Nations (UN), for statistical purposes, defines 'youth', as those persons between the ages of 15 and 24 years, without prejudice to other definitions by member states. But youth is best understood as a period of transition from the dependence of childhood to adulthood's independence. That is why as a category, youth is more fluid than other fixed age-groups. Yet, age is the easiest way to define this group, particularly in relation to education and employment, because 'youth' is often referred to a person between the ages of leaving compulsory education, and finding their first job. Apart from the statistical definition given, the meaning of the term 'youth' varies in different societies around the world. UNICEF/WHO/UNFPA define youth as persons between the ages of 15 to 24 and young people as persons between the ages of 10 to 24.

However, the UN Secretariat uses the terms youth and young people interchangeable to mean age 15-24 with the understanding that member states and other entities use different definitions (Secretary-General's Report to the General Assembly, A/36/215, 1981). According to the National Youth Policy of Ghana, youth refers to persons who are within the age bracket of fifteen and thirty-five. Ghanas definition however had been informed by the United Nations Organization and Commonwealth secretariat. Therefore, from the above definitions of young people, the study defined it's concept of young people to mean persons between the ages of ten and twenty–five.

Cresswell (2006) states that mobility bears a number of meanings that circulate widely in the modern world. Moving your hand, walking, dancing, exercising, driving to work, moving home, going immigrating, traveling, exploring, attending conferences; all these are forms of mobility. From the

first kicks of a new born baby to the travels of international business people, mobility is everywhere. Thus, mobility, according to Cresswell (2006), can be defined as involving displacement, that is, the act of moving between locations. These locations can therefore be towns or cities, or they may be points. In the same vein, Pawlak, Le Vine, Polak, Sivakumar and Kopp (2015) in their study on ICT and Physical Mobility, defined mobility to be the ability to travel from one point to another and actual physical travel.

However in 2002, Urry introduced five highly interdependent mobilities that shape and reshape a number of networks: corporeal travel (transport of people that has been possible since time immemorial through the use of cars, motorcycles, airplanes, trains, footpaths, bicycles, etc.); physical movement of objects; imaginative travel (imagined travelling via television); virtual travel (via internet); and communicative travel (via the use of emails and mobile phone-referred to a modern form of mobility which is a core concept if one wants to understand and explain the conditions of young people and how they are thinking and reacting to the world around them).

Currently, extensive studies have not been conducted in Ghana to ascertain whether the inception of mobile phones has led to an increase or decrease in physical mobility since the use of mobile phones is now changing the way business is done, the way social networks are built and maintained, even the conduct of romantic courtship. It was against to this background that this study was been conducted.

Problem Statement

Young people are part and parcel of the mobility development, as they have grown up with television, computers, emails, internet, mobile phones as well as cars, bikes, buses, trains and aeroplanes (Jensen, 2006). All these technologies have made the young generation mobile as never before. They have a considerable appetite for travelling and practically unlimited opportunities for mobility. They travel to school, to markets, to fetch water and firewood, to work on farms and take farm produce to grinding mills, as well as to visit friends and family and to play (Porter et al., 2011). Not only physical/bodily travelling, but also virtual travels via the internet, or communicative travels via email, (mobile) phones are separately and in combination a marked feature in everyday life among young people (Tully, 2002).

Mobile phones have become part of a global youth culture, with certain similarities in their usage, appropriation and discursive construction found across diverse culture (Ito & Okabe, 2005; Ling, 2004). Among the youth, mobile phones are often used for hyper-coordination, that is, for expressive reasons, particularly through chatting and sending chain messages, jokes or what can be called 'digital gift giving' to reinforce connection with peers (Ling & Yttri, 2002).

In a world where currently most parents spend more hours working and thereby have little time for their children, mobile phones which are too easy to use and handy for youngsters according to Fortunati and Manganelli (2002), create some sort of virtual brotherhood - a particular spaceless and timeless brotherhood that arises from familial loneliness which urges teenagers to break

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up the household physical constrain and to go into other vicarious brothers and sisters- which fulfils the anti-loneliness.

In Ghana, the use of mobile phones, especially smart phones is on the increase amongst children and the youth (Porter et al., 2012). From just under 24,000 owners/users in 1999, the number of mobile phones in use in the country is now in excess of 36 million (Ghana National Telecommunications Authority, April/June 2016); implying that currently, within the country, the average Ghanaian owns and uses two mobile phones, which is the least of the number of phones people actually have. Today, a mobile phone is no longer a rich man's accessory. Ghana Statistical Service (2010) also reports that about 40% and 19% respectively of the urban and rural populations of the country aged 12-24 years own and use mobile phones with the Greater Accra (urban 14.1%; rural 6.7%) and Ashanti (urban 9.0%; rural 2.8%) regions recording the highest while the Upper East region (urban 4.2%; rural 1.7%) was the least.

While appreciating the rapidly increasing use of mobile phones across the country, it is also the case that little is known about the extent to which young persons' use of mobile phones impact on their spatial and temporal flexibility. However, beyond speculation, existing literature has limited empirical information on the impact of phone use on physical mobility. As such, not much literature can be accessed on mobile phones and physical mobility most especially in Ghana, until recently when research was conducted in two ecological zones (forest and coastal zones) to ascertain whether the use of mobile phones had increased or decreased physical movements among the youth (Porter et al., 2012), but not in the deciduous

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forest zone of the country.

Contextually, it has been suggested that using the phone has become a form of virtual mobility that enhances one's access to opportunities as well as services and social networks even for people with limited mobility (Kwan, 2006). Therefore, it is possible that using the mobile phone could provide information about places, which would in turn trigger one's physical movement to discover new scenery or promote more businesses. At the same time, mobile phone use could become a conduit to terminate the need to move since a phone call is enough to address an issue much faster than what actual travel would achieve.

As part of the need to advance the discourse on phones and travel (mobility) among young people, and particularly in the deciduous forest zone of the country, this study sought to contribute to the growing debate and also work upon the recommendations provided by the study on the use of mobile phones, in sub-Saharan Africa, that more studies be conducted across the country to determine, in concrete terms, the changing face of physical (mobility) travel due to mobile phone use. The main question to address was whether the use of mobile phones by young people has led to either a decrease or an increase in their physical mobility (travel). In other words, has the phone, which has become a huge technological intervention, significantly changed individual's trip making pattern and behavior? It was to address this question that this study was conducted.

Research Objectives

The main aim of this study was to investigate whether the use of mobile phones by young people has an impact on their physical mobility. The specific objectives were to:

1) assess the experiences of the young people's mobile phone use;

2) assess the reasons for which young people embark on travels or movement; and

3) evaluate the influence of mobile phone usage and physical movements of young people.

Research Hypothesis

Null hypothesis

1) The use of mobile phones would not increase or decrease physical mobility among young people in the Kwahu West Municipal Area.

Alternative hypothesis

2) The use of mobile phones would increase physical mobility of the young people.

3) The use of mobile phones would decrease physical mobility of young people.

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Significance of the Study

Mobile phone has become a necessity because young people because they do virtually everything with their phones. This study would help examine the current patterns of phone usage among young people with particular attention to the way these are evolving in diverse locational settings and to explore the links between young people's phone usage, virtual and physical mobilities and wider implications for social change.

In addition the study would provide information about the growing nature of the use of mobile phones to policy makers, specifically those in the transport area to incorporate mobile phone services in their operations. Finally, the research document will serve as an empirical literature and a source of knowledge.

Delimitation of Study

The study focused on young people's mobile phone usage and physical mobility in the Kwahu West Municipality. It included young people between the ages of 10-25 years who use or have used a phone for a period of time. It drew data from four areas within the municipality which included two rural areas, a peri-urban area and an urban area. Also, the sample for the study was drawn from the Ghana Statistical Service, 2010 Population and Housing Census which gives the total population of young people between the ages of 10 and 25 in the study area.

Organization of the Study

The study was organized into five chapters. The first chapter included the background of the study, problem statement, research objectives, research

hypothesis, significance of the study and delimitation of the study, as outlined above, Chapter Two reviews related literature based on empirical and theoretical. The third chapter described methods for field work and data collection for the study. It also provided the basis for carrying out the subsequent chapters. Specifically, it included details on research design, sampling procedure as well as data collection, management and analysis. The fourth chapter presented analysis of results in relation to their phone usage and physical mobility as well as comparisons of research data with literature reviewed. The fifth chapter presents summary, conclusions and recommendations based on the research findings.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter reviews literature related to the study. This is in line with the view of Amedahe (2000) that the opinion of experts in the field as well as other research studies must be of interest to researchers. The chapter is organised under the following sub-headings: mobility, mobile phones and relationship between mobile phones and mobility.

Conceptual issues on Mobility

Mobility is a key factor that is shaping young people's experience and future life chances across sub-Saharan Africa and most especially in Ghana. For young people, mobility achieved may on one hand, be a source of excitement, temptation, thrills, inclusion, opportunity and perceived success; on the other, a cause of exhaustion, danger and fear. Mobility frustrated, by contrast, is most often seen purely in negative terms: a source of anger, despair, exclusion and perceived failure (Porter et al., 2010).

People and things have always moved and mobility did not start in the twenty-first century or even with the industrial revolution. Ships are a good example of an age-old technology. They are somewhat slow and essentially the same thing as they have always been, give or take a few modifications in power supply and navigation. Yet empires were formed aboard ships, military might have been projected through them and 90% of the world's goods still move around the world on them (Creswell, 2010).

To transport geographers, mobility is much about meaning as it is about mappable and calculable movement. It is an ethical and political issue as

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much as a utilitarian and practical one, and it is quite focused on a particular form of moving (Cresswell, 2010).

According to Litman (2003), "mobility" refers to the movement of people and goods. This recognizes both automobile and transit modes, but still assumes that movement is an end in itself, rather than a means to an end. It tends to give little consideration to non-motorized modes or land use factors affecting accessibility. Mobility means having transport services going where and when one wants to travel; being informed about the services; knowing how to use them; being able to use them; and having the means to pay for them (Suen & Mitchell, 1998).

We simply cannot ignore that the world is moving and maybe, the world is moving a bit more faster than it did before. We might even say that mobility is ubiquitous, it is something we do and experience almost all of the time. Although we may always be on the move, we are also differently mobile and individuals must be mobile to achieve all sorts of socialities that compose their day to day living and more. But while we are on the move, things must be mobile for us too, from fluids and flows to the immovable matter of stone which are all built upon nobilities (Adey, 2009).

The scale of contemporary travelling is massive, and this provides the context for the belief that travel has become so central to contemporary socialities. There are 698 million international passenger arrivals each year (2000, compared with 25 million in 1950 and a predicted 1 billion by 2010); at any one time 300,000 passengers are in flight above the United States of America (USA), equivalent to a substantial city; there are 31 million refugees across the globe; and there is one car for every 8.6 people worldwide (Kaplan,

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1996; Makimoto & Manners, 1997; World Tourism Organization [WTO], 2001).

International travel accounts for over one-twelfth of world trade constituting by far the largest ever movement of people across borders. International and domestic tourism account for 10 percent of global employment and global GDP. And this affects everywhere, with the World Tourism Organization (WTO) publishing tourism statistics for over 190 countries (WTO, 2001). There is more or less no country that is not a significant sender and receiver of visitors.

The above information characterizes mobility in terms of the kind or part of population that is undertaking the movement and the things that make it possible for them to move, forms of movement and the reasons for which people travel, as well as the duration for which that movement begins and ends. All these make mobility a simple but complex entity which is not only concerned about the movement of people but also the material and immaterial goods or information.

Most of the early transport geographers and others defined mobility to mean the physical movement or travel of both humans and freight (goods or objects), which is being termed today as the corporeal mobility. These forms of movement are made possible through the domestic regime of the car, the solitary reverie on the plane, the business meeting on the train, the talk down the mobile while walking the city and the dangers to cyclists from untrammelled car use. Different modes involve very varied combinations of pleasure, expectation, fear, kinaesthetic, convenience, boredom, slowness,

comfort, speed, danger, risk, sociability, playfulness, health and surprise as has been shown with auto mobility (Sheller & Urry, 2000).

The power to determine the corporeal mobility of oneself or of others is an important form of power in mobile societies. Lewis (2000) states that to be at a place by oneself is critical. Many places need to be seen 'for oneself', to be experienced directly: to meet at a particular house or visit a particular restaurant or walk along a certain river valley or energetically climb a particular hill or capture a good photograph or feel one's hands touching a rock-face and so on. It is only then we know what a place is really like. This implies that these activities and other moments, according to Lewis, need to be seen, experienced and felt by oneself which means that they need to physically travel for such.

Modern Mobility

Mobilities involve complex ``hybrid geographies'' of humans and non-humans that contingently enable people and materials to move and to hold their shape as they move across various regions, such as the spread of the car system (Whatmore, 2002).

Being mobile is not just a matter of people travelling but, far more importantly related to the interaction they perform; the way in which they interact with each other in their social lives. Makimoto and Manners (1997) argue that within the next decade or so, a large part of the facilities and tools at home and in the office would be reduced enough in size to be carried making people geographically independent and that people who use such mobile technologies will be free to live where they want. Their argument for the

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importance of mobility was largely limited to the corporeal characteristic of human movement freed from geographical constraints.

First, with modern mobility material changes seem to be `dematerialising' connections, as people, machines, images, information, power, money, ideas, and dangers are `on the move', making and remaking networks at increasingly rapid speed across the world. Social networks are underpinned by technologies based upon timeframes transcending human consciousness. Computers make decisions in nanosecond time, producing instantaneous and simultaneous effects. Pervasive computing produces a switching and mobility between different self-reproducing systems, such as the Internet with its massive search engines, databases of information storage and retrieval, world money flow, intelligent transport systems, robotic vision machines under the oceans, and vision machines more generally (Thrift, 2001).

Further, there would be new `machines' enabling `people' to be more individually mobile through space, forming small world connections `on the go'. `Persons' will occur as various nodes in multiple machines of inhabitation and mobility. Machines would be inhabited by individuals or very small groups of individuals. Through inhabiting (or internalising) such machines, humans come to `life'. Such machines are miniaturised, privatised, digitised and mobilised; they include walkmans, I-pods, mobile phones, the individual television, the networked computer/Internet, the individualised smart car/bike, virtual reality `travel', tele-immersion sites, laptops, personal organisers, wireless connections, helicopters, smart small aircraft, and many others yet to

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emerge. Such machines are closely interwoven with the corporeal (Bull, 2000; Callon, Law & Urry, 2004).

According to Urry (2000), one cannot be involved in an ongoing daily and face to face interactions, but people's sense of connection and belonging with others can still be sensed and maintained. Thus all forms of social life, which involves striking combinations that necessitates examinations of the intersecting forms of physical, object, imaginative and virtual mobility, contingently and complexly connect people in patterns of obligation, desire and commitment, gradually over geographical distance of great length. Urry termed imaginative travel to mean being transported elsewhere through the images of places and peoples encountered on the radio and most especially the television (TV). Virtual travel is to travel often in real time on the internet with many others, thereby surpassing geographical and often social distance (Urry).

