

# ASSESSMENT OF THE SOCIOECONOMIC EFFECTS OF CELL PHONE TECHNOLOGY ON HUMAN LIVELIHOOD: OROMIA RADIO AND TELEVISION ORGANIZATION IN FOCUS

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## Abstract

The study explored mobile phone technology effect entitled as the assessment of the socio-economic effect of cell phone technology on human livelihood: Oromia Radio and Television Organization in focus. Multi-stage cluster sampling was employed where (N=100) for self-administered questionnaire and eight interviewees selected purposively. Mixed research approach with cross-sectional descriptive survey is used. Data are analyzed using ANOVA and descriptive thematic approach for qualitative and Zotero for reference management. Media workers (73%) spent 60-180 minutes daily and 100-400ETB monthly on their mobiles in average. Cellular purchase for 38% is 2001-3000ETB, 44 % use cell phone until it stops working or lost. Interviewee spent more than 5 hours per day, for more than 6 years in average on their mobile. Mobile use durability effect on human is significant on 4-6 years as ( $F=4.258$ ,  $df=3$  and  $96$ ,  $P=0.007$ ) and (partial  $\eta=0.117$ ). Cell phone usage durability has no significant effect on sex disparity as ( $F=0.311$ ,  $df=3$  and  $96$ ,  $P=0.817$ ) and (partial  $\eta=0.010$ ). Statistically there is no significant relationship between marital status and money spent on mobile use as ( $F=1.282$ ,  $df=1$  and  $98$ ,  $P=0.260$ ) and ( $\eta=0.013$ ). Besides, there is no significant difference on male and female on mobile use expenses as ( $F=0.996$ ,  $df=3$  and  $96$ ,  $P=0.398$ ). The study reveals 91% of the meeting attendants use mobile to reject the stage. Furthermore, 87% believe that mobile use decreases face-to-face interaction. All cell phone users perceive headache, earache, stress, and insomnia in prolonged use. The cellphones ranked as very poor quality (37%) are prone to cause health problem. To sum up mobile has positive and negative effects on social, financial and health aspects. Based on the findings of the study recommendations are forwarded.

## Keywords

cell phone, effect, livelihood, technology

## INTRODUCTION

### Background of the Study

Cell phone technology has valuable and evaluable effect on human lives that enhance or demote the human livelihood. Thus, the study prime focus relies on the effect of cell phone technology on human livelihood in any manner. The history of cell phones embarks on from the early days of 1920s – a period during which radios were emerging as effective communication devices. The first usage of radio phones were in taxi/cars using two-way radio communication. The Swedish police used the first official cell phone in 1946 (Wallop, 2011). According to Clarke (1999), pre-mobile-the electronic components used in cell phones of today's generation were first developed in the 1960s. Motorola was the first company to introduce the first portable cell phone called Motorola DynaTAC 8000X. It was considered a lightweight cell phone of about 28 ounces. Its dimensions were 13 x 1.75 x 3.5 inches and developed by Dr. Martin Cooper. Samuel (2010) explains in 2012, 20.524 million cellular phones and 797,500 main line phones were in use in Ethiopia, cell phone use begun in 1989 EC.

Samuel (2010), states RasMokonnen brought the first telephone from Italy in 1890 and according to the ETC, the average rural inhabitant of Ethiopia has to walk 30 kilometers to the nearest

phone. Employees spend an average of 22 minutes per eight-hour workday on his or her personal tasks (Ecker, 2008)

According to Solesbury (2003), the livelihood framework is tool that helps to define the scope and provides that analytical basis for livelihood analysis by identifying the main factors affecting livelihood and relationships between them. The frame work has five elements; contexts, resources, institutions, strategies and outcomes (Ellis, 1999).

Cell phone may hurts human health, economic deficits are notable, inter personal links may fall at risk. The research aimed to assess the Ethiopian context of cell phone technology attachment likewise its significant effects on human livelihood-social capital, financial capitaland, human capital. In Ethiopian context cell phone technology is more than a decade phenomenon, which has no succinct guidance on its application, management and there is insufficient knowledge on mobile phone effects that is why the researcher needs to emphasize on the cell phone technology.

### Statement of the Problem

Mobile phone industry accounts for 1.5% of the world GDP, mobile phone technology accounts for 60% of the revenue of the telecommunication industry with the remainder coming from fixed line network (Vodafone, 2011). In addition, according to Waverman, Meschi& Fuss (2005), mobile networks cost 50% less per connection than fixed phone lines. Brignell and Van Valey (2005) discovered that due to the pervasive use of the Internet in education, communication and entertainment, there has been a significant decrease in face-to-face interaction among youth. They suggest that the decrease for time youth spend interacting face-to-face may eventually have significant consequences for their development of social skills and their presentation of self. Based on this fact, cell phone has direct links to human aspects like those that social essence in which inter personal relationships may hamper. So far cybersex, spouse cheat, exam cheat, cause to car accident, meeting disruption, divorce, time killing, social link breakage, distrust, health effect, economic case, etc issues detailed.

Unlike other research cell phone, effect on gender and marital status disparity on health and economy is the concern of this study. Besides, this research bridges the hiatus on cell phone technology, which was induced in Ethiopia, recently and its effects, are not well distinguished, managed and has no policy interventions. Besides, as far as the knowledge of the researcher is concerned, research has not yet conducted on the effects of cell phone technology at the selected media. Consequently, the basic research questions of the study rely on:

1. What are the extent and effect of cell phone technology on human economy resource utilization and management?
2. What are the influences of cell phone technology on human health and well-being?
3. How and to what extent the cell phone technology influences human livelihood and human social aspects.

### OBJECTIVE OF THE STUDY

#### *General Objective*

The general objective of this study is to assess the socio economic effects of cell phone technology on human livelihood.

#### *Specific Objectives*

The specific objectives of the study are:

1. To distinguish cell phone effects on human economic assets.
2. To explore the significant effects that cell phone technology has on human health and economy in gender and marital status disparity in accordance of durability usage.
3. To investigate cell phone technology influences on human social aspect.

## SIGNIFICANCE OF THE STUDY

The researcher investigated the socio economic effects of the cell phone technology incorporating human livelihood. As a result, cell phone subscribers, social workers that help them to well understand the circumstance of cell phone influences to intervene and promote the well-being, the study institution and government are direct beneficiaries from the findings. Because the finding will contribute cell phone related facts, which may hamper human livelihood (social capital, financial capital and human capital).

The study will contribute to fill the knowledge gap regarding the cell phone technology. The government will benefit from the finding, in which it may serve for policy intervention. Finally, the research finding may assist scholars to develop associated theories and motivate researchers to investigate related concepts inferring the result of the study. The literary significance of the study is the other side contribution that may help as a reference.

## DELIMITATION OF THE STUDY

The research thematically delimited to the socio economic effects of cell phone technology on human livelihood-social capital, and human capital, financial capital; and demographically delimited to Adama head office of Oromia Radio and Television Organization.

The reason why this mass media had chosen is the ease of the researcher and there is high attachment of cell phone technology for work purpose to web surfing anywhere and anytime. In addition, middle and higher managers offered cell phone and bills to facilitate works using cell phone to call the media sources. The age category of the study organization assists the research feasibility because the organization has high rate employees (adolescents) which probably exposed to cell phone heavy usage.

## RESEARCH METHODOLOGY AND MATERIAL

### Study Site Descriptions

First ORTO established as Oromia information and communication bureau in 1985EC and started to publish kallacha newspaper and broadcasts Radio for 90 minutes and television for 30 minutes per week renting airtime from ETV until 1998EC. Later on in May 4, 1998EC its name proclaimed as Oromia public relation organization based on proclamation number 113/98 and on November 23, 1999EC and broadcasted for 5 hours and 45 minutes per week on ETV. In 1999EC transmission towers were planted in Bale, Nekemte, and Finfinne and 2AM-100kw, 1AM-10kw, and 1FM-5kw started transmission and additional

short wave bands were rented from Ethiopian information network security agency. Oromia Radio established in October 1, 2000EC started broadcasting for 5 hours per day privately and in March 10, 2000EC, the first radio program broadcasted from its own Adama studio and inaugurated on March 17, 2000EC to broadcast for 9 hours per day. The television broadcast started in March 16, 2001EC. Finally, its name changed to Oromia Radio and Television Organization based on proclamation number 164/2003 having five departments namely, news and current affairs, education program, entertainment program, technology and administration and finance department with 59 workers. Recently, ORTO has 5 departments, 16 zonal branches in Oromia and studio from Finfine which has 493 permanent and 79 workers, totally 582 employees. Now a day ORTO broadcasts for 16 hours in Radio and for 24 hours in Television all over the world. Its technology increased from standard definition (SD) to high definition (HD). ORTO head office found in Adama and its FM service developed from 9 to 14.

### Target Population, Samples, Sample techniques and Procedures

Marshall and Rossman (1980) state qualitative inquiry, which aimed at getting a better understanding through first-hand experience, truthful reporting and quotations of actual

conversation. The intent of the study is to explore the socio economic effects of cell phone technology on human livelihood. To this end, mixed approach with descriptive survey method using cross sectional survey design is appropriate; to indicate precisely the effects of cell phone technology happen in any manner. The researcher used Zotero to utilize correct and manageable review literature. Furthermore, the researcher used plagiarism checker software to reduce plagiarism and the result shows as (81 - Ok / 6 - Failed) which means it is healthy.

The target population of the study is Oromia Radio and Television Organization workers working in Adama head office. The total population working in ORTO in the head office and branches are 531 employees among these 429 are males and 102 are females, but the target populations' are 388 workers of the head office. The age range of the workers relies on 18-32 years counts 328, 33-47 are 167 and above 48 years are 36 workers, evidence taken from the organization. The educational profile of target population is; primary and secondary level 113, 1 certificate, 146 diploma, and bachelor counts 262 and 9 master's degree. The organization employees selected due to their high attachment to cell phone technology for work. ORTO head office has five main departments namely: News and current affairs accounts 76 work forces, administration and finance has 122 workers, television program has 58 employees, radio program has 30 workers and production, transmission, operation and engineering department owns 102, workers that totally count 388 workers. The researcher used multi stage sampling techniques in order to offer equal opportunity to all population. Accordingly, Radio Program workers randomly selected for pilot study, which accounts 30 workers. Israel (1992) drives formula to calculate proportion formula of determining sample size  $N = \frac{4pq}{d^2}$  where  $N$  = required sample size,  $p$  = proportion of the population having the characteristic ( $p=0.5$ ),  $q = 1-p$  ( $q=0.5$ ) and  $d$  = the degree of precision ( $d=0.1$ ). Murgeda (2003) states sample size can 10-30% of the target population consequently, the researcher calculates the sample size 26% of target population (388) which equate 100.88 and the researcher uses  $N=100$  informants as sample size from 358 of the four departments. Accordingly, from news and current affairs 22, television program 17, technology 29 and administration office 32 participants are selected. Secondary data source also used to support the finding with available review literatures.