Benedikt (1991) states that virtual travel results from the 'dematerializing the medium and conquering … space and time'. Such travel makes humans as bits of information (Sheller & Urry, 2000). People are able to have access to a wide range of information, locally or globally, with which they can do things to certain objects and interact with people without being present in any particular place, without their bodies having to travel. 'Persons', thus, occur as various nodes in these multiple networks of communication and mobility (Wellman, 2001). Virtual travel produces a kind of unusual and uncanny life on the screen, a life that is near and far, present and absent, live and dead, making people feel close while still distant (Urry, 2002). Virtual travel is most especially done via mobile devices.

Nokia predicted that by 2015, two-thirds of the world would own a mobile device (Urry, 2007). Access to mobile phones has become so widespread that the device has been called the 'real world's internet'. The internet has grown more rapidly than any previous technology, with significant impacts throughout much of the world. Mobile telephony based on many societies jumping direct to such a new technology seems especially to involve new ways of interacting and communicating on the move, of being in a sense present while apparently absent (Brown et al, 2002; Callon et al, 2004).

The growth of such information and communication technologies is allowing new forms of coordination of people, meetings, and events to emerge (Buscher, 2006). However, Boden and Molotch (1994) maintain that since 'co-present interaction' is fundamental to social interaction, virtual travel will not significantly replace physical travel. The modern world produces no reduction in the degree to which co-present interaction is preferred and necessary across a wide range of tasks. They analyse how such 'thick' co-presence involves rich, multi-layered and dense conversations. These involve not just words, but indexical expressions, facial gestures, body language, status, voice intonation, pregnant silences, past histories, anticipated conversations and actions, turn-taking practices and so on. In particular, co-presence affords access to the eyes. Eye contact enables the establishment of intimacy and trust, as well as insincerity and fear, power and control. Simmel considers that the eye is a unique 'sociological achievement' since looking at one another is what effects the connections and interactions of individuals (Frisby & Featherstone, 1997). Simmel terms this the most direct and 'purest'

interaction. It is the look between people which produces moments of intimacy since 'one cannot take through the eye without at the same time giving'; this produces the 'most complete reciprocity' of person to person, face to face (Frisby & Featherstone). The look is returned and trust can get established and reproduced (Urry, 2000).

Turkle (1996) was of the view that more TV watching and the use of mobile phones and the internet should be encouraged so that people would travel less and experience life on the screen. The global world seems to require that whatever virtual and imaginative linkages that occur between people, moments of co-presence are also essential and that co-presence requires extensive mobility (Kaplan, 1996). Therefore, having a look at these new forms of virtual and imaginative travel, they can be combined in unexpected ways with physical travel in order to enhance mobility.

Evolution of Mobile phones

Over the years and around the globe, mobile telephony, which was introduced in the 15th century, most notably in United States, Europe and Japan, has seen a massive demand for such a service. In 1908, a U.S. patent was issued to Nathan B. Stubblefield for a wireless telephone. Thereafter, a team led by inventor Dan Noble created the first hand Walkie-Talkie in the 1940s where this led to increased sales for Motorola during World War II. Soviet engineer Leonid Kupriyanovich in 1957 created a portable mobile phone which had a 25-kilometer range and a 20-plus hour battery life. Dr Martin Cooper of Motorola made the first analogue mobile phone call in the U.S. in the 1970s (Shesterin, 2012).

The penetration of mobile phone is now higher than the penetration of televisions. The mobile phone is also more common than the car, the computer or video recorder (Katz & Aakhus, 2002). The mobile technology has developed in four successive generations. The first generation (1G) appeared in the 1980s and was based on the analogue cellular systems, which was car-bound and mainly used for making calls. In addition to the voice-based services, the second generation, that is the digital cellular (2G), or Groupe Spéciale Mobile (GSM) - later renamed Global System for Mobile Telecommunications, was an initiative combining private and public governance (Pelkmans, 2001). They introduced SMS (short messaging service) which became an enormous success, especially among young user groups at the end of the 1990s and was characterized by increasing capacity (higher transmission speeds) and richer content of message. Also during 2G, the mobile phone has been used for SMS-based news and for voice-based mobile news services (Oksman, 2006).

Both the mobile phone as a device and mobile services have developed during the last ten-year period with active participation of young people within these periods. The third generation (3G), that is the mobile broadband and newer, provided a higher transmission speed and richer content (Dunnewijk & Hultén, 2006). The recent fourth generation (4G), which is currently being used in some countries and is assessed on some individual phones, is expected to provide a global network experience and a wide range of new services, including high-quality voice and video and high-data-rate wireless channels (Ibrahim, 2002).

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The role of the mobile phone is expanding far beyond simple personal communications (Gordon, 2002). The mobile phone is increasingly being developed for various future civic activities such as voting in elections, engaging in m-learning and banking services and has, as a result, become literally an 'all-pervasive and all inclusive means of conducting one's private and public affairs' (Selwyn, 2005). The development of mobile media technologies expands the usage dimensions of the mobile phone and creates possibilities for completely new kinds of social and functional uses. One approach, which is closely related to the integration of mobile phones into everyday life and the ways in which users experience media technology is the widely used term 'domestication'.

Domestication has been used to refer to the transformation process that media technology undergoes in becoming part of everyday life and environments, fitted into our routines, being 'tamed' (Silverstone & Haddon, 1996; Peteri, 2006). According to Peteri, it is significant to note that both technology and users influence one another; technology is not something that cannot be altered or changed, where it only tends to adjust to the day to day activities and life of people: users are therefore the sole agents of interpreting and developing the usages of devices, while the actual usages are rarely something that has been planned at the desk of designers.

Oksman and Turtiainen (2004) in their study observed young people's and families' use of mobile communication as a phenomenon connected with everyday life, sociocultural environment and other media use and found out that, the domestication approach cannot be realised in full when each family member possesses a personal mobile communication device which extends the

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use contexts beyond domestic environments to a variety of public spheres. According to Morley (2002), communication technologies transform and rearrange relations between the domestic and the public space. In particular, mobile communication functions to broaden the sphere of the home outside the physical household; to blur the boundaries between the public and private spheres.

Mobile Phone Applications

With technological advancement and market competition, today's mobile phones are made in such a way that they provide the user different purposes beyond the typical functions such as making calls and sending chains of text messages. Numerous features and applications are added into regular phones and smart phones. Mobile applications are common on most modern phones, and consist of software that runs on a mobile device and performs certain tasks for the user of the mobile phone (Mobile Application, 2008).

These applications are served by a number of mobile application developers, publishers and providers. Also, they have a growing number of markets. For instance, the Apple Store's website lists thousands of iPhone applications, and these applications can be placed in several categories: calculate, entertainment, games, news, productivity, search tools, social networking, sports, travel, utilities, and weather. Same can be said for other mobile phone providers such as Samsung and others.

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Mobile phone Usability

The term usability was originally derived from the term "user friendly" (Folmer & Bosch, 2004). In the English language, usability is typically defined as the "capability of being used", implicitly the capability of an entity to be used. While many definitions of usability exist, the definition which was specified in International Organization for Standardization (ISO)/ International Electrotechnical Commission (IEC) 9126-1 (2001) is now widely applied (Folmer & Bosch). The ISO organization has developed various usability standards, and its function is to provide and impose consistency. In ISO/IEC 9126-1, usability is defined as "the capability of the software product to be understood, learned, used and be attractive to the user, when used under specified conditions". This definition is primarily concerned with a software product, and it is suitable for mobile applications (Heo, Ham, Park, Song & Yoon, 2009). But for a phone to be usable, it needs to be in working order, with a charged battery, airtime (phone credit) and a network signal-none of these can be taken for granted. ISO/IEC 9126-1 specifies usability by the following measurable attributes:

• Understandability: The capability of the software product to enable the user to understand whether the software is suitable, and how it can be used for particular tasks and conditions of use.

• Learnability: The capability of the software product to enable the user to learn its application.

• Operability: The capability of the software product to enable the user to operate and control it.

• Attractiveness: The capability of the software product to be attractive to the user. For instance the use of colours or nature of graphical design.

Young people and mobile phone usage

In the early days of mobile communication, the mobile phones were seen as 'yuppie tools' used by loudly speaking people to show off in trains or restaurants or public places that had previously been more silent (Ross, 1993). The mobile phone started as a revolutionary gadget that completely changes the way people communicate and practice in everyday life. Ross states five dimensions that describe and define mobile phones: mobile, accessible, instantaneous, private and personal. The concentration away from devices that depend on a fixed location towards more mobile devices is an important development in the history of media and communication technologies, and it is not restricted to telephones but also covers other media devices, such as portable music players and laptops.

The mobile phone has increased the chances of private individuals, groups and communities to create, receive and share personal, social and mass media content. Thus, the mobile phone provides an extended technological means to be connected to both one's own social network and larger society. The mobile phone has been strongly termed as a personal medium, which can be defined as institutionally and structurally different from mass media with more possibilities for social interaction and user-generated, non-professional content creation (Lüders, 2008).

Kopomaa (2000), states that the mobile phone has played an essential role in the entire growth of contemporary information society. The ability to be successful in everyday life depends on our ability to connect to important

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networks and get valuable information. Kopomaa sees contemporary society as a 'Mobile information society' creating opportunities for ways of life based on either complete mobility or the lack of it. He asserts that:

> *'The mobile phone is an answer to the needs and hopes of the modern individual. It is an electronic communication device which has an adaptive effect on our way of life, introducing a new orientation towards mobile phone-oriented companionship and telesociability;* (p. 121)

The use of mobile phones also enlarges the number of potential communication companions present at any specific place at that moment (Geser, 2004). Kopomaa again claims that:

> *'The idea of the mobile phone as a tool that increases 'social efficiency, condenses and describes modern urban life very accurately. Social efficiency may be understood in terms of increased contacts and immersed, synchronised living. As a navigation tool, the mobile phone can be likened to the compass and the sounder; it is used to indicate movement and its direction. Indeed, navigation is one of the key metaphors for the contemporary lifestyles.* (pp. 123–124).

In the area of politics, mobile phones have and still play a very crucial role. According to Allagui and Kuebler (2011), in a bid to end years of humiliation, corruption and deprivation in Tunisia and Egypt, its people (both young and old) made use of mobile phones (having patronised Facebook, You-tube, or just a word of mouth) to win a peaceful and unarmed uprising. This led to the overthrow of Tunisia's President Ben Ali and Egypt's Mubarak. Mobile phones were used to create networks to which people belonged; networks of friends, family, work, school and others of interest

where revolutionary contents were created by members of these networks and later its contents were distributed to friends, families and members of other networks and in the end these messages reached the mainstream media and satellite channels such as Al-Jazeera who showed it to people around the globe and the Tunisian people who had no access to internet. Tunisia's digital (mobile phone) uprising in December 2010 created a baseline which led to and encouraged similar revolts in Egypt, Libya, Yemen, Syria, Bahrain and other Arab nations.

Reasons young people engage in physical movements

Human beings are meant to move and not to be still. Humans have always been on the move. As our brains grew larger, so did or curiosity, and driven by different individual reasons humans began to move. Travel occurs for many reasons. Travel results in intermittent moments of physical nearness to particular people, places or events and in significant ways this closeness is felt to be necessary, appropriate or needed, such that people bodily come upon some particular landscape or townscape, or are physically present at a particular live event.

In the Neolithic age, the first sailing vessels and invention of wheels were designed to move people around in different ways. Nomadic hunters and gatherers moved in pursuit of food following seasonally available wild plants and game (Wallis, 2003). The prehistoric man began to construct roads to enable the movement of troops through empires, and eventually civilians began to move in caravans. These movements were for the purpose of commerce and trade which took explorers to strange lands to meet other people. Wealthy Greeks and Romans began to travel for leisure to their

summer homes and villas by sea to cities like Pompeii and Baiae (Byttebier, 2007).

In the Medieval times, the people who mostly moved around the world were the pilgrims and missionaries. Driven by their religious beliefs, pilgrims made dangerous journeys to places like Santiago de Compostela, Canterbury, and Jerusalem while missionaries travelled to heathen areas to evangelize the people, such as the Celts in Ireland (www.internationalschooltoulouse. net/pilgrims/journey.htm). In the late 16th century it became trendy for young aristocrats and wealthy upper class men to move to important European cities as a growing touch to their education in the arts and literature, designed to enlighten Europe's young elite. The French revolution, however, marked the end of the Grand Tour, as was known, with the coming of rail transit in the early 19th century. Movements was no longer limited only to the privileged as it became cheaper, easier and safer to move. Young ladies began to travel too as part of their education (Schivelbusch, 2014; Holloway & Taylor, 2006).

In this modern age, the way things are done have changed. There are more challenges at hand, places to explore, an educational level to attain, a bad political situation to flee from, a better job to find which makes the modern man more mobile than ever. The geography of transportation has regarded travel patterns as necessarily generated by work, household, family and leisure needs (Urry, 2002). A lot of people want to make a change to a new place because of the cost of living in their previous settlement, or the lifestyle that they will be able to afford in a different locale. Some people find themselves in poverty of facing serious economic hardships and moving from such will offer them a solution, an employment of some sort. They seek financial

stability. Some cases are not as serious, and people simply feel that they will be able to offer their families a better life in a new environment (Bhugra & Becker, 2005).

In other events, some people would want to visit other family members who have moved away. No matter where they find themselves, irrespective of the distance one would want to visit them at some point in time or another. For instance, Kaplan (1996) asserts that because her family was scattered across the United States of America and across various continents, travel for her was 'unavoidable, indisputable, and always necessary for family, love and friendship as well as work'. Indeed she says that she was 'born into a culture that took the national benefits of travel for granted' as well as presuming that 'US citizens [could] travel anywhere they pleased'.

Other people would also feel the need to attain higher educational background which would mean that they would have to move from their current setting to places where such educational opportunities can be accessed. All these and many more factors make people in these modern times to engage in so much movements without taking into consideration the associated disadvantages.

Influence of mobile phone on physical movement of young people

To today's youth, mobility is a fact of life that they embrace with passion, and in a number of ways mobility sets an agenda for and constantly change their social life. It influences their way of understanding and perceiving the world, which in turn makes them demand for a still more and increasingly complex mobility (Jensen, 2006).

Mobility is a key issue in the lives of young people since it enables them to move around physically and communicate independently of time and space, thus enabling a maximum of choices. Options are an important part of the lives of the young people, a part that they cannot avoid whoever they may be or whatever they choose. And here mobility is an inevitable part of the choices made by young people. Young people of today are faced with some crucial choices when it comes to mobility, both physical and virtual, because they do not wish to refrain from any kind of mobility, as this has become part of their social life. But like all young people they have some thoughts and dreams about what the future will bring. They make an effort to move away from their families in order to search for new things such as work and make friends. Finding themselves, in terms of their identity, is one important aspect of most young people which makes them to be readily available to change (Laegran, 2003).