### DATA COLLECTION TOOLS

To obtain the relevant data, questionnaire, participant observation and interview were employed. The validity of both structured and semi-structured tools (questionnaire, interview and participant observation) checked and improved by, peers and experts before administering them. For instance, experts suggest excluding cell phone effects concerning child and education phenomena justifying the study area and participants. Besides, they comment to clarify certain questions.

Questionnaires that have five measure scales, which elicit information about the socioeconomic effect of cell phone technology on human livelihood, administrated to the sample ORTO employees. Both closed and open-ended types of questionnaire used which is adopted from Smith (2001) standard survey questionnaire designed to conduct to review the price of call on mobile phone and Taylor (2013) Bourne mouth University, Psychology Research Center research done on the impact of technology on children. Moreover, to ascertain the reliability of the questionnaire, a pilot study has done. Furthermore, the researcher has made professional expert checking of the data gathering tools rating in three levels namely relevant, not relevant and semi relevant for each items, which helps to check their relevance and validity. As a result, questions related to education and child is totally omitted, language improvements had done (e.g. pro-changed to advantages).

Semi-structured interview allows the researcher to gain insights into others' perspectives about the phenomenon under study; it is particularly useful for ascertaining respondents' thoughts, perceptions, feelings, and retrospective accounts of events (Goodwin & Goodwin, 1996). Both structured and semi-structured interview prepared and administered to eight interviewees (two from each department). One from medium level leaders' and one from subordinate workers and

they selected from the population target 358 purposively excluding the sample size respondents used for questionnaire (N=100).

### **DATA COLLECTION PROCEDURE**

The researcher first examined the data gathering tools by expert checkers, and then administered pilot study of the questionnaire then final questionnaire result assessed and analyzed before conducting interview and observation because it assists to well investigate and organize the question not reachable in the questionnaire. Next, the interview and participant observation conducted to obtain detail information. Finally, data encoding, analysis and interpretation has done.

### **DATA ANALYSIS**

The questionnaires' raw data tabulated and analyzed using simple descriptive statistics; info graphs in percentage to see the effect of cell phone mean to investigate and prioritize hampers that forces the informants became delinquent in cell phone technology. Besides, inferential statistics employed; first, respondents grouped into three levels based on their intimacy to cell phone technology means cell phone usage durability. Level 1: beginner cell phone users (1-3 years), level 2: intermediate cell phone users (4-6 years) and Level3: associate cell phone users ( $\geq 7$  years). Then, ANOVA calculated to investigate whether or not cell phone usage durability is the significant factor to cell phone technology destructive impacts on human livelihood particularly on social capital, human capital and financial capital. IMEI cell phone analyzer software version 1.1.6 used to identify cell phone originality and its impact on health. SPSS 21.0 version software was used to analysis quantitative data. Merriam (1998) asserts that since generalization, in a statistical sense is not a goal of qualitative research, probabilistic is not necessary or even justifiable in qualitative research.

### **RESEARCH ETHICAL CONSIDERATION**

The researcher considered the following research ethics to secure the respondents and grasp pertinent information in order to investigate reliable findings. As a result, confidentiality of the primary and secondary data sources, intellectual properties of the respondents' used only for academic purpose. The researcher involved the sample population without any discrimination. Furthermore, the participant privacy got appropriate care in the research.

### **RESULTS**

#### **Demographic characteristics of respondents**

The researcher used (N=100) respondents to conduct questionnaire. From the total participants 79 are males, 21 are female whereas 62 of them are single and 38 of them are married. Among these informants 4% are below 21 years old, 85% lies on 22-32, 10% between 33-47 and only 1% is beyond 48 years old based on secondary source. The respondents' counts 64% have one cell phone and 36% own two mobiles. The respondents count 34% uses Huawei, 17% Nokia, 22% Samsung and 27% uses other brands like Techno, X-Tigi, Ken Xenda, HDASE, O king, HTC, G-Tide, iphone and Itel. Among 100 informants of the research 76 are degree holder, 17 are diploma, 3 persons have masters, 1 is from primary education and 3 are from secondary education. Furthermore, 8 interviewees (4-males and 4-females) are used for qualitative purpose. The participants' profession lies on journalism, driving, technology and other social science disciplines.

#### **Data analysis of cell phone effect on health**

The research done on effect of cell phone technology human health precisely stated under this subtitle with vital descriptive implications and interpretations. The respondents' count 54 % do



not know the effect of IMEI, which makes them, not care to cell phone originality to reduce radiation and health problems. 6% says it helps to add phone in black list if lost and 39 % knows it indicates originality but they do not know how to access the code consequently they face health problems too. The cell phones ranked as very poor quality, counts 37% are prone to human health problem according to Britt,(2013) as digital use increases, so do potential vision problems, including eye strain, eye redness or irritation, dry eyes, blurred vision, back pain, neck pain, and headaches. Whereas those ranked as fair quality, good quality, very good quality and original cell phones count 60% seem pro to human health. In contrast the unknown IMEI are not identified what impacts they have on health. If the seventh and eighth digits of IMEI are, 02 or 20 it indicates very bad and poor quality, the digits 08 or 80 is fair quality, digits 01 or 10 has high quality, digit 00 is real original and best quality phone(Hilton, 2012).

The digits like 03/30 or 04/40 has good quality but not fully good, like 01 or 10 and 00, those digits with 05 or 50,06 or 60,07, 08 and 80 have fair quality(Shani, 2012). The digits with 47 or 49 are fake IMEI, the digit 67 is most prototypes and the digits 81, 92 and 93 phones are made in china not original and if the digit is 13/31 then it indicates your cell phone is built in Azerbaijan it is too bad quality also dangerous for health (Kumar, 2016).

**Respondents cell phone IMEI analysis**

**Table 1: Respondents' cell phone IMEI analysis in percentage**

No	Cell phone rank	Indicator code	Total	Percentage	Cumulative
1	Very poor quality	02	37	37%	37%
2	Fair quality	05,06 and 07	43	43%	60%
3	Good quality	03 and 04	9	9%	
4	Very good quality	01	6	6%	
5	Original	00	2	2%	
6	Unknown	51, 52 and 45	3	3%	3%
Grand Total			100	100%	

The result shows 13% never care in charging, 28% simply plug in and 57% cares while charging. Moreover, 51% use cell phone with battery low caution, 32% plug in and use it online, and only 16 % change battery that means 83% are at risk.

**Cell phone use and its effect on health**

**Table 2: Respondents cell phone use and its health impact**

No	Feeling after prolonged use of cell phone in percent					Cell phone as accident cause in percent		
1	Chronic Headache	Blurry Vision	Sleep Disturbance	Stress and Depression	Others	I face while it collide	I see traffic due a measure	I do not encounter
	21.0	16.0	23.0	24.0	16.0	19.0	33.0	48.0
2	Cell phone distance to reduce radiation in percent					Cell phone effect on environment in percent		
	10 CM	20 CM	30 CM	I do not know	Others	Causes climate change	Deteriorates an environment	I do not know
	16.0	11.0	13.0	56.0	4.0	8.0	18.0	74.0
3	Can cell phone transfer disease in percent							
	I think so	To some extent	Never	I do not know	Other			
	23.0	18.0	17.0	41.0	1.0			

The study conducted on media workers also reveals, respondents who use cell phone for a long time who feel chronic headache is 21%, blurry vision 16%, sleep disturbance 23%, stress and depression 24%, and others like ear aching and discomfort are 16%. As this finding briefs, you should distant your phone about 20 feet away to reduce cell phone radiation to minimize the health problem whereas 56% has no any information, 13% estimate 30 cm, 16% says 10 cm and 11% states 20 cm. In 2011, researchers from the London School of Hygiene & Tropical Medicine at Queen Mary, University of London found that one in six cell phone is contaminated with some sort of fecal matter; some of the phones were found to harbor E. coli bacteria from fecal origin. If ingested into the body, E. coli can cause fever, vomiting, and diarrhea. In contrast, the finding

indicates 41% do not know if cell phone transfers disease, 17% claims it does not transfer, 18% says to some extent and 23% are not sure. The researchers and scholars found that over use of cell phone causes health problem. Federal Communications Commission (FCC) has adopted limits for safe exposure to radio frequency (RF) energy, which is 1.6 watts per kilogram (1.6 W/kg)(Carlo, 1997).Device users are also advised to follow the “20-20-20” rule: Take a 20-second break every 20 minutes using an electronic device and look at something 20 feet away (Britt, 2013).Musculoskeletal symptoms due to intensive texting on a mobile phone have been reported (Ming and Wei, 2009). High quantitative mobile phone exposure included mental overload, disturbed sleep, the feeling of never being free, role conflicts, and feelings of guilt due to inability to return all calls and messages (Thomee et al., 2012).Furthermore, cell phone causes psychological distress (Beranuy, Oberst&Carbonel, 2009), and an unhealthy lifestyle (Ezoe, 2009).According to statistics from the U.S. Centers for Disease Control and Prevention (<http://www.cdc.gov/healthyyouth/noise/index.htm>), sounds louder than 85 decibels can damage hearing. Normal conversation is about 60 decibels, and stereo headphones out of our MP3-enabled devices often reach 100 decibels.The respondents count 19% faces while cell phone use while driving causes accident, 33% see while traffic due measure whereas,48% did not encounter. This clearly indicates Mobile use while driving has an effect to car collide and other car accidents with 52%.