In a study by Leccardi (2005) on young Italian people, she refers to a so-called choice biography characterized both by a strong individualization and by 'risky' traits. She argues that a 'risk biography' is 'connected to the need to make decisions in a social context characterized by great uncertainty'. Obviously, young people are faced with great uncertainty in a world with countless options but, at the same time, they insist on keeping their options; a key feature of which is the freedom to move around and be mobile. Young Italian people found the notion of renouncing some of their possibilities for moving around and communicating whenever and with whomever they pleased inconceivable.

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However, the use of mobile phones by young people has become common in different parts of the world and from generation to generation. Prensky (2005) states that the present generation is a digital generation and its members are born with digital technology, thereby making them easily attracted to technologies regardless of gender. Mobile phones are primarily "private" personal phones used by youth for the sake of privacy, and not so much for the sake of portability.

Christiansen, Utas, and Vigh (2006) observed that "youth are especially committed to new techniques of learning, earning and communicating as a way of gaining life chances ...such as the mobile phone." Thus, they noted how in Dakar, sending text messages on mobile phones "opens up new corridors of communication between youth, transgressing gender barriers meticulously guarded by parents and other gerontocratic custodians" (Christiansen et al., 2006, citing Utas, 2002).

Today, many children and youngsters use and own mobile devices, especially smartphones, as basic media equipment (Jugend Information Media [JIM], 2013). The use of a technology (mobile phone) that did not exist some years ago allows for a degree of freedom and autonomy that has to be explored. Applications on mobile phones offer fun, engaging ways of learning, connecting and communicating by young people. The proliferation of mobile technology provides uncountable opportunities to support learning and performance both inside and outside school (Grimus, 2013).

Rosen, Cheever and Carrier (2012) found that more than 60% of younger people especially those in the iGeneration (born in the 1990s) and Net Generation (born in the 1980s) check their smartphones every fifteen minutes

or less- which made about 50% feel anxious when they could not check their phones, while just 40% of Gen Xers (born between 1946 and 1964) and less than 20% of Baby Boomers (born between 1946 and 1964) engage in this behaviour. But studies also suggest that this so-called digital divide is largely a generational gap that will gradually narrow over the years as has also been observed in the rest of Europe and the United States (Castells, 2001; Katz et al., 2001).

Drotner (2000) asserts that young people's relationships to the media should be studied in the light of the interrelatedness of different media: The "multi-media generation" apply a wide range of media and often use them together spurring new forms of reception' (p. 167). Drotner goes on to state aptly that for the youth of today, new media are not really new. New media constitute a significant factor in young people's experience of their generation. The multimedia generation differs from the previous generation in their more extensive use of mobile communication and new media. The function of mobile communication for young people is different from adults': aspects such as the nuanced and diverse text messaging conventions and the playing of mobile games form an essential part of the mobile phone culture of teenagers. Internet-based communication channels are part of the new written communication culture of young people.

There seems to be a deep connection between mobile communication and youth cultures in different parts of the world and countries (Castells, Fernandez-Ardevol, Qui & Sey, 2004). The young have played a significant role in the adoption of mobile phones in different countries. For instance, SMS was originally developed as a side product to other mobile communication

services and mainly developed for business purposes. Young people quickly adopted the service and became leaders on the text messaging phenomenon as they developed their own text messaging sub-cultures with their own terminology, customs and social norms, and often even also taught their parents and grandparents to text (Oksman & Turtiainen, 2004).

Impact of Young people's Mobile Phone Use

Even before the recent emergence of the internet and the mobile phone, there were many forms of communication between people geographically distant from each other. These 'modern' media of communication include the letter, the postcard, the telegram, the telephone, the fax, print media, film and the TV. Each of these communications can in different ways substitute for physical transportation (Urry, 2002).

It has been seen that the use and ownership of mobile phone has outnumbered its counterparts in the telecommunication sector such as the landlines, radio, televisions, newspapers, in terms of its reach and impacts, with the view that all of these features can be accessed on the mobile phone device. This phenomenon is quite similar to the earlier diffusion of motor vehicles and associated road construction (Porter, 2012).

Just as many human activities became travel based and spatially extended as a consequence of revolutions in transportation technology over the last century, some activities have now become ICT based where the main areas of change include instrumental activities related to work, education and the consumption of goods and services, and these could all be made more efficient by reducing the monetary costs of time spent in transactions and travel (Thulin & Vilhelmson, 2004).

Social Relations

Kneidinger (2014) focusing on generational differences in internet usage in Austria and Germany, suggests that many older people use social network sites (from phone or personal computer) and feels their relations with young people have consequently intensified, youth mostly do not observe any intensification. She notes a contrast between youth, who have older Facebook 'friends', but whose social network site interaction appear to be focused on same-age people, and older peoples contacts which largely comprise passive observation.

The growth of broadband access and associated smartphone ownership as handset prices continue to fall rapidly (mainly due to the influx of China phones) also affects physical mobility amongst people. The vast majority of internet use is currently via mobile phones; mobile broadband penetrations has increased. Young people have joined social networking sites with alacrity using smartphones. A wide range of other new opportunities from business, education and health application to civic activism have become available through this medium (Alozie, Akpan-Obong & Foster, 2011).

According to Goliama (2011) cited in Harper (2015), the youth of the mobile age tend to hang out with their mobile phones in just the same way as they used to purposelessly and idly hang out on the street corners before. Implying that young people tend to strengthen their relationships with their peers given no time to the world around them which affects their social relations because people no longer connect and talk with people or family members face to face but do so mainly with their phones.

Education

UNESCO (2013b) states that 'while mobile technology is not and never will be an educational panacea, it is a powerful and often overlooked tool – in a repertoire of other tools – that can support education in ways not possible before. As such the mobile technology opens the door to 'here and now learning' which occurs when learners have access to information anytime and anywhere to perform authentic activities in the context of their learning (Martin & Erztberger, 2013). For example, the United Kingdom (UK) Children Go Online survey found that 60% of pupils think the internet is the most useful tool for getting information for their homework (Livingstone & Bober, 2005).

Also, in Africa where many are forced to choose between education and making a living, mobile learning can be used not only for formal education, but for importing informal knowledge and skills, which can help the continent attain the Education for All (EFA) goals (Masita-Mwangi, Mwakaba, Ronoh-Boreh & Impio, 2012). This practice however is evident in South Africa's successful outcomes in Nokia MoMaths project that positively changed people's attitude towards mathematics (hhttp://www.momathhs.org).

According to Porter et al. (2012b), primary school pupils in remote rural locations report calling their peers to consult on homework problems on a daily basis; access to material needs from school fees to uniform or new shoes was regularly enabled through 'call-me' to better resourced family members; if they have access to smart phones, young people join social networking sites and they have now become their family's information hubs. Thus instead of young people undertaking various journeys to either see their

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friends in order to complete their homework or to family members for money, all these are achieved through the use of a mobile phone. Mobile phones have now accounted for new forms of possibilities and sociality.

However, Kim, Byun and Park (2004) notes that students have very limited knowledge of the benefits of mobile phone and as a result the use of mobile phones affects learning in school because students are so much used to sending short text messages in class which draws away their attention from learning, reading and writing. They further state that students are so used to writing very short messages that they do not seem to understand the logic of writing in full sentences, even in the essays.

Findings from Porter (2015) also indicates the downside of mobile phone use in African schools (notably field research across Ghana, Malawi and South Africa). The information they obtained from pupils and teachers revealed that their academic performance were affected by disrupted classes, due not only to pupil practice, but also to teachers' calls; disruptions in adolescent sleep patterns associated with cheap night calls and time lost through prolonged sessions on social network sites.

Health

Mark Weddington, a clinical lead at Thornby Hall, reports that 100% of the young people they had admitted over the last five years are reported to have had difficulties in the area of bullying, and that 66% of the young people they admitted had difficulties that have arisen through the use of the internet and mobile phones (www.mobilewise.org). Child and Adolescent Mental Health Service (CAMHS) provider and organizations also expressed similar concerns where there is the proliferation of websites which offer information

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about how to commit suicide (Hinrichs, Owens, Dunns & Goodyer, 2012). In addition Young (2004) and Porter (2015) are of the view that excessive usage of mobile phones gives young people the opportunity to go online to access pornographic web pages and also makes way for young people to develop addictions to various kinds of behaviour.

In as much as the use of mobile phones can have adverse effects on the health of young people, Archambault (2012) revealed in his study that the young men in Inhambane, decreased their alcohol consumption due to mobile phone use because they now had to spend more money on airtime recharge cards and less on beer. There are also instances where young people are able to get access to health information on their mobile phones. For instance SEXINFO, a sexual health text messaging was introduced in San Francisco to reduce sexually transmitted infections (STI) among African Americans between the ages of 15 ad 19 (Levine, McCright, Dobkin, Woodruff & Klausner, 2007).

A Teen Outreach Program (TOP) Text Plus, which enabled the young females to text and interact with health professionals and trainers, was also introduced in Colorado to help reduce teenage pregnancy and school dropout among females under the age of 20, following a high number (6272) of birth among young females as at 2009 (Devine, Bull & Shlay, 2013). Farmer, Gibson, Hayton, Bryden Dudley, Neil & Tarassenko (2005) also made mention of the use of mobile phone to help diabetic patients in self managing their conditions through their telemedicine systems.

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Effects of mobile phone use on young people's physical mobility

Although personalized relationships are widely considered to be highly crucial in business settings, widespread poverty, irregular transport availability, and potentially hazardous journeys on poor roads in badly maintained vehicles, with added risks of harassment and extortion (from highway robbers, police, etc.), may weigh more strongly in balancing virtual versus physical mobility (Porter et al, 2012b).

Young people's mobility tends to be somewhat for social reasons rather than business and mobile phones have the potential to dramatically change the mobility landscape in which young people operate. They assess the benefits of a phone call against its financial and time costs and possible travel risks. The ability to overcome distances encourages new forms of interaction as users creatively appropriate the new technology to suit their life's changing circumstances (Porter et al., 2012a).

The control over physical mobility has long reflected and reinforced power in diverse contexts across the world (Sheller & Urry, 2006). The intergenerational dimension of this power dynamic is highly significant in Africa, where cultural constructions which tend to emphasize the lowly position of young people in family hierarchies, and the importance of respecting and obeying elders, can be set against images of unruly and potentially destructive youth who are vulnerable to political manipulation (Abbink, 2009; Comaroff & Comaroff, 1999; Durham, 2000; van Dijk, 1998).

A number of studies offer some evidence of respondents reducing their travel as a result of mobile phone communication, often with associated reference to the low cost of phone messaging and calls and comparisons drawn

to the high costs of travel in terms of money and time expended and associated risks (Samuel, Shah & Hadingham 2005). Although the above is true, Urry (2007) noted that several barriers tend to stand in the way of near universal mobile penetration. Issues related to poverty, lack of infrastructure, physical handicaps, and lack of education all contribute to non-adoption. Some religious orders explicitly forbid its members to have mobile phones under any circumstance.

Jensen (2006), in his study on 'Mobility among young urban dwellers' observed that mobile phones increased physical mobility among the young people he interviewed. He emphasizes that the young people, together with their friends, through the use of mobile phones were able to find out where something interesting was ongoing and they would eventually move via a car, train or on foot according to what appeared to be the most attractive option at the time. He further states that mobility had become part of the young people's pattern and as such this sort of pattern was in line with findings of a study on traffic behaviour and risk perceptions of young people. As such the use of mobile phones made the young people to move more.

The numerous service (network) providers in Ghana and elsewhere in Africa has led to a drastic reduction in call cost, thereby making it possible for individuals irrespective of social or income status to communicate via a mobile phone daily. Most Africans are remaking the mobile phone to suit our local setting. This type of adoption has caused interesting changes in some societal and business institutions. For instance, mobile banking is rapidly expanding in Africa (Mäkinen, 2007). These have in the long run had impact on physical mobility. In many African countries, like Ghana and in Nigeria,

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where people have very little trust of local currency and banks because of inflation and other banking problems, the prepaid mobile airtime has become a real currency (Koskinen, 2008). So much physical movements that people used to engage in, solely for depositing and withdrawal of monies, which was done some years back has been reduced. For instance, the MTN mobile money and Airtel money service provided by network providers in Ghana enables monies to be sent and received. Also, in Kenya, over 13 million people subscribe to a similar service called M-PESA, and same can be seen in the Philippines through their use of the Globe GCASH (Maurer, 2012).

Ling and Campbell (2011) in their study on mobile phone use among young rural-to-urban migrant women working in Beijing also found out that the use of mobile phones provided what they termed as 'Immobile Mobility', that is, a sociotechno means of surpassing spatial, temporal, physical and structural boundaries. Based on the interviews conducted with 48 young, 16 to 23 year old female rural-to-urban migrants, they found that, due to the geographical distance between these migrants, their families and friends, as well as their long working hours and minimal free times, the use of mobile phones assisted in overcoming such spatial constraints by making it possible to talk to friends and family members without the need to travel which could render them jobless upon return. And even with these migrant women most 'dating' with their potential boyfriends took place via mobile phones. The use of mobile phones in this instance reduced the travels of the young female migrants.

In both the rural and urban areas of Ghana, accessing health care services are somewhat constrained by transport and economic factors such as

monetary issues, lack of access to vehicles, bad mature of roads, coupled with religious beliefs and others. Drawing data from the Children, Transport and Mobility research conducted in sub-Saharan Africa (specifically data from Ghana), Owusu and Amoako-Sakyi (2011) found that improved telecommunication networks (mobile telephony) was an intervention that helped to improve the children's access to health facilities. In the rural settlement, although the study gathered that getting mobile telephony networks (coverage areas) was difficult, the rural dwellers identified 'special spots' which they used to contact drivers in urban centres for assistance in the case of emergency situations such as birth deliveries and domestic accidents involving children.

Jensen (2007) and Aker (2008) both exploited the staggered introduction of mobile phone coverage to estimate the impact of mobile phones on agricultural markets in developing countries. Examining the effect of mobile phones on the fisheries sector in Kerala, India, Jensen found that the expansion of mobile phone coverage led to a significant reduction in the dispersion of fish prices across markets, as well as a decline in waste. He noted that this led to important welfare improvements for both fishermen and consumers. While fishermen's profits increased by 8 percent, consumer prices declined by 4 percent and consumer surplus increased by 6 percent. With improved access to information via mobile phones, fishermen were better able to take advantage of spatial arbitrage opportunities, thereby improving allocative efficiency.

Bhavnani, Chew, Janakiram and Silarszky (2008) in their study on 'the role of mobile phones in sustainable rural poverty reduction' found that one

interesting side-effect of the use of mobiles was the reduction of transportation costs: household expenditure dropped and consumer surplus increased. There were now improvements in the information flows between buyers and sellers allowing an efficient trading of information without traveling. This was particularly significant in rural areas, where traders would have needed to travel to urban areas to check for demand and negotiate on price, this business was now conducted on the mobile. Traders are able to ensure demand exists for their products before setting out on a journey. Moreover, in certain circumstances, mobile phones can allow the 'middle man' to be cut out.