**DATA ANALYSIS OF CELL PHONE EFFECT ON SOCIAL CAPITAL**

***Time frequency on cell phone applications***

The respondents those are not using either of the cell phone applications like messaging is 28%, listening music37%, playing games49%, web surfing 16% and other utilities like cell phone calculator, flash light and recording per day count 55%. The respondents spent 60-180 minutes on Mobile services in average that means three fourth of the respondents coined to cell phone per day. Hence, Ethiopian life expectancy is 64 years old in 2016, which means 560,640 hours based on this fact the study reveals 73% of the respondents spent 23,360 hours to 70,080 hours and the interviewee spent 116,800 hours on cell phone in their life span.The average use of texting message is72% at most for 2 hours where text messaging is the most common form of divorce evidence. calling 99 %, listening music63%, playing game 51%, internet 84% and other utilities like sharing and downloading files, documentation, etc use for 45 % per day. Among the respondents, 21% prefer night session to use cell phone, which causes sleep disorder, only 7% uses leisure time, 10% day in office, 55% any time convenient to them, but it has impact on work time. The recent advancements in communication technology have enabled billions of people to connect more easily with people great distances away, yet little hasbeen known about how the frequent presence of these devices in social settings influences face-to-face interactions (Przybylski& Weinstein, 2012).

**Table 3: Time frequency on cell phone applications in percentage**

No	Ranks	Time frequency on Cell Phone applications in percentage					
		SMS	Listening Music	Gaming	Calling	Web surfing	Other Utilities
1	Do not use	28.0	37.0	49.0	1.0	16.0	55.0
2	< 30 minutes	65.0	30.0	32.0	44.0	26.0	32.0
3	30 min-1 hour	6.0	22.0	12.0	33.0	24.0	9.0
4	1-2 hours	1.0	8.0	4.0	17.0	17.0	2.0
5	2-3 hours	-	3.0	3.0	5.0	17.0	2.0
Total		100.0	100.0	100.0	100.0	100.0	100.0
Cumulative		72.0	63.0	51.0	99.0	84.0	45.0

Excessive Internet use may be correlated with social anxiety, depression, and introversion (Caplan, 2007). Brignell and Van Valey( 2005) discovered that due to the pervasive use of the Internet in education, communication and entertainment, there has been a significant decrease in face-to-face

interaction among youth. As a result, the decrease for time youth spend interacting face-to-face may eventually have significant consequences for their development of social skills and their presentation of self.

**Cell phone effect on social interaction**

As the study finding conducted on ORTO indicates the face-to-face interaction among individuals mediating in cell phone for 60-180 minutes a day. As a result, respondents that count 88% is at decreasing level in inter personal relation after they start using cell phone.

**Table 4: Cell phone effect on social interaction in percentage**

No	Respondents' face-to-face interaction after phone use in Percent				Cell phone impact on family in percent				
	Extremely Low	Low	Medium	No change	Expose spouse cheating	Minimize family interaction	A reason for divorce	Others	Missing
1	6.0	23.0	59.0	12.0	13.0	62.0	12.0	9.0	4.0
Total	88 %			12%	87%			9%	4%

Based on the study finding 62% of respondents believe cell phone use minimizes family interaction, 13% says it exposes spouse cheating and 12% believe that cell phone is a cause to divorce in general 87% believe that cell phone use has devaluing effect on family in one way or another. Furthermore, respondents count 56% are single, 25% has more than or equal to 3 family members and 17% have 1-2 family members. This shows particularly respondents with family that counts 42% has less interaction with co families, which pushes to destruct family norm, rules and impose child development. Whereas, 88% of respondents believe that cell phone promotes individualism in which social skill is decreasing, common understanding is disappearing and verbal agreement seems decreasing. Kiesler (1986) claims, CMC users have no clue as to their relative status, and norms for interaction aren't clear, so people tend to become more self-absorbed and less inhibited. Mobile phones are inhibiting face-to-face interpersonal communication as CMC and Internet use

In social context mobile connects the remotest even though dependence is a significant issue. The user of the mobile phone becomes the used. Consequently, it is possible to say cell phone promotes individualism and rejects co-present socialism, which means intra personal interaction in cell phone is accelerated whereas the inter personal one is decelerating. The study clearly states 87 % fails in social complication regarding interaction particularly in the family and cell phone closes the closest and entertains the remotest. The evolution of the Internet to include user-generated content often has altered our basic notions of privacy, connectivity, and communication (Appelbaum, 2014).

South & Lloyd (1995) found that in at least one-third of divorce cases, one or both spouses had been involved with another person prior to their marital dissolution, as 12% believe that cell phone is a cause to divorce. Technological advancements particularly the rise of mobile phones and high-speed Internet has made it both easier to cheat on one's spouse physically and emotionally and to be caught. The significance of face-to-face communication is lost in CMC because the user is essentially just communicating to a screen; Media Richness Theory of Daft, Lengel, and Trevino (1987) suggested that, face-to-face communication provides a rich mix of verbal and nonverbal cue systems that can convey highly nuanced emotions, and even double meanings. Infidelity is one of the most consistent predictors of divorce (Holson, 2009).

**CELL PHONE EFFECT ON MEETING**

**Table 5: Cell phone effect on meeting in percentage**

No	Cell phone effect on meeting in percent			
	I start using my phone	I leave as if call receiving	Others	Missing



Percent	65.0	26.0	7.0	2.0
Total	91%		7%	2%

The study conducted in ORTO reveals 65% of the respondents start to communicate their cell phone screen and 26% leave the stage as if receiving a call while they attend meeting that means 91% of the meeting attendants are rejecting the stage, which has negative impact on addressing the issue and weakens job efficiency. Besides, it indicates that cell phone accelerates dishonest, silent rejection or symbol of negligence whereas only 7% switched or make silent to attend the meeting properly. According to Kruse (2013) cell phone is not important at meeting because it provokes lack of respect, lack of attention, lack of listening and lack of power-You are like a modern day Pavlovian dog who responds to the disposal of others through the buzz of your phone.

**DATA ANALYSIS OF CELL PHONE EFFECT ON FINANCIAL CAPITAL**

The informants working in ORTO spent 60-180 minutes per day on cell phone and 73% spent 100-400, 18% spent 101-200, 5% spent 201-300 and 4% spent below 100 Ethiopian birr per month; in addition, 38% spent 100-200, 11% spent 201-300, 4% spent 301-400 birr for cell phone maintenance and accessories per year and 47% did not spend any cost. World Bank development declares Ethiopian per capita income per annual is 550\$ in 2016 which means 11,000ETB and 916ETB per month even though the respondents spent up to 400 ETB only for recharging. The respondents count 34% uses Huawei, 17% Nokia, 22% Samsung and 27% uses other brands like Techno, X-Tigi, Ken Xenda, HDASE, O king, HTC, G-Tide, iPhone and ITEL. Some respondents use the brand randomly without any preference and others use the brand because it is a gift. Many respondents assume their brand is better than others are, majority respondents prefer the brand because it is cheap, little respondents' choice the brand based on its safeness and easy to use. Comfortable size and latest mobile makes them to select the mobile. Many informants believe that their brand mobile has good, application, internet and network access. For the most of informants, quality is the reason to choose, the brand.

An expense to cell phone purchase for 38% is 2001-300, for 22% it is 3001-4000 birr. Besides, 21% spent 1000-2000 and 19% of informants spent below 1000 and above 4000 birr in which 44 % uses cell phone until it stops working or lost, 27% uses for 2-3 years, 24% uses for 1-2 years and only 5% changes their phone in less than 1 year. The respondents' count 64% owns one phone and 36% of them have two Mobiles. Zulkefly and Baharudin (2009) concluded that, students were found to spend on average 6 hours daily on their mobiles and USD 18.70 monthly on their mobiles.

Mobile Telephone Service was expensive, costing 15 USD per month, plus 0.30 to 0.40 USD per local call, equivalent to about 176 USD per month and 3.50 to 4.75 per call in 2012 USD (Rideout, Foehr, & Roberts, 2010). One study, conducted by the Kaiser Family Foundation, found people ages 8 to 18 spent more time on media than on any other activity - at an average of 7.5 hours a day (Rideout, Foehr, & Roberts, 2010). The expenses spent on cell phone seem destructive because 99 % uses for calling and 84% use for web surfing for valuable and devaluing purposes, majority spent the money spontaneously without any plan that leads to improper expenses and unmanageable life era.

**CELL PHONE EFFECT ON ECONOMY**

**Table 6: Expenses of cell phone use in percentage**

No	Description	Birr	Percent
1	Recharge cost per week	25-100	73.0
		101-200	18.0
		201-300	5.0
		Other	4.0
2	Currently used cell phone cost	1000-2000	21.0
		2001-3000	38.0
		3001-4000	22.0

		Other	19.0
3	Maintenance and accessory cost per year	100-200	38.0
		201-300	11.0
		301-400	4.0
		Other	47.0

**ANOVA RESULTS**

**ANOVA Assumptions**

Before running analysis, the underlying assumptions were also assessed for both tests (independent-samples t-test and one-way ANOVA). With regard to normality, it was recommended that the violation of this assumption should not cause any major problems with large enough sample sizes (e.g. 30+) (Gravetter&Wallnau, 2000, p. 302; Stevens, 1996, p. 242). Besides this suggestion, the distribution of scores for each of group was also checked using histograms obtained as part of the descriptive statistics on SPSS, V.13 and did not violate any of the underlined assumptions. To test homogeneity of variance, the Levene test for equality of variances was performed as part of the t-test and analysis of variances analyses on SPSS. In each case, the assumptions were maintained as required.

**CELL PHONE USE DURABILITY EFFECT ON SEX**

**Table 7: Cell Phone use durability effect versus respondents' sex analysis**

**Tests of Between-Subjects Effects**

**Dependent Variable: Sex of respondents**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.160 <sup>a</sup>	3	.053	.311	.817	.010
Intercept	48.660	1	48.660	284.313	.000	.748
Durability	.160	3	.053	.311	.817	.010
Error	16.430	96	.171			
Total	163.000	100				
Corrected Total	16.590	99				

R Squared = .010 (Adjusted R Squared = -.021)

As the above table shows the result of cell phone usage durability vi-a-vis the gender male and female (F=0.311, df =3and96, P=0.817) in which there is no significant effect on sex disparity. Besides, partial eta squared also confirms that there is no relationship between human sex and cell phone use durability, where (partial eta=0.010) which means it has weak effect size. Based on this result it is possible to conclude cell phone usage durability equally hurt both sex health.