Enriquez, Schmitgen and Sun (2007) also surveyed 600 itinerant workers in China who travelled for their jobs (e.g. plumbers, salespeople and taxi drivers) and found that mobile phones offered itinerant workers time savings of 6% - a productivity gain worth some $33 billion in 2005. Similarly, rural workers were surveyed by Samuel et al. (2005), who found that 56% of businesses in South Africa identified reduced travel as a beneficial impact of the mobile phone, as opposed to just 10% of businesses in Egypt. This was attributed to the 'predominance of rural firms in the South African sample'.

A recent study conducted in Sub-Saharan Africa (Ghana, Malawi and South Africa) titled 'The impact of mobile phones on young people's lives and life chances in sub-Saharan Africa' revealed that in Ghana, for instance, some respondents, especially females and persons aged 6-15 years, claimed to be travelling less now because of usage of the mobile phone (Porter et al., 2012b). The evidence from the study was quite sufficient to conclude that physical travel is significantly declining among phone users in the study communities.

Nonetheless, it would be dangerous to overstate the positive improvements which mobile phone use can make: in a trade context, for instance, Molony (2008a, 2008b) observed in Tanzania that benefits associated with mobile phone access may be limited for farmers because they are often still tied to traders for credit supply. Another negative theme is the potential for mobiles to enable increased surveillance, possibly thus increasing male suspicion of women and potentially leading to increased gender inequalities (Wakunuma, 2007).

By and large, the use of mobile phones have complemented other means of mobility and contacts, thus adding to the total amount of social interaction rather than replacing older modes of contact. However, some short trips and social visits within local communities and among people have probably been replaced by mobile phone calls.

Conceptual Framework for the Study

Many teenaged mobile phone users have embraced the technology without reservation. Acceptance, as opposed to adoption, is an attitude towards a technology, and it is affected by various factors. A user who has acquired a new technology item has not yet adopted it – there are other stages beyond simple purchasing and this is where acceptance plays an important role. If the user buys an item and then does not accept it, it is unlikely that full adoption will occur (Renaud & Biljon, 2008). The study adopted the mobile phone technology acceptance model as the framework underlying it.

Mobile Phone Technology Acceptance Model

Mobile phone technology acceptance (MOPTAM) was derived from the Technology Acceptance Model (TAM). TAM is an information systems theory that simulates how users accept and use a technology. TAM is considered the most influential and widely applied theory to evaluate users' acceptance of information systems. TAM, originally proposed by Davis (1986) and adapted from the Theory of Reasoned Action, supposes that an individual's information systems acceptance is described by two essential variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEU) (Davis). The attitude towards accepting a technology is believed to be the result of personal and social influences. The fact that TAM does not account for social influence is a limitation. Furthermore, TAM is somewhat limited since the only determining factor leading to actual system use is depicted as behavioural intention to use. Thus, Figure 1 shows how an individual's PU and PEU affects ones attitude towards use, behavioural intention to use and actual system use of a particular technology acquired.
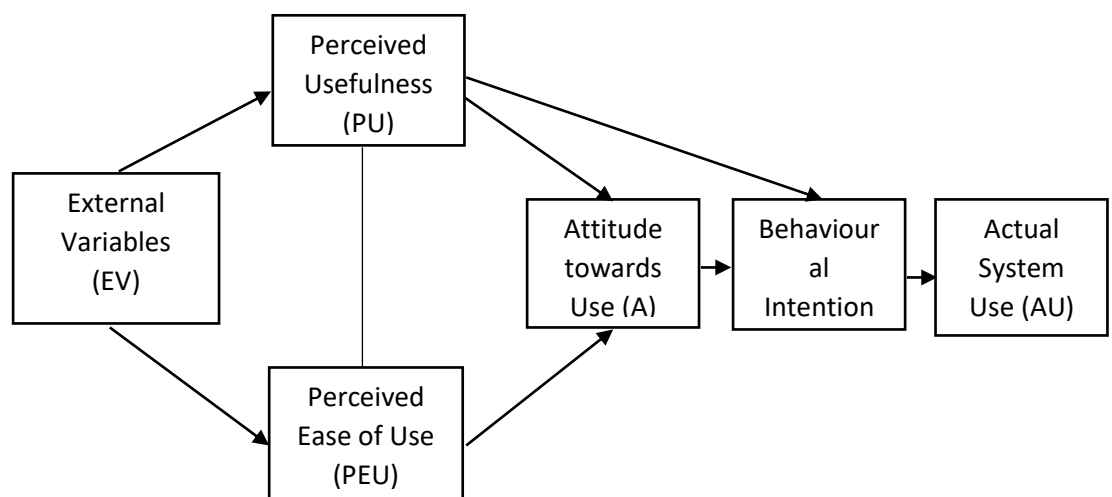
Figure 1: Technology Acceptance Model (TAM)

Source: Davis, Bagozzi and Warshaw (1989).

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Subsequent to the above flaws in the Technology Acceptance Model, and the fact that knowledge has expanded over the years, a derivational technology acceptance model, which is related to mobile devices and applications, has been studied and brought forward. Kwon and Chidambaram (2000) proposed MOPTAM for mobile phone acceptance and use which includes the following components: demographic factors, socio-economic factors, ease of use, apprehensiveness, extrinsic motivation (perceived usefulness), intrinsic motivation (enjoyment, fun) social pressure and extent of use (see figure 2). They found that perceived ease of use significantly affected users' extrinsic and intrinsic motivation, while apprehensiveness about cellular technology had a negative effect on intrinsic motivation. The limitation of this model is that it does not include infrastructural factors, which are essential in mobile technology (Mallenius, Rossi & Tuunainen, 2010). MOPTAM predicts the influence of facilitating conditions (FC) on PEU, PU, and BI as well. The Mobile Phone Technology Acceptance Model (MOPTAM), draws on the Unified Theory of Acceptance and Use of Technology (UTAUT) to include the determining and mediating factors and then adapts the result to model the personal mobile phone use. MOPTAM focuses on factors influencing mobile phone such as sociology, computer-supported cooperative work, and human-computer interaction.

DETERMINING FACTORS
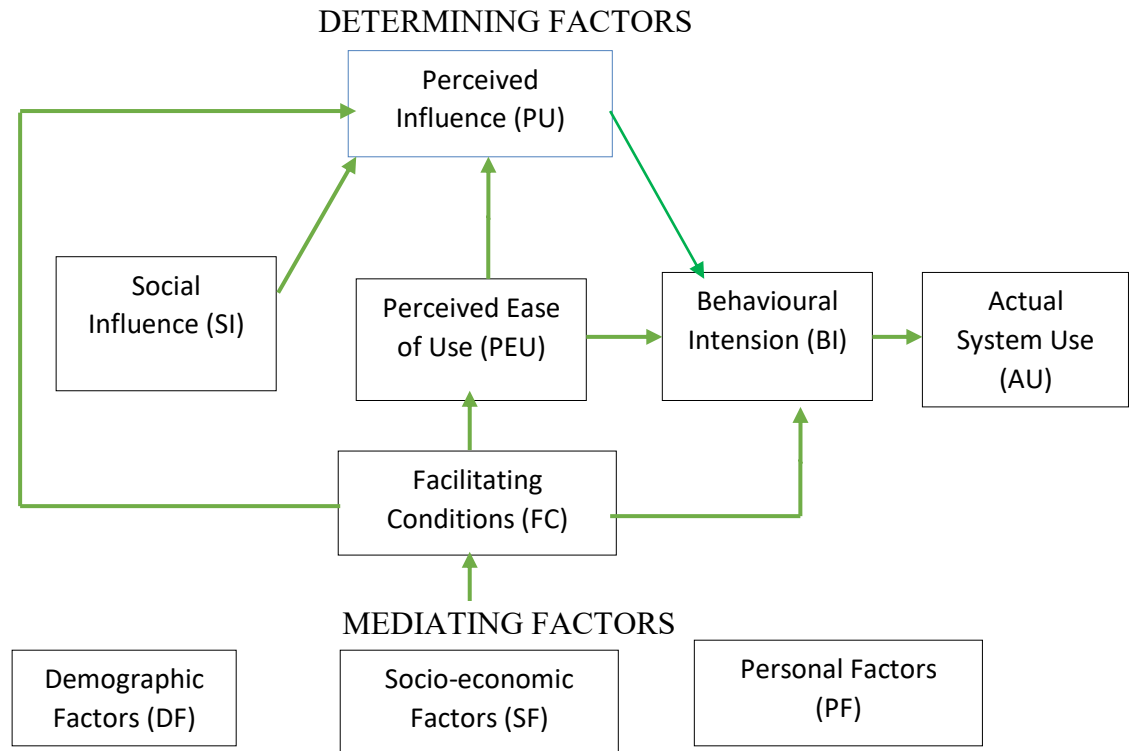
Figure 2: Mobile Phone Technology Acceptance Model (MOPTAM)
Source: Kwon and Chidambaram (2000).

For young people mobile phone usage is not just about owning the device, but subsequently 'it' becoming part of their existence. The way society demands that individuals move with today's trend and agenda, despite their gender, social and economic disparities have caused young people to own and use mobile phones, in reality accepting it as part of their being. Most young people derive all sorts of benefits from the use of the mobile phone. These mobile devices comes with it applications and manuals thus making its use easy irrespective of ones level of literacy.

Therefore for (young) people to actually accept and incorporate mobile phone into their lives to be able to affect and bring changes to their physical movements, there is the need for the mobile phone technology to be accepted and used (adopted) in order for these positive or negative impacts to be made.

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CHAPTER THREE

METHODOLOGY

Introduction

The purpose of the study was to investigate the use of mobile phones and it implications on physical travels among young people. The chapter described the methods and procedures that were adopted for the study. These include the research design, study design, population, sample and sampling procedure, the research instrument and pilot-testing. The procedures that were used for the data collection, management and the analysis are also presented in this chapter. Preceding the methodological issues is a brief outline of the study area.

Study Area

Geographical Location

The Kwahu West Municipal Assembly was carved out of Kwahu South District, in August, 2004 by a Legislative Instrument L.I. 1870. It was upgraded into a Municipal status in July, 2007. It has Nkawkaw as its administrative Municipal Capital which is the second largest urban settlement in the Eastern Region of Ghana and ranked 20th in the country in terms of population (Habitat Survey Report, 2009). The Kwahu West Municipality is located in the Eastern region of Ghana, 241km north-west of Ghana's capital, Accra. It lies between latitudes 6 degrees 30' North, and 7 degrees North and longitudes 0 degree 30' West and 1 degree West of the equator.

Demographic characteristics

The Municipality is bordered to the north by Kwahu South, to the west by Asante-Akim South Municipality, to the east by Fanteakwa and to the south by Birim North and Atiwa Districts (Figure 3). The Municipality has a total land size of 414 square kilometres. Over 50,000 people in the Kwahu West Municipality stay in urban areas out of its 93,584 people (Ghana Statistical Service (GSS), 2010).
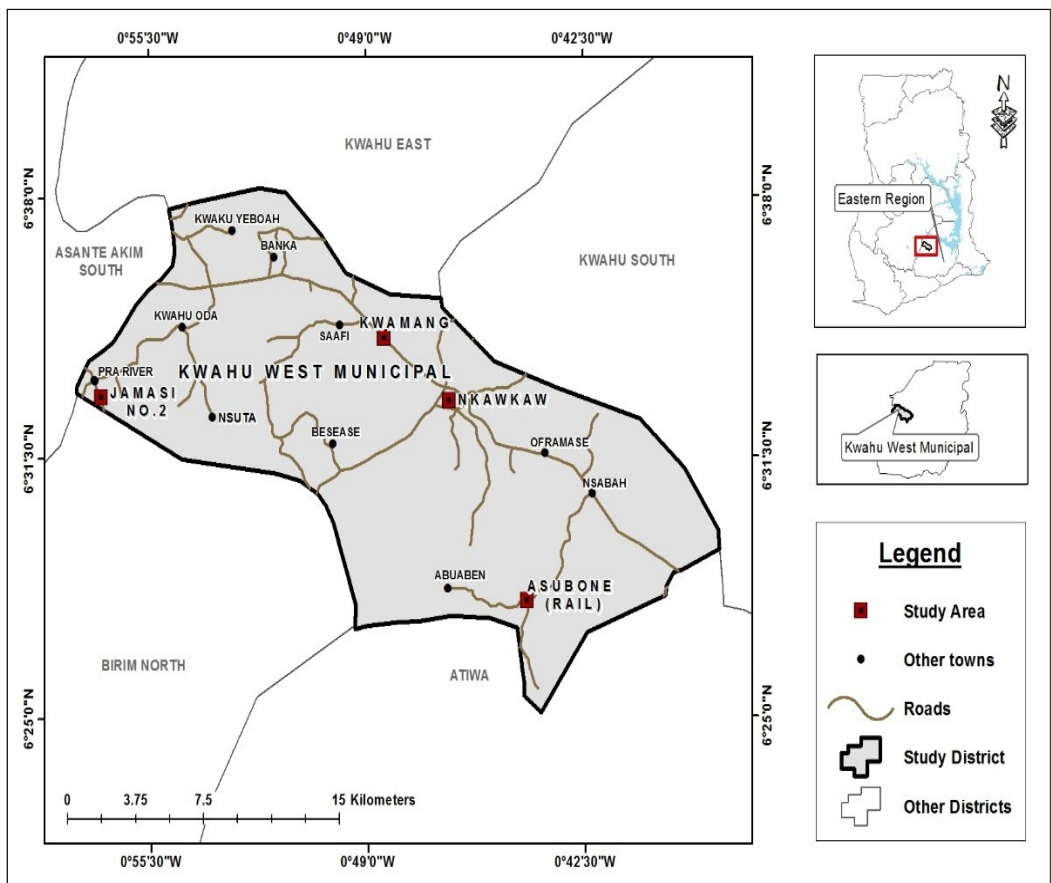
Figure 3: Map of Kwahu West Municipal Showing the Four Areas of Study

Source: Cartography Unit. Department of Geography and Regional Planning (DGRP), GIS (2016).

Commerce

The Municipality is fast growing in terms of business and trade (such as bakery, pottery, dress making, shoe making, artisanship, farming and catering) eventually shifting the Municipality towards becoming a commercial hub of the Eastern region. This is due to its strategic location which makes it a destination point of more than seven districts for the Eastern and Ashanti regions. This has translated to the high number of its population being engaged in informal business and transport services. In addition, the municipality is endowed with several natural resources including mineral deposit, fertile land, green environment, tourism centres.

Telecommunication and network coverage

The municipality has two main high streets, one which passes through the Nkawkaw Township and the other which passes behind the township, that is, from Amamfrom to Asona (recently constructed to ease traffic in the township. There are a number of feeder roads linking the various towns in the municipality and footpaths which make it easy to move within vicinities. Due to the amount of traffic (both human, freight and vehicles) that is usually concentrated at the Nkawkaw Township (Central Business District) a number of traffic lights have been recently mounted. Given the nature of the roads and terrain, small cars popularly known in the area and Ghana as 'Tico' is found in the municipality. Also given that the municipality lies within the wet semi-equatorial region and as such experience a double maximal rainfall, movement (be it walking, cycling, or picking a car) in the area during these periods is often impaired.

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Mobile phone ownership and use

Of the population 12 years and older, 55.0 percent have mobile phones. Males who own mobile phones constitute 59.2 percent as compared to 51.3 percent of females. About seven percent (6.6%) of the population which is 12 years and older use internet facilities in the municipality. Only six percent of total households in the municipality have desktop/laptop computers (GSS, 2010).

Research Paradigm

The research philosophy underlying the study was positivism. Positivism represents a view that the goal of knowledge is to provide a depiction of the situation people have been through and the purpose of science can be observed and measured (Trochim, 2006). It is argued that science is seen as a way to find the truth and to dominate the world if scientific methods are applied in research. Positivists believe that science is about testing theories by using deductive reasoning and the results of the research whether the theory supports or refutes the facts. If the theory does not fit the facts, then it has to be revised for better predictions of reality. Positivists believe that reality is out there and can be tested (Cresswell, 2010). Concerning the way of achieving the purpose of science, it is argued that it can be done through what can be observed and measured. Positivists also believe that the world is external and there is a single objective reality to a research phenomenon.

In accordance with the research philosophy, the quantitative approach to research was employed. Here, science is based on strict rules and procedures and is fundamentally different from speculation and common sense (Black, 2006).

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The choice of this philosophy was informed by the fact that it allows the study of relationships between variables with the degree of accuracy that is required to establish trends or inform social policies (Sarantakos, 2005). This philosophy of research was thereby selected because it allowed the researcher to collect data and interpret data in an objective way devoid of researcher's opinions and views. Positivism assures representativeness and generalization of the research findings since it deals with large numbers of respondents. Also the research structure and procedure allows validity, reliability and replication of research (Carson, Gilmore, Perry & Gronhang, 2001).

Study Design

The study design provides the procedural outline for the conduct of any investigation. It indicates the basic structures of the study, the nature of the hypothesis and the variables involved in the study. Yin (2003) adds that "colloquially a study design is an action plan for getting from here to there, where 'here' may be defined as the initial set of questions to be answered and 'there' is some set of (conclusions) answers" (p. 19). The study made use of the descriptive design. In 2007, Pappathi defined descriptive research studies as studies that are designed to obtain information concerning the current status of phenomena. They are directed towards determining the nature of a situation, as it exists at the time of the study.

The descriptive survey research design was used as the overall plan for obtaining answers to the research questions asked in the study. The design adopted involved collecting data which was used in order to test hypotheses and answer research questions concerning the current status of effects of mobile phone usage on physical mobility. The study concerned finding a

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relationship between the use of mobile phones and physical mobility among young people. This design had this strength; it dealt with the process of developing specific predictions from general principles and reasoning to arrive at generalizations. Variables and procedures were described as accurately and completely as possible so that the study could be replicated by other researchers.

Data and Sources

     This study made use of data obtained from primary sources: young people between the ages of 10 and 25 at four selected areas in the Kwahu West Municipality. The primary data were collected by making use of self-administered questionnaires.

Target Population

     Population refers to the complete set of individuals, objects or events that have common observable characteristics in which a researcher is interested. The study population therefore comprised young people resident in the Kwahu West Municipality. The target population included young people aged 10 to 25 years who have access to and use mobile phones.

Sampling and Sample Size Determination

     In order to get a sample size of the population of the study area, the Fisher, Laing, Stoeckel and Townsend (1998) formula for determining sample size was adopted. The formula is stated as:

$$\eta_F = \frac{n}{1 + \frac{n}{N}}$$

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Where:

η_F = the desired sample size (when population is less than 10,000),

n = the desired sample size (when population is greater than 10,000),

N = the estimate of the target population size.

Calculated 'N' was found to be approximately 246 was obtained. Kwahu West Municipality was selected as the study area because previous studies had been carried out in two ecological zones, the forest and coastal zones, namely Brong Ahafo and Central regions respectively. Therefore, in order not to duplicate findings and also add to growing literature, the wet semi-deciduous forest zone was selected, which invariably includes the study area.

Given that the Kwahu West Municipality is a vast area, a multi stage sampling technique was adopted where the study area was clustered into comprising settlements (rural, peri-urban and urban areas). Nkawkaw, Asubone rails, Kwamang and Jamasi Number two were chosen based on population size per the definitions of types of settlements (Urban area- population of 5000 and more with social and infrastructural amenities; Peri-urban- population of less than 5000 but with certain social and infrastructural amenities; Rural area- population of less than 5000 with no or less social and infrastructural amenities). Stratified sampling was used in the allocation of the number of data to be collected from each specific town and further used in the allocation of the number of each questionnaires to be distributed to each age groups (see Appendix B) to ensure fairness and for effective data collection without bias.

In all, data was collected from 243 young people from the four areas in the Kwahu West Municipality. This was done to ensure that views and opinions obtained are bias free, ensuring fairness and above all representativeness. There is also, of course, variation within individual sites, since the circumstances of young people living in one neighbourhood can differ quite substantially, depending not only on gender and age but also on factors such as family structure and socio-economic circumstances.

Research Instrument

The major data gathering instrument used were 243 questionnaires. The questionnaire had a mix of open ended and close ended questions and divided into a number of sections. The first section sought information on the household composition which included the number of males and females as well the age group.

The next section focused on adult representatives who gave consent to children under 18 years. After the consent was given for children under 18 and from persons above 18, the section focused on the questions which the respondent filled such as: the bio demographic data of the respondents (age, sex, religion, educational background); Does the respondent have any disability that impedes their ability to move around; have they always lived in this settlement; which of the devices (landline phone, television, radio, computer, mobile phones) do you have at home; number of mobile phones that the household owns (including the one the respondent owns); has the respondent ever used a mobile phone before (not necessarily the one they own); how recent has it been since you used a phone; what is the purpose to which the phone is used.

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Section C focused on asking questions about the various reasons young people embarked on travels within the municipality such as: What is your favourite means of transport; any particular worries/fears/difficulties about travelling and why; do you seek permission from your parents/guardians/relatives before they embark on any travel; how long does it take travelling from home to your various destinations; what are some of the various activities you have done within the week; did the journeys you usually do embark on prevent you from doing other things?

Section D focused on the influence of mobile phones on their physical mobility. This included questions such as: Do you currently own a mobile phone that is in working order; Have the use of mobile phone replaced any activity that you would have otherwise done by moving/travelling; In the last days which phone related errands have you done on your own behalf or for someone else; Did you take any transport to complete these errands; Are you currently enrolled in school; have you used a phone to search for/ obtain a scholarship or bursary for your education; Have you used mobile phone to help earn money to meet schooling expenses and others?

Pretest of Instrument

In finding out if the questions would obtain the required responses and devoid of ambiguity, a pretest was conducted to assess the validity and reliability of the questionnaire. Fifty sample questionnaires were given out to young people between the ages of ten and twenty-five in the Koforidua Township to solicit their responses. Koforidua was selected for the pilot test because of its proximity to Kwahu West Municipality and it also has some

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similarities and characteristics (geographically and in commerce) of interest as that of the study area.

The pretest was done in order to provide the ideas, approaches, and clues that may not have been foreseen before conducting the main study. Such ideas and clues could increase the chances of getting clearer findings in the main study. Also, the pretest was aimed at revealing the problems in understanding the questions as well as other problems which had to be solved before sending the questionnaire out to respondents. Therefore, the pretest enabled some questions to be rewritten to give clearer understanding, most especially to persons below 18 and also enabled some tenses to be corrected.

Data Collection Procedure

Primary data was sourced from respondents who were chosen from their various households upon arrival at the study area. Firstly, getting access to respondents from the houses seemed quite difficult because the probability of knowing the number of houses and finding young people between 10 and 25 in the various houses was not certain. As such, a survey was conducted in the various areas chosen in order to compile a list of houses. After, a sample frame of the number of houses in each area was obtained and a simple random sampling was undertaken to select the respondents. After that the respondents were selected with a maximum of two per household. For settlements which had 3 and 4 people to cover, each household was entitled to one questionnaire provided that particular household had a young person that fell within the required target group.

In order to get respondents who were willing to participate in the study, a cordial relationship was established with members of each household

that was visited and the objective for conducting the research was explained to the prospective respondents (including the adult present who gave consent for young respondents) in order for them to gain an understanding of the benefits and purpose for which the study is being carried out. A screener was then used to identify those who were within the age range needed for the study. For those who fell within the age range, a structured questionnaire was administered to elicit data on the demographic aspects (who they are) of the respondents and their views on mobile phones and physical mobility. For respondents who could read and write, the questionnaires were self-administered. However, in some cases some questions were further explained to them to enhance clarity for respondents who could not read and write the researcher administered the instrument to them in the language they best understood (that was Twi). For those who fell within the age group but were not available as at the first time of visit, at least two other repeated visits were made to them at later dates with the aim of meeting them within one of the visits.

Request for names and any form of identification was prohibited as any part of the data collection. However, if there was the need that the researcher would have to come back to solicit for more information from the respondents, especially in cases where the questionnaires were left with respondents and in other situations where some of the questions were not answered, some form of identification with reference to their household was created for themselves that cannot be traced to them by others. Pseudo-identification was necessary for the respondents to remain anonymous, yet allowed the researcher to conduct a retest for reliability measures.

Respondents were encouraged to select identifications that could not easily be to them.

Data Processing and Analysis

Individual responses provided by respondents was edited immediately after respondents submitted the questionnaire to ensure clarity of responses, correct grammatical errors and also to seek further explanations and clarifications. Data was coded into themes, and further compiled and processed using Statistical Package for the Service Solutions (SPSS version 23.0). This enlarged the data entry processes. Descriptive and inferential statistics (t-test, chi-square and multiple regression) were used to analyse the data.

First of all, frequencies and percentages were used to describe the sample characteristics: socio-demographic profile of the respondents, patterns of mobile phone ownership and use, as well as the factors for which young people embark on various journeys within the municipality. The results were further presented in tables. Frequency distribution tables and percentages were used for the purpose of summarizing or reducing the data gathered from the field to a manageable form.

Finally, t-test and multiple regression were used to test for the relationship and combined effects of respondents socio-demographic characteristics from the various extent of journeys embarked on by young people within the study area, that is, the travel propensity of respondents.

Ethical Issues

The ethical implication of every research is very important and how this is addressed in any research is worth stating. Creswell (2003) states that the researcher has an obligation to respect the rights, needs, values and desires of the informants. This research, therefore, took into consideration the ethical principles of informed consent, anonymity and confidentiality. Neuman (2007) posits that researchers must not compel people into participating in a research. Participation of people in any research activity must be, at all-time, voluntary.

Informed consent was sought from respondents (informed consent from parents/ guardians of respondents below 18 years, as well as consent from individuals above 18 years) and the reasons for the research clearly explained before questionnaires were given for completion. After making known the purpose of the research, respondents who refused to participate were not forced to take part in the event. The next ethical principle that was adhered to, is the principle of anonymity. With this, the privacy of the respondent was secured and the secrecy of their identity ensured. This was done by using pseudo names where ever necessary. The study would ensure the anonymity of respondents by not requesting for names and personal details which may be used to identify respondents at a later date on the questionnaire.

Confidentiality of respondents was also assured such that any information that was given to the researcher was not made known to any other people, but only shared and used for academic work.

In order to ensure that the data that was gathered from the field would be secured from external reach and also ensure that information provided by respondents on the filled questionnaires would not be tampered with,

responses was inputted onto a computer and then the papers were packaged and kept at a location only known to the researcher. A password was placed on the work to prevent a second person gaining access to it.

Field work challenge

There was unwillingness on the part of some persons to engage in the study which caused a delay in data collection. However, they were assured of the fact that the research was solely for academic reasons and that the responses could not be traced back to them.

Chapter Summary

This chapter described the methodology that was used for the study and the procedures that would be followed to collect data from the field. The chapter also looked at the study area, research design, sampling techniques, research instruments, pilot testing, data collection methods data management and ethical considerations. Challenges that was encountered from the field work were presented. The methods of data processing and analysis formed the concluding part of the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents analysis and discussion of the findings of the study. The focus of the study was to investigate whether the use of mobile phones by young people influence their physical mobility, with specific emphasis on experiences of young peoples mobile phone usage , reasons why they embark on travels and effects of mobile phone usage on physical mobility. The analyses of data gathered from the questionnaire are done using frequencies, percentages and inferential statistics. The results and discussion are presented in accordance with the order of the objectives of the study.

Socio-Demographic Profile of Respondents

The background data of the respondents covered the distribution of respondents' age, sex, religion, level of education, type of settlement and number of years they resided in the settlement (Table 1).

Table 1: Summary of sample composition by demographic characteristics

Demography	Category	Respondents (n= 243)	
		N	*%*
Gender	Male	137	56.4
	Female	106	43.6
Age	10-14years	62	25.5
	15-19years	74	30.5
	20-24years	107	44.0

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Table 1 continued

Level of Education	Primary	2	0.8
	Junior High School	100	41.2
	SHS/VOC/Technical	86	35.4
	Tertiary	55	22.6
Religion	Islam	17	7.0
	Christianity	223	91.8
	African Traditional	3	1.2
Type of settlement	Urban	221	90.9
	Peri-Urban	15	6.2
	Rural	7	2.9
Number of Years spent at Settlement	Since Birth	109	44.9
	Most of their Life	49	20.2
	Over 5years	27	11.1
	1-5years	31	12.8
	Less than 1year	14	5.8
	Don't Know	13	5.3

Source: Field Survey (2017).
Note: N =Response, %= Response rate

Table 1 provides a summary of the socio-demographic compositions of the respondents involved in the study. In terms of gender, more than fifty-six percent (56.4%) of the participants were males while the rest were females. This result creates the impression that both male and female opinions regarding the assumption undergirding the study, is fairly representative.

With regard to the age of the participants, forty-four percent of respondents were in the age range of 20-24 years while more than thirty percent (30.5%) fell in the age range of 15-19 years. 25.5% fell within the age

range of 10-14 years. This finding presupposes that since majority of the ages are in the working class (20-24years), it is hence possible that they are working and can afford the luxury of a mobile phone in their daily endeavors.

With regards to the level of education of participants, the data showed that 100 out of the 243 participants had attained a Junior High School certificate while the rest had completed SHS/VOC/Technical, Tertiary and primary education respectively. In terms of religion, the results showed that majority (91.8%) of the participants were Christians while seven percent and more than one percent indicated that they were Muslims and Traditionalist respectively. Further analysis however revealed that young persons regardless of religious affiliation made more use (84.4%) of their phones for various purposes in the week prior to the collection of data. Therefore, it could be deduced that ones religious affiliation could not have an influence on ones phone use

On the settlement type of participants, about 91% of the respondents lived in the urban areas while more than six percent and two percent lived in peri-urban and rural areas respectively. The result further showed that more than forty-four percent (44.9%) of the participants had settled in their current locations since birth while the rest had moved to their current settlements, on the average, four years ago. In all, the settlement status of the respondents showed that the majority of the respondents involved in the study were indigenes.