**CELL PHONE EXPENSES DIFFERENCE ON GENDER**

**Table 8: Cell Phone expense versus sex of respondent**

**Tests of Between-Subjects Effects**

**Dependent Variable: Sex of respondents**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.501 <sup>a</sup>	3	.167	.996	.398	.030
Intercept	40.887	1	40.887	243.959	.000	.718
Bill	.501	3	.167	.996	.398	.030
Error	16.089	96	.168			
Total	163.000	100				
Corrected Total	16.590	99				

a. R Squared = .030 (Adjusted R Squared = .000)

The table 8 shows statistically there is no significant difference on male and female on cell phone use expenses as ( $F=0.996$ ,  $df=3$  and  $96$ ,  $P=0.398$ ), and (partial  $\eta=0.030$ ) which is weak also confirms as there is no significant relationship.

**CELL PHONE USE DURABILITY EFFECT ON AGE**

**Table 9: Cell phone use durability effect versus respondents' age analysis**

Tests of Between-Subjects Effects

**Table 10: Cell phone use durability effect versus respondents' age significance** Dependent Variable: Age Category

Source	Type III of Squares	df	Mean Square	F	Sig	Partial Squared
Corrected Model	2.039	3	.680	4.258	.007	.117
Intercept	170.531	1	170.531	1068.500	.000	.918
Drability	2.039	3	.680	4.258	.007	.117
Error	15.321	96	.160	-	-	-
Total	450.000	100	-	-	-	-
Total Corrected	17.360	99	-	-	-	-

R Squared = .117 ( Adjusted R Squared = 0.090)

Dependent Variable: Age Category

(I) Cell Phone Durability	(J) Cell Phone Durability	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than or equal to 1	1-3	.67	.249	.074	-.04	1.38
	<b>4-6</b>	<b>.75*</b>	<b>.244</b>	<b>.030</b>	<b>.05</b>	<b>1.44</b>
	Greater than or equal to 7	.52	.237	.195	-.16	1.19
1-3	Less than or equal to 1	-.67	.249	.074	-1.38	.04
	4-6	.08	.123	.936	-.27	.43
	Greater than or equal to 7	-.15	.109	.604	-.46	.16
4-6	Less than or equal to 1	-.75*	.244	.030	-1.44	-.05
	1-3	-.08	.123	.936	-.43	.27
	Greater than or equal to 7	-.23	.097	.142	-.50	.05
Greater than or equal to 7	Less than or equal to 1	-.52	.237	.195	-1.19	.16
	1-3	.15	.109	.604	-.16	.46
	4-6	.23	.097	.142	-.05	.50

Based on observed means

The error term is Mean Square(Error) = .160.

\*. The mean difference is significant at the .05 level.

The result of the study regarding the relationship between cell phone use durability and human health is significant on 4-6 years cell phone users as the above table indicates ( $F=4.258$ ,  $df=3$  and  $96$ ,  $P=0.007$ ) and the effect size measurement (partial  $\eta=0.117$ ) which means modest. In 2010, a large international study of over 5000 brain tumor cases called Interphone (coordinated by IARC, in Lyon), revealed that there was no increased risk of brain tumors for average cell phone use, though very heavy users of cellphones (30 minutes a day for a decade) did seem to be at greater risk. The use of cell phones for more than 5 years was associated with an increased risk of acoustic neuroma, and that the risk of acoustic neuroma increased with increasing duration of cell phone use (Benson, Pirie & Schüz J, et al, 2013). Table 9 shows there is modest relationship between cell phone usage durability and age as a factor in which ( $P=0.030$ ) on respondent who uses their cell phone for 4-6 years in which 25% of respondent relies. The cell phone subscribers are prone to health risks like brain tumor, acoustic neuroma, cancer and others.

Effect of marital status on cell phone expense

**Table 11: Respondents’ marital status effect on cell phone use expense**

**Tests of Between-Subjects Effects**

Dependent Variable: How much money do you invest to cell phone bill charge in a week?

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.749 <sup>a</sup>	1	.749	1.282	.260	.013
Intercept	179.109	1	179.109	306.590	.000	.758
Marital Status	.749	1	.749	1.282	.260	.013
Error	57.251	98	.584			
Total	254.000	100				
Corrected Total	58.000	99				

a. R Squared = .013 (Adjusted R Squared = .003)

Statistically there is no any significant relationship between respondents marital status (single and married) and the expenses spent on cell phone use as table 11 result indicates (F=1.282, df=1 and 98, P=0.260) and the effect size also confirms as partial eta (eta=0.013) which is weak. Therefore, it is possible to say marital status does not matter on cell phone use expense and all status can equally spent on money on cellular use.

**RESULTS OF QUALITATIVE DATA**

***Open-ended questions Analysis***

The respondents clearly indicate pro and cons of cell phone in human life considering the socio-economic and health effects of the cell phone technology. Facts gathered in open ended questions claims all respondents express cell phone helps to grasp information and exchange ideas or communications easily particularly for the remote persons even though they recognize the nearest. Few individuals believe cell phone transfer technology and refreshes human mind during delinquency. Furthermore, some of them say it helps to run business easily where as few use for documentation, it facilitates work.