Experiences of young people's mobile phone ownership and use

Mobile phone in the twenty-first century has become a gadget that is more available to society, but given its availability and over-manufacturing in

society, it is not surprising that not all persons own one or even use it. Given this prelude, this section of the study specifically sought to identify the pattern of mobile phone ownership and usage among young people in the Kwahu West Municipality. The results from the data imply that 83.1% of the young people involved in the study own a phone while 16.9% do not own one. It is clear that a lot young people in the Kwahu West Municipality own a phone and their ownership of it gives the impression that they have varied use of it of which the action of engaging in mobility activities is no exemption. This result in a way reflects Prensky (2005) position that the present generation is a digital generation and its members are born with digital technology, thereby making them easily attracted to technologies regardless of gender

Away from the aforementioned, the descriptive characteristics of young people in Kwahu West Municipality and their ownership of phones reveal a pattern of phone ownership with regards to their sex, age and settlement pattern and this is noted in the response of 202 participants who consented they own a phone (see Table 2).

Table 2: Respondents demographic characteristics and their phone

Demographic characteristics	Category	Respondents (n= 202)	
		N	*%*
Gender	Male	120	59.4
	Female	82	40.6
Age	10-14years	38	18.8
	15-19years	60	29.7
	20-24years	104	51.5
Type of settlement	Urban	184	91.1
	Peri-Urban	12	5.9
	Rural	6	3.0

Source: Field Survey (2017)

As the data show, 59.4% of the participants in the study who owned phones in the Kwahu West Municipality were males (Table 2). The finding showed majority (59.4%/) males own of phones compared with females (40.6%). This is further in congruent with the 2015 Global System for Mobile Communications Association (GSMA) report that women on average are 14 percent less likely to possess a cell phone in comparison to men, thus creating a gender gap of 200 million less women than men that possess cell phones. The report however made it known that this extensive gender gap in mobile phone ownership was due to the complex set of socio-economic and cultural obstacles that negatively affect women.

On the category of ages of young people who owned phones in the Kwahu West Municipality, the data show that participants within the age range of 20-24years were the ones whose phone ownership was high (51.5%). This was followed by 29.7% who fell within the age range of 15-19 years while 18.8% also fell within the age range of 10-14 years. The ages of respondents who highly owned phones in the Kwahu West Municipality are therefore in the working class age (20-24 years).

However, the pace at which 48.5% of the participants whose ages are below 19 years and still own phones tells us that phone ownership does not only belong to the working class, but also among school going age students who can also afford it or be provided by their parents, which in other words shows that owning a phone is no longer a luxury but gradually becoming a necessity that everyone is expected to possess. In the end, this finding is in tandem with Ghana Statistical Service (GSS) Summary Report of the final results from the 2010 Population and Housing Census (PHC) which reported

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that about 47.8% the Ghanaian population who are 12 years and older own mobile phones.

With regards to the settlement pattern in the Kwahu West Municipality and phone ownership among young people, the data showed that 91.9% of the participants who own phones are in the urban while the rest fall within the peri-urban and rural areas. The upward percentage in the urban centres as against the peri-urban and rural areas in terms of ownership of phones implies that the socio-economic standards in the urban centres of the Kwahu West Municipality are much more improved as compared to the peri-urban and rural areas, and thus, providing an enabling environment that make it much easier for young people to own phones.

In sum, young males in their twenties are seen to be the ones owning a lot of phones as compared to the female counterparts in the Kwahu West Municipality. Added to this, these young people are overwhelmingly urban dwellers, which presupposes that the condition in their settlement to an extent make it feasible for them to acquire phones as compared to the dwellers in the peri-urban and rural areas whose usage and ownership of phones is less than 10%.

Sex, age and last time of phone usage

Given that ownership of mobile phones and use of mobile phones presents an entirely different concept, respondents' sex, age and their last time of phone usage were also assessed (Table 3).

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Table 3: Sex, age and the last time of phone usage

		Last time of mobile phone usage			
		Last week (%)	Last month (%)	> Month ago (%)	Total
Sex	Male	119 (87)	9 (6.5)	9(6.5)	137 (100)
	Female	86 (81.1)	9 (8.5)	11(10.4)	106 (100)
Age	10-14	49 (79)	8 (12.9)	5(8.1)	62 (100)
	15-19	57 (77.1)	8 (10.8)	9(12.2)	74 (100)
	20-25	99 (92.5)	2 (1.9)	6 (5.6)	107(100)

Source: Field Survey (2017).

Table 3 shows the sex and age of respondents and their last time of phone usage. With regard to the sex of participants and their last time of phone usage, the findings showed that the majority of male and female participants last time of phone usage was the week before the survey. This was shown with the percentage of 87 and 81.1 respectively. Similarly, on the ages of participants and their last time of phone usage, the data revealed that the majority of participants last time of phone usage was a week earlier than the survey.

Phone ownership, sim cards and use of mobile phone

Specifically, it was shown that 92.5% of the respondents whose ages fell between 20-25 years last time of phone usage was also the week before the survey was conducted. This was followed by younger children between 10 and 14, who are least likely to get access to a phone (79%) usage of phone in the

week prior to the study. Finally, 77.1% of respondents whose ages are between 15 and 19 years recorded the least usage of phone in the week prior to the study. The findings suggest the last time of phone usage among young people could be associated with their immediate past week. The findings further indicate that the male participant between the ages of 20 and 25 last time of phone usage was a week prior to the study.

Table 4 presents responses of the young people on the number of phones owned, number of sim cards used and finally, the last time of using a phone.

Table 4: Number of phones owned, sim card used and last time of using a phone

Statement	Category	Respondents (n= 202)	
		N	*%*
Number of phones owned	1-2 phones	175	86.6
	3-4 phones	20	9.9
	5 phones	7	3.5
No. of sim card currently owned	1-2 sim cards	180	89.1
	3-4 sim cards	20	9.9
	5-6 sim cards	2	0.9
Last time of using a phone	In the last week	190	84.1
	In the last month	15	7.4
	More than a month ago	17	8.4

Source: Field Survey (2017).

With regards to the number of phones owned by respondents, the field data revealed that 175 out of the 202 respondents owned 1-2 phones. This was

followed by 20 of the respondents who owned 3-4 phones. Finally, only 7 of the respondents owned as many as 5 phones. This result implies that a greater percentage of the young people involved in the study owned one cell phone and the finding is in consonance with the predictions made by Nokia that by 2015 two-thirds of the world would own a mobile device (Urry, 2007).

Respondents who indicated that they possess phones overwhelmingly indicated that they also owned 1-2 sim cards. Only about 10% of the respondents indicated that they owned 3-4 sim cards with 0.9% of the respondents claiming to possess 5 sim cards.

With respect to information on the last time they used a phone, the data showed that 84.1% of the respondents had used a phone in the week prior to the study with 7.4% in the last one month. The results stemming from the participants presupposes that young people are always with their mobile phones which have become part of them. This therefore confirms Batat's (2009) view that the mobile phone was bound to teenagers and young people's self-concept and as such teen mobile users view their devices as extensions of themselves and their personalities.

Purpose of phone usage

An attempt was made to find out the purposes for which young people make use of their mobile phones and their last time of using a social networking site or messaging application. With the multiple responses by respondents, Table 5 shows that 51.1% prefer using their mobile phones for social chatting with friends and family and 14.1% each used it for work related activities and for urgent news while 6.8% used their phones for playing games and music.

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Table 5: Purpose for phone usage and the last time of using phone on a social networking site or messaging application

Statement	Category	N	%
Purpose for phone usage	Social chatting with family and friends	217	51.1
	Work related	60	14.1
	Emergencies	59	13.9
	Urgent news	60	14.1
	Others	29	6.8
Last time of using a phone a social networking site or messaging application	Never	27	11.1
	Today or Yesterday	136	56.0
	2-7 days ago	36	14.8
	1-4 weeks ago	17	7.0
	More than 4 weeks	27	11.1

Source: Field Survey (2017).

On the last time participants used their phones on a social networking site or messaging application, the data revealed that 11.1% of participants had never gone unto a social networking site or messaging application on their phones while 56.0% agreed that they had gone unto a social networking site or messaging application on their phones that day or a day earlier. Further, 14.8% of the respondents agreed that they had gone unto a social networking site or messaging application on their phones 2-7 days ago while 7.0% agreed that they had gone unto a social networking site or messaging application on their phones 1-4 weeks ago.

In sum young people in the Kwahu West Municipality use their phones for social and economic activities. On the social side, they see their phone as a medium of engaging in chats with families and friends, while on the economic

side, they use it to do their job duties as expected of them at their workplace. Hence, as Grimus (2013) stated, applications on mobile phones offer fun, engaging ways of learning, communicating and connecting, so do participants involved in the study also indicate that they use their phones for social network activities, engaging on work related activities and also spreading urgent news.

Young people and physical mobility

This section was considered in relation to the mode of transport in the household, vehicle used as transport by young people and purpose for such journeys, time involved in such journey and finally how the use of mobile phone has changed their way of life.

Mode of transport owned by household

Table 6 shows that 54.8% of the respondents claimed that cars are owned by members of their household and are in working order, 36% of the respondents had bicycles in their households and owned by members of the household. This means that majority of the respondents had access to private cars, taxi and even public vehicles (trotro) in their various houses that are also owned by their household. These facilitate movement of the respondents.

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Table 6: Transport mode ownership by household of respondents

Equipment	Frequency	Percentage
Bicycle	79	36.1
Cars	120	54.8
Motorcycle	20	9.1
Total	219	100

Source: Field Survey (2017).

Frequently used transport

Table 7 shows that majority of the respondents (76.1%) frequently used public transport as compared to 15.2% who used private vehicles. Quite a small proportion (8.6%) of the respondents often used other means of transport such as bicycles, motorcycles, and even walking. This reveals that majority of the respondents frequently use vehicles rather than other means such as motorcycle, bicycles and walking due to the fact that these (vehicles) are found in their various homes and are owned by members of their household.

Table 7: Means of transport frequently/recently used

	Frequency	Percentage
Public transport	185	76.1
Private vehicle	37	15.2
Other	21	8.6
Total	243	100

Source: Field Survey (2017).

Journeys embarked by young people

Table 8 displays the responses of the young people on various journeys that they had embarked on before their responses was sought. The results portrayed that 85 (19.9%) attended church, 108 (25.5%) went to school, 60 (14%) went to the hospital, 62 (14.9%) visited the tourist site as well as 51 (11.95) to the sports arena.

Table 8: Various journeys embarked by the respondents

Journeys	Males	Females	Total/Percentage
Church	36	49	85(19.9)
School	67	41	108(25.2)
Visit family and friends	8	15	23(5.4)
Hospital	23	37	60(14)
Market	5	20	25(5.8)
Work	6	1	7(1.6)
Tourist sites	41	21	62(14.9)
Sports arena	45	6	51(11.9)
Others	5	2	7(1.6)
Total	236	192	428(100)

Source: Field Survey (2017).

Reasons for traveling

Table 9 depicts the responses of the young people on reasons for embarking on such journeys as indicated in table 7. It shows that 23 (5.8%) do

so to chat with family and friends, 85 (21.3%) for religious purposes, 128 (32%) for educational purposes, 60 (15%) attend hospital to cater for their health issues, 76 (19.1%) visit tourist site as well as sports arena for the sake of entertainment.

Table 9: Reasons for embarking on journeys

Purpose	Males	Females	Total/Percentage
Social chatting with family and friends	8	15	23(5.8)
Religious reasons	36	49	85(21.3)
Educational purposes	77	51	128(32)
Health	23	37	60(15)
Business/work	20	7	27(6.8)
Entertainment	56	20	76(19.1)
Total	220	179	399(100)

Source: Field Survey (2017).

Duration involved in a journey

Table 10 provides a summary of the duration participants spend on a single journey.

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Table 10: Duration involved in a single journey by respondents

Time	Frequency	Percentage
Less than 30 mins	81	33.3
30 mins – 2hrs	55	22.6
More than 2hrs	49	20.2
Don't know	58	23.9
Total	243	100

Source: Field Survey (2017).

From the table (see Table 10) a larger proportion of the respondents (81, 33.3%) normally spent less than 30 minutes in their single journey, followed by 55 respondents (22.6%) who spent in between 30 minutes and 2 hours. Notwithstanding, 20.2% of the respondents (49) spent the highest time in their single journey (more than 2 hours) while 58 of the respondents (23.9%) do not know the exact time that they spent on a single journey. Since majority of the respondents do not spend a lot of time on a journey, most of them may be influenced to move as at when the need arises.

From the male and female perspective, the findings revealed that time spent on a single journey ranging from less than 30 minutes through to 2 hours and more, male respondents recorded the highest value (see Table 11). This implied that the tendency of males moving or embarking on journeys within the municipality was done within quite a limited time and therefore might not see the essence of replacing virtual mobility with physical mobility (taking into consideration other costs associated with using a mobile phone). On the

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other hand, females could tend to make more use of their mobile phone as it could be shown in the findings.

Table 11: Sex and duration involved in a single journey by respondents

		Duration involved in a single journey				
		Less than 30 mins	30 mins-2hrs	More than 2hrs	Dont know	Total
Sex	Male	53	33	26	25	137
	Female	28	22	23	33	106
	Total	81	55	49	58	243

Source: Field Survey (2017).

Impact of mobile phones on physical mobility

This section of the study sought to identify as to whether mobile phone usage has increased/decreased or has not affected the physical mobility of young people. Available literature has revealed that young people have various reasons for using mobile phones of which it has shown to be evident in the area of health, banking services, education and finally, job (livelihood/business related activities) (see Table 12).

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Table 12: One sample t-test on the issue as to whether mobile phone usage has decreased or increased the physical mobility of young people

	N	M	SD	T	df	Sig.
Job services	243	.3128	.57579	-45.679	242	.000
Health activities	243	.2922	.49899	-53.353	242	.000
Banking services	243	.7243	.64452	-30.855	242	.000

** **(Sig)** Significance level .05, **(N)** Sample, **(M)** Mean, (SD) Standard deviation **(df)** degree of freedom, **Test value ranges**: **1**- Decrease, **2**-Increase, **0**- not affected.
Source: Field Survey (2017)

The essence of this analysis was to find out as to whether mobile phone usage has decreased the physical mobility of young people. With a Null hypothesis stated as mobile phone usage will not cause a decrease in physical mobility and an Alternative hypothesis also stated as mobile phone usage will cause a decrease in physical mobility, a test of difference using the one sample t-test with a test value of 2 (test value = 2) was used to determine whether young people's mobile phone usage in the Kwahu West Municipality had decreased their physical mobility. The results of the mean for phone usage on their physical mobility (M= .3128, SD = .57579) in relation to their jobs was not higher than the yardstick (value of 2), t= -45.679, p= .000 (two-tailed). Therefore, the null hypothesis was rejected. This finding also conforms to McKinsey (2007) and Samuel et al. (2005) where the use of mobile phone time spent by workers in travelling, thereby saving time and earning more income.

Still from the table 11, the results also show that the mean for phone usage on the physical mobility of young people in the Kwahu West

Municipality (M= .2922, SD = .49899) on their health activities was found not to be higher than the yardstick (value of 2), t= -53.353, p= .000 (two-tailed). Therefore, the null hypothesis was also rejected. This finding is therefore in accordance with Owusu and Amoako-Sakyi (2011) where use of mobile phone facilitated in reducing travels of children to relatives for money for sick relatives and also improved access to health.

Finally, the result further indicate that the mean for phone usage on the physical mobility of young people in the Kwahu West Municipality (M= .7243, SD = .64452) on their banking activities is not higher than the yardstick (value of 2), t= 30.855, p= .000 (two-tailed). Therefore, the null hypothesis was rejected. This is in agreement with Maurer (2012) which revealed that so much physical movement that people used to engage in, solely for depositing and withdrawal of money, which was done some years ago has been reduced.

The results (see Table 12) imply that mobile phone usage among young people in the Kwahu West Municipality has decreased their physical mobility in the area of job, health and banking. This decrease suggests that mobile phones are now serving as virtual travelers that reduce the pace at which one has to travel or move physically to do his/her job, get health service or even embark on a banking activity.

Table 13 indicates the extent of mobile phone usage and its influence on the day-to-day local journeys of respondents. From the findings, 46.5% of participants expressed that mobile phone usage has led to them making less or fewer journeys; 40.3% of the participants also mentioned that mobile phone usage had no impact on their daily movements whereas 13.2% were of the view that it has led to them making more journeys. In the area of participants

making fewer journeys the findings revealed that activities that in time past were done through moving physically from one place to the other, were now done via the mobile phone, that is, activities such as buying of airtime (credit), sending and receiving money, accessing information and chatting with friends.

Table 13: Mobile Phone Usage and Its Influence on Shorter day-day, Local Journeys

Nature of influence	Frequency	Percentage
No influence	98	40.3
More journeys	32	13.2
Making fewer journeys	113	46.5
Total	243	100.0

Source: Field survey (2017)

Table 14: Correlation between travel propensity and socio-economic characteristics (such as age, sex and type of settlement on shorter, day-to-day, local journeys)

Correlates	Categories	N	No effect	Increased travel	Reduced travel	X^2(p-value)
Sex	Male	137	50	16	71	3.59(0.166)
	Female	106	48	16	42	
Age(yr)	10-14	62	34	9	19	15.56(0.004)*
	15-19	74	32	12	30	
	20-25	107	32	11	64	
Settlement type	Rural	7	3	0	4	3.71(0.446)
	Peri-urban	15	7	0	8	
	Urban	221	88	32	101	

Source: Field survey, Ameyaw Akumfi (2017)

Table 14 provides an overview of whether mobile phone usage had over time either increased or reduced physical travel in terms of demography of

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participants. The result shows that ages of respondents significantly reduced (x^2 = 15.56, p-value-0.004) their shorter day-to-day local journeys. To be precise, 64 (out of total of 107) of the participants aged between 20 and 25 years indicated that mobile usage had reduced their smaller journeys, while younger children between 10-14 and 15- 19 years claimed that mobile usage had no effect on their smaller journeys.

Table 15 shows whether the use of the phone had any impact on participants long distance travels. On this, nearly 45% (109) of the participants said there was no impact at all; about 12% (29) claimed their travels had increased while 43.2% (105) thought otherwise (made claims of making fewer journeys). For those who claimed their journeys had reduced, they explained that owing to increased use of phones, (personal) activities which previously involved physical travel by them to places had scaled down. Only in a few cases, according to them, where it is of utmost importance to meet for face-to-face discussions, which they often agreed to travel and meet.

Table 15: Mobile Phone Use and Its Influence on Longer, Irregular Journeys

Nature of influence	Frequency	Percentage
No influence	109	44.9
Making more journeys	29	11.9
Making fewer journeys	105	43.2
Total	243	100.0

Source: Field survey (2017)

Also, from the data it cannot be stated emphatically whether mobile phone use by young people in the study area has either reduced or increased long, irregular journeys among young people given the closeness of the results

obtained- 43.2% of fewer journeys made and 44.9% of no impact on their journeys so far.

Table 16 provides an overview of whether mobile usage had over time either increased or reduced physical travel in terms of demography of participants. The result shows that ages of respondents significantly reduced (x^2 = 19.58, p-value-0.001) their longer irregular journeys. To be precise, 62 (out of total of 107) of the participants aged between 20 and 25 years indicated that mobile phone usage has reduced their longer, irregular journeys.

Table 16: Correlates of Travel Propensity by age, sex and type of settlement on longer, irregular journeys

Correlates	Categories	N	No effect %	Increased travel %	Reduced travel %	X^2(p-value)
Sex	Male	137	50	17	64	2.06(0.357)
	Female	106	53	12	41	
Age(yr)	10-14	62	36	9	17	19.58(0.001)*
	15-19	74	35	13	26	
	20-25	107	38	7	62	
Settlement type	Rural	7	2	1	4	4.63(0.328)
	Peri-urban	15	10	0	5	
	Urban	221	97	28	96	

Source: Field survey (2017)

In order to further enhance the analysis from the findings, the data obtained was subjected to a multiple regression analysis in order to predict the combined effects of the various levels of journeys respondents embarks on

(short, long, overall) from age, sex, level of education and type of settlement.

Table 17: Impact of mobile phone use on small journey

Variables	Std. Coefficient	Std. Error	t-statistic	Probability
(Constant)		0.408	2.212	0.028*
Age	0.100	0.018	1.179	0.240
Sex	-0.079	0.118	-1.268	0.206
Level of education	0.183	0.100	2.134	0.034*
Type of settlement	0.070	0.134	1.099	0.273

*p<0.05; R-squared= 0.079; Adjusted R Square= 0.64 ; S.E. of regression=16.695; Sum squared resid= 193.379

Source: Field survey (2017)

The model recorded an R^2-Adjusted of 0.64. This suggests that about 64% of the variations in the impact of mobile phone use on small journey could be explained by age, sex, level of education and type of settlement.

On individual basis, the constant and the level of education are all significant since they have p-values less than the 0.05 significant level. Whereas age, sex and type of settlements are insignificant because their p-values are greater than the significant level of 0.05. Therefore, age, sex, and type of settlement were not significant.

On education, it was found out that as the number of respondents who had secondary and tertiary form of education increase, there is a reduction of 0.9% in the small journeys the embark on. This means that despite the age, sex and type of settlement of the respondents, if they were not highly educated, they would embark on short journeys. The educated or elite, on the other hand, were not embarking on short journeys, but rather resorted to their mobile phone because they were aware of social media and other platforms that could aid them in getting some information as well as doing some transactions.

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Table 18: Impact of mobile phone use on long journey

Variables	Std. Coefficient	Std. Error	t-statistic	Probability
(Constant)		0.411	2.457	0.015*
Age	0.091	0.099	-.981	0.290
Sex	-0.061	0.118	2.328	0.328
Level of Education	0.203	0.103	-.017	0.021*
Type of Settlement	-0.001	0.135	1.061	0.987

*p<0.05; R-squared= 0.090; Adjusted R Square= 0.074 ; S.E. of regression=19.182; Sum squared resid= 194.752

Source: Field survey (2017)

The model recorded an R^2-Adjusted of 0.074. This suggests that about 7.4% of the variations in the impact of mobile phone use on long journey could be explained by age, sex, level of education and type of settlement. Thus, 92.6% of the variations are being affected by factors not included in this model (Table 18).

On individual basis, apart from the level of education, the rest of the factors: age, sex, and type of settlement were not significant since they have p-values greater than 0.05. This shows that as the level of education of the respondents increase, the overall journeys embarked by the respondents will reduce.

Table 19: Impact of mobile phone use on overall travel pattern

Variables	Std. Coefficient	Std. Error	t-statistic	Probability
(Constant)		0.212	1.586	0.114
Age	0.133	0.061	3.001	0.010*
Sex	0.039	0.053	0.660	0.510
Level of Education	0.106	0.070	1.974	0.049*
Type of Settlement	0.136	0.051	1.953	0.052

*p<0.05; R-squared= 0.132; Adjusted R Square= 0.117 ; S.E. of regression=0.468; Sum squared resid= 51.444

Source: Field survey (2017).

The model recorded an R^2-Adjusted of 0.117, suggesting that about 11.7% of the variations in the impact of mobile phone use on overall journey was explained by age, sex, level of education and type of settlement. Thus, 88.3% of the variations are being affected by factors not included in this model.

On individual basis, the rest of the factors (sex and type of settlement) were not significant since they had p-values greater than 0.05. However, level of education and age of the respondents were statistically significant. This means that as the age and the educational status of the respondents' increase, the overall journeys embarked by the respondents is also reduced.

Table 20 shows that young people from the study area (given the various places chosen for the study in the study area) suggest that mobile

phone usage has neither increased nor reduced long distance journeys. The findings on 'no impact' (no change yet) is rather not too evident since it does not amount to half or more than half of the results. About 44.9% (109) including 39.95% (97) from Nkawkaw, 4.1% (10) from Kwamang and 0.8% (2) each from Jamasi Number 2 and Asubone Rails agreed that using the phone had had no impact on their long distance travels.

Table 20: Extent of influence of phone use on long distance travel (for individual areas)

Nature of influence	Urban	Peri-urban	Rural	Percentage
No effects	97	10	2	44.9
More journeys	28	0	1	11.9
Fewer journeys	96	5	4	43.2
Total	221	15	7(243)	100.0

Source: Field survey (2017)

Table 21: Reasons for Using Mobile Phone as a Result of Transport difficulty

Reason	Frequency	Percentage
No transport available	40	14.7
No money for transport	66	24.2
Expected transport not arrived	34	12.5
Transport broke down	31	11.4
Traffic jam	52	19.0
Traffic officers	17	6.2
Traffic accidents	24	8.8
Traffic related conflict (not with traffic officers)	9	3.3
Total	273	100

Source: Field Survey (2017).

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Table 21 provides participants views on why they made use of phones. The findings show that among that unavailability of transport (14.7%), lack of money to board transport (24.2%), potential risk of traffic accident (8.8%) and traffic congestion on the road (19.0%), expected transport not arrived (12.5%), transport broken down (11.4%), problem of traffic officers (6.2%) and traffic related conflicts (not with traffic officers) (3.3%) were the factors behind respondents use of mobile phone.

Chapter Summary

This chapter discussed the socio-demographic profile of respondent. Specifically, the chapter discussed findings on issues of mobile phone ownership and use. Factors for which young people move was also presented. Also, the state of mobile phone use on physical mobility were also highlighted by the use of independent samples T-test, frequencies ad percentages. The findings confirm the proposition in the conceptual framework, that perceived ease of use and actual system use made it possible for activities being undertaken with use of mobile phones by respondents. The findings also affirm the existence of some social influence as highlighted by the conceptual framework. This is because young people were driven by the need to practically be part of the changing world, hence the need to accept the use of such technology.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This is the final chapter of the study. The summary of the research is presented here. Based on the key findings, conclusions are reached to support the generation of appropriate recommendations to resolve the research questions underpinning the study.

Summary

The main focus of the study was to investigate mobile phone usage and physical travel among young people in the Kwahu West Municipality. The following research questions guided the study:

1. What are the patterns in mobile phone ownership and usage among young people?

2. What are the reasons for which young people embark on travels or movement?

3. What is the relationship between young people's phone usage and their physical mobility?

Mobile phone technology acceptance model (MOPTAM) was the conceptual framework adapted for the study. The descriptive survey was used to gather the necessary information. In all, two hundred and forty-three (243) respondents was used for the study. The multi-stage sampling and Fisher et al's sample size formulae were used to select the respondents for the study.

The participation of the respondents was voluntary. Respondents who were willing to participate after they had been assured of their anonymity and

confidentiality were included in the study. A month was used to collect the data, and two months was used for entering data collected, analysis and report writing. Furthermore, the data was analyzed with the help of statistical software known as Statistical Product for Service Solution (SPSS version 23.0) and interpreted by using percentages, frequencies and inferential statistics. In the next paragraphs, the main findings of the study are presented.

Summary of Main Findings

Generally, the study indicated that young people in the Kwahu West Municipality envisage the use of mobile phones as playing varying roles in their daily activities. The individual response on the issues raised in this study reflects the overall assessment of the experiences of young people on mobile phone use and are most detailed:

Firstly, gender patterns indicate lower phone ownership and use among young females in the Kwahu West Municipality. Young males between the ages of 20 and 24 were the people who mostly own phones. More importantly, these young people were urban settlers. The use of mobile phones by these young people were mostly for chatting with friends, solving work-related problems and finally, seeking urgent news.

Averagely, the number of phones and sim card owned by young people in the study area is one. On the last time of phone use, young people overwhelmingly expressed that they used their phone in the week which the study commenced. This tells that phone usage is highly becoming part and parcel of daily activities of young people and it largely could be associated with the utility they perceive to derive from its usage.

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Thirdly, social chatting with friends and work-related activities were not the main factors responsible for why young people embark on physical journey. However, young people embark on physical journeys mainly for educational and health reasons, and finally, for religious and entertainment activities.

Furthermore, young people in the Kwahu West Municipality mobile phone use have decreased their physical mobility. More precisely, young people are using their phones as virtual travelers to reduce the pace at which they have to travel or move physically to do their job, get health service or even embark on a banking activity. Contrary to the pace at which mobile phones have reduced the smaller day-day or local journeys of young people in the Kwahu West Municipality, it was also revealed that mobile phones have not influenced or reduced the longer or irregular journeys of young people in the Kwahu West Municipality.

Conclusions

From the findings of the study, the following conclusions are drawn:

Firstly, it was realized that the socio-economic conditions in the urban areas provide an enabling environment that made it feasible for young males to own phones as compared to their female counterparts, thereby bringing about high mobile phone ownership and usage among males as compared to their female counterparts. For instance, it is not surprising that in the area of settlement especially in the peri-urban and rural areas there were few people owning phones and this could likely be associated to the population growth in those areas as well as the economic condition prevailing in those regions.

Again, the various activities and applications which the mobile phone provided for young people in their usage aided in saving time and cost they could have incurred if they had engaged in those activities by moving physically.

Secondly, it emerged that young people engaged in some physical journey without the usage of their phones and in other instances their use of mobile phones reduced their physical movements, most especially with day to day errands (such as the purchase of airtime, charging of phones, repair of phones) accompanied with making use of the mobile phone. Reasonably, therefore, a phone even though serves as virtual traveler; it cannot totally reduce and facilitate all the physical journeys young people engage themselves in.

Thirdly, the study revealed that with respect to gender, irrespective of whether the respondent engaged in long or short distance, the male respondents recorded a reduction in their physical travels, whiles the females recorded a high level of no effect on their physical travels. It is therefore difficult to situate such a finding on the type of socio-economic activities of most especially the females. In Ghana, females are well recognized as persons who travel extensively to purchase foodstuffs and other goods for retail. This has been variously documented (Burrell, 2014). Males, on the other hand, dominate in wholesale trade, which may not always encourage personal movement away from the origin thereby agreeing with the finding of reduced physical travels with the aid of mobile phone use.

Finally, it emerged that most respondents were in a way compelled to use their mobile phones mainly because of transport issues that they tend to

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face day in and day out. Issues such as no money for transport, bad conditions of roads, no vehicle available and others made respondents rely on their mobile phones to engage in activities which would have otherwise required their physical movements.

Recommendations

In the light of the findings and conclusions outlined, the following recommendations are made:

1. The transportation sector should incorporate mobile phone services in their operations since the use of mobile phones would continually be on the rise in this modern age.

2. Again, young people in the Kwahu West Municipality should allow themselves to be tutored by the various Telecommunication companies and social entities on how to carry out some task with their phones without necessarily moving to the place of activity.

Suggestion for Further Research

This study involved 243 young people (respondents) from only one municipality. Therefore, it is suggested that similar studies involving more respondents from other areas (most particularly in the region) should be conducted to have a "larger picture" of the impact of mobile phone usage on physical mobility. This could aid in step towards compiling and providing of data on the impact of mobile phone usage on physical mobility in the Ghana.

Furthermore, it was realized from the study that although young people's physical movements is high and that mobility is part of every young person, it became evident that the older generation, who move less, have now

been attached to the mobile phone and therefore suggest that a study be conducted on the older generations mobile phone usage and its impacts on their physical mobility.

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APPENDIX A
UNIVERSITY OF CAPE COAST
DEPARTMET OF GEOGRAPHYY AND REGIONAL PLANNING
QUESTIONNAIRE FOR YOUNG (PEOPLE) MOBILE PHONE USERS

I am a student of the University of Cape Coast conducting this survey in partial fulfilment for an award of Master of Philosophy degree in Transport Geography. These set of questions are meant to seek information on mobile phone use and physical mobility among young people. Sharing your honest views in response to it will help in accomplishing the task. You are assured that the information released would be treated with the confidentiality that it deserves. Kindly read through carefully and supply the answers you deem appropriate. Thanks in advance for your anticipated co-operation. Please tick (√) or write where appropriate

SECTION A: BACKGROUND INFORMATION OF RESPONDENTS

Household composition given the number of females and males in the household (People who usually live in the house and eat from the same cooking pots, including the respondents).

Age Group	Number of males	Number of females
0-8		
9-17		
18-25		
26-40		
41-60		
60 and above		

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1. For young persons below the age of 18, state the relationship of adult consent given to the selected young person.………………………………

 2. Age: ……………..

 3. Sex: Male [   ]   Female [   ]

 4. Religion: Muslim [   ]   Christian [   ]   Traditional Religion [   ]   None [   ]

5. Level of education:

 Pre-school [ ]   Primary [ ]   Middle/JSS/JHS [ ]   Secondary/SSS/SHS/TEC/VOC [ ]   Higher [ ]   Don't Know [   ]

 6. Marital status:

Married or Living together [   ]   Divorced or Separated [   ]   Widowed [   ]   Never married and never lived together [   ]

7. Type of settlement:

Urban [   ]   Peri-urban [   ]   Rural [   ]   Remote Rural [   ]

8. Do you have any disability that impedes your ability to move around? No   [   ]
Yes – walking   [ ]   Yes – sight [ ]
Yes – hearing and/or speaking   [   ]
Yes – other [including more than one
disability]...

 9. Have you always lived in this settlement? (Since birth, excluding short visits elsewhere)

Yes, since birth [   ] No [ ] How long have you lived here?

 Most of my life [   ]   Over 5 years [   ]   1-5 years [   ]   Under 1 year [   ]   Don't Know [   ]

10. Do you have the following items in this household? If so are they in working order and available for use? Complete the table below, putting Y/N in each box.

Item	Available in your home	Working order	Available for you to use
Radio			
Television			
Mobile phone			

11. Altogether how many mobile phones are owned in your household (including your own if you have one? ……………………………………………

SECTION B: MOBILE PHONE USE

12. Do you currently own a cell phone that is in working order? If so, how many do you own?

No   [ ]   Yes [ ] (Enter how many cell phones are currently owned [in working order]? _____ [*Enter number*]

 b) Do you currently own a dual-SIM [or multiple-SIM] phone? No [ ]

Yes [ ] How many SIMs do you currently own? _____ [*Enter number*]

   13. When was the last time you used a phone? Tick one box

In the last week [ ]   In the last month [ ]   More than a month ago [ ]

14. Which phones do you use? (Tick all that apply)

   Own mobile phone [ ] Mobile phone owned by other household member/friend [ ]

Mobile phone owned in kiosk [ ]   Landline in own household [ ]

Landline in friends/neighbours house [ ]   others: …………………………………………..

15. For what purposes have you made use of mobile phone? Tick all that apply

 Social or chatting with family and friends [ ]   Work related [ ]   Emergencies [ ]

 Urgent news [ ]   others (specify): ………………………

16. Which mobile-phone-based communication type do you use most frequently?

Tick one box/ all

Voice calls [ ]   Texts/SMS [ ]   Flash/ beep / buzz [ ]   Call-me [ ]

Social network sites on cell phone [e.g. Facebook, Twitter, Instagram [ ]

Mobile messaging facilities on a cell phone [e.g. WhatsApp, Google Talk [ ]

Others (please specify): …………………………………………………

17.   When last did you go onto a social networking site or messaging app on your mobile phone?

Never [ ]   Today or yesterday [ ]   2-7 days ago [ ]   1-4 weeks ago [ ]
Longer than four weeks [ ]

SECTION B: TRASPORT NEEDS

18. What transport equipment is in working order owned and kept in the household?

Bicycle [ ]   Vehicle [ ]   Motorcycle [ ]   other: …………………………

19. Which means of transport have you frequently/recently used?

Taxi [ ]   Public transport [ ]   Private vehicle [ ]   other: ………………………

20. What is your favourite means of transport and why?

………………………………………………………………………………………

………………………………………………………………………………………

21. Any particular worries/fears about travelling and why?

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

22. Have you ever expressed your views about travel problem/worries/fears to anyone before?

No [ ]   Yes [ ]

b) If no, then why not (give reasons)

……………………………………………………………….

If yes, to whom? And was there any effect?

…………………………………………………………………………..

…………………………………………………………………………………

23. Do you seek permission from our parents before embarking on any travel? (For respondents below 18 years) No [   ] why?

…………………………………………………………………………………

…………………………………………Yes [   ]

why?...

…………………………………………………………...

24. What are the various journeys that you have embarked on (prior to this meeting)?

…………………………………………………………………………………

…………………………………………………………………………………

25. For what purposes/reasons do you usually engage in such movements/ travels?

…………………………………………………………………………………

…………………………………………………………………………………

………………………………………………………………………………

26. How long does a single journey involving your daily activities take?

   Less than 30 minutes [   ]   30 minutes- 2hrs [   ]   2hrs or more [   ]   Don't know [   ]

27. Did the journey that you embarked on prevent you from doing other things you might have wanted to do?

No [   ]   Yes [   ], state what

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

28. Does your use of mobile phone change your way of life and how?

No [   ]   Yes [   ], How:

…………………………………………………………………………………

…………………………………………………………………………………

………………………………………………………………………………

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SECTION C: MOBILE PHONE USAGE AND PHYSICAL MOBILITY

29. Approximately how many contacts do you have altogether stored on your phone/ SIM card? (Give an estimate)

…………………………………………………………………..

30. Do you have any of the following contacts stored on your phone (or SIM)? If so how many?

Enter number or '0'

Taxi driver [ ]   Ambulance [ ]   Fire service [ ]   Assembly man [ ] Doctor [ ] Pastor [ ]

Others: …………………………………..

 b) For what reason do you have the above contact stored on the phone?

……………………………………………………………………………………
……………………………………………………………………………………

c) How has having these contacts on your phone affected your physical movement?

……………………………………………………………………………………
……………………………………………………………………………………

31. Do you have any phone contact that are currently living in a different country?

 No [   ]   Yes [ ] how many approximately

………………………………………………………………………

 b) Have you been in a mobile phone contact with anyone that is currently living in a different country?

     No [ ]   Yes [ ] How many people? …………..........

32. In the last days which phone related errands have you done on your own behalf or for someone else? Did you have to take any transport to complete these errands?

Errands	Did this for someone	Did this for yourself	Took transport
Went to buy phone credit (airtime)			
Took phone out of home for charging			
Went to buy or sell a phone			
Went to buy a phone battery or SIM (chip)			
Took a phone for repair			
Took a phone to someone (outside household) to use			
None			

33. For what purposes have you used a mobile phone? [Include internet searches on cell phone]

To search for / obtain a scholarship or bursary for your education [ ]

To ask for money for school/university fees or associated expenses (uniforms, other fees, lunch money, etc.) [   ]

To earn money to meet schooling/university expenses [   ]

To get information or other help with school-work [ ]

To prevent being late for school/university through the use of the alarm [   ]

Others (please specify): ……………………………………….

b) In which of the following areas has the use of mobile phones increased or decreased physical travel.

To search for / obtain a scholarship or bursary for your education [   ]

To ask for money for school/university fees or associated expenses (uniforms, other fees, lunch money, etc.) [   ]

To earn money to meet schooling/university expenses [   ]

To get information or other help with school-work [   ]

To prevent being late for school/university through the use of the alarm [   ]

Others (please specify): ……………………………………

34. Do you currently have any livelihood activities (include any money-earning jobs, including formal-sector work, casual labour, etc.) No [   ]   Yes [   ]

 b) Have you used a cell phone for any business-related activities?

No [   ]   Yes [   ]

If yes, has it increased or decreased your physical travels or movements and how?
…………………………………………………………………………………………
…………………………………………………………………………………………

35. Have you used a mobile phone for any health related issue (either to obtain information, receive text/ SMS messages/ to obtain money to meet health care expenses? No [   ]   Yes [   ]

b) For what reason (s) did you decide to use the mobile phone for such?
…………………………………………………………………………………………
…………………………………………………………………………………………

 c) How has it affected your physical movement/travel (increased/ decreased/not affected)?
…………………………………………………………………………………………
…………………………………………………………………………………………

36. Have you used the mobile phone to give/lend money to someone or receive money (mobile money/ banking service)? No [   ]   Yes [   ]

  b) How has this affected your physical travel (increased or decreased)?
…………………………………………………………………………………………
…………………………………………………………………………………………
………………………………………………………………………………….

 37.   Have   mobile   phones   affected   the   amount   of   time   your parents/guardians/friends/relatives spend travelling/time spent away from home?

No change [   ]   Yes – they spend less time travelling / away from home [   ]

Yes – they spend more time travelling / away from home [   ] Don't know [   ]

b)   Is this a problem for you? No [   ]   Yes – a lot [   ] Yes – a little [   ]

38. Thinking about smaller, day-to-day, local journeys that you make, has using a mobile phone...

Had no impact on these journeys (so far) [ ]

Led to you making more journeys [ ] Led to you making fewer journeys [ ]

39. Thinking about longer-distance, irregular journeys that you make, has using a mobile phone...

Had no impact on these journeys (so far) [ ]   Led to you making more journeys [ ]

Led to you making fewer journeys [ ]

40. Have the use of mobile phone affected your travel pattern?   No [ ]   Yes [ ]

b) If your travel patterns have changed as a result of mobile phone use, has this been…

Either good or bad (overall) [   ]   A good thing (overall) [ ]

A bad thing (overall) [ ]

Travel patterns have not changed [   ]

41. Have you used a cell phone because of transport difficulties? No [ ]   Yes [ ] For what reasons? (Tick all that apply)

No transport available [   ]   No money for transport [   ]   Expected transport not arrived [   ]   Transport Broken down [   ]   Traffic jam [   ]   Traffic officers (e.g. police) problem

[   ]   Traffic accidents [   ]   Transport related conflict (not with traffic officers) [   ]

Others: specify ………………………………………………

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APPENDIX B
CALCULATION OF SAMPLE SIZE

In other to get n, Fisher et al. (1998) provided another formula, which is

$$n = \frac{z^2 pq}{d^2}$$

Where:

n= the desired sample size (when the population is greater than 10000)

z= the standard normal deviation, usually set at 1.96 which corresponds to 95 percent confidence level;

p= the proportion of the target population have particular characteristics;

q= 1.0-p; and

d= the degree of accuracy desired, this is usually set at 0.05

With (z) statistic being 1.96, degree of accuracy (d) set at 0.05 percent and the proportion of the target or study population with similar characteristic (p) at 80 percent which is equivalent to 0.80, then "n" in this case is:

$$n= \frac{(1.96)^2\ (0.80)\ (0.20)}{0.05^2}$$

$$n= \frac{0.614656}{0.0025}$$

$$n=245.8624$$

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From the 2010 Population and Housing Census, the total population for children and young people between the ages of 10 and 25 is 22769 (that is Nkawkaw-20760, Asubone Rails-1302, Kwamang-394 and Jamasi Number two-313.Putting the population size (22769) of the four selected areas into the calculated figure in the formula, should be as follows

$$\eta_F = \frac{n}{1 + \frac{n}{N}}$$

$$\eta_F = \frac{246}{1 + \frac{246}{22769}}$$

$$\eta_F = \frac{246}{1.01080416356}$$

$$\eta_F = 243.37$$

Therefore, in order to obtain the number of data to be collected in each area based on the 243 respondents to be questioned, a stratified sampling procedure was used to determine the allocation of respondents to be in the four areas, as well as the number of questionnaires to be distributed to each age group, which is calculated as follows:

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Town	Total Population	Fraction (%)	Sample Size
Nkawkaw	20760	91.18	221.574 (222)
Jamasi Number 2	313	1.37	3.3291 (3)
Asubone Rails	1302	5.72	13.8996 (14)
Kwamang	394	1.73	4.2039 (4)
Total	22769 (N)	100%	243 (N)

Nkawkaw	Age Range	Total Population	Fraction (%)	Sample Size
	10-14	5783	27.8565	61.8414 (62)
	15-19	5823	28.8565	62.2690 (62)
	20-25	9154	44.0944	97.8896 (98)
		20760 (N)	**100**	**222 (n)**

Asubone Rails	Age Range	Total Population	Fraction (%)	Sample Size
	10-14	418	32.1044	4.4946(4)
	15-19	349	26.8049	3.7527(4)
	20-25	535	41.0906	5.7527(6)
		1302 (N)	**100**	**14 (n)**

Jamasi Number 2	Age Range	Total Population	Fraction (%)	Sample Size
	10-14	109	34.8243	1.0447(1)
	15-19	84	26.8371	0.8051(1)
	20-25	120	38.3387	1.1502(1)
		313 (N)	**100**	**3 (n)**

Kwamang	Age Range	Total Population	Fraction (%)	Sample Size
	10-14	131	33.2487	1.3299(1)
	15-19	103	26.1421	1.0457(1)
	20-25	160	40.6091	1.6244(2)
		394 (N)	**100**	**4 (n)**

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