Mobile phones and their impact include 8% increased profits among poor fisherman in India even while consumer prices for fish lowered by 6% (Jensen, 2007); cellular airtime becoming a “de facto currency” in many parts of Africa (Ewing, 2007); reduced waste in perishable agricultural goods in Nepal and India (Corbett, 2008; Jensen 2007). Moreover, laborers in Niger saving a US\$40 trip – about 11% of average yearly income – to inquire about potential job opportunities in nearby cities (Aker, 2010). Based on this study it is possible to conclude likewise of cell phone negative impacts it can accelerate human and country development.

Nevertheless, the cell phone technology is a vital human life phenomena it has divergent effects on socio-economic and health aspects, which may harshly affects human life era. Majority of the respondents explain the demerit of cell phone claiming if not properly used it affects economy and health. Very few individuals say environmental pollution is the disadvantage of mobile. Some of them declare it expands false, dishonest and cheating as well as misbehaving like frustrating through phone.

Only one respondent believes that it is time killing whereas almost all explain that it minimizes face-to-face interaction, work inconvenience and work time wastage is also the statement of few respondents, others say I do not know (and some of them agree it causes family conflict and cause divorce. People are using their smart phones for almost everything these days and the evidence is now following them into divorce court. According to a recent survey of the American Academy of Matrimonial Lawyers (AAML, 2012) resounding 92% of the nation's top divorce attorneys say that they have seen an increase in the number of cases using evidence taken from smartphones during the past three years. In addition, 94% of the respondents have cited an overall rise in the use of text messages as evidence during the same period.

## INTERVIEWEE RESPONSES ANALYSIS

The total interviewee count 8 spent using their cell phone for different services like calling, messaging, reading books, gaming, listening music, web surfing, downloading and others for more than 6 years for more than 5 hours a day in average. Majority of the interviewee uses cell phone since 1998 E.C, which means for more than 10 years. According to Rideout, Foehr, & Roberts (2010) study Mobile Telephone Service was expensive, costing 15 USD per month, plus 0.30 to 0.40 USD per local call, equivalent to about 176 USD per month and 3.50 to 4.75 per call in 2012 USD). Excessive Internet use may be correlated with social anxiety, depression, and introversion (Caplan, 2007). **Interviewee-1** says, *"I used to use internet and applications but now I ceased due to its hurt in promoting individualism, it is time killing and just it rejects social interaction particularly the face-to-face one, as a result currently I use it only for communication."* All interviewee believe heavy use of cell phone decreases face-to-face interaction and their statements verify saying,

### **Interviewee-1**

*"Cell Phone has many merits it easily connects the departed individuals to share information and ideas during happiness and sorrow. It helps to grasp and transfer information easily. In contrast, cell phone addiction is a cause to family conflict; it imposes spouse cheating and crime as well. Someone may frustrate you by calling during night."*

### **Interviewee-2** utters,

*"Socially, cell phone accelerates communication, which promotes easily connecting people around the globe with in short time. However, Mobile is destructive as well; it expands pseudo information, which hurts the society security, it minimizes family interaction it departs spouse relation I faced the problem I was conflicting with my wife, she deletes some application from my phone and it is time wasting."*

### **Interviewee-3** bubbles

*"Cell Phone fosters human communication particularly intra personal communications even though it decreases inter personal relations. Moreover, pseudo information may frustrate the subscribers."*

### **Interviewee-5** believes that

*"It helps to connect people around the globe. Cell phone promotes pseudo information for example take the recent social movement in Oromia that causes death."*

### **Interviewee-6** says

*"Easily to connect people and fake calls may disturb individual."*

### **Interviewee-7**

*"Cell phone helps to gather information easily and its demerit is it exposes secrets."*

### **Interviewee-8** utters that

*"It helps to communicate the remote people easily within short time but it promotes falsification, and the latest mobiles provoke thieves to steal. Spouse cheating and nighttime disturbance is its demerits on human. It is time wastage."*

To sum up the interviewees believe cell Phone hurts Social interaction particularly the inter personal relation, it accelerates dishonest with in people and family many individuals use cell phone to cheat for example they do not tell you the exact place they are during appointment, fake call frustrates someone even though individuals do it for entertainment.

## CONCLUSIONS AND RECOMMENDATION

### CONCLUSIONS

The researcher prime focus is to assess the socio-economic and health effects of cell phone technology in any manner. In doing so the research finding clearly reveals, cell phone has bi- effect that is labeled as pro cell phone and cell phone cons. Cell phone plays vibrant role in economic growth in facilitating business making eras to survey the markets without accommodation cost. Furthermore, cell phone helps to ease communication in health aspect particularly during emergency; you can easily call your doctor for first aid.



In contrast, cell phone has multi demerits if not properly used regarding social, economic and health aspects. The research conducted in ORTO indicates 73% of the respondents spent 100-400 Ethiopian birr for recharging in month and 60-180 minutes per day, an expense to cell phone purchase for 60% is 2001-4000 birr. Besides, 21% spent 1000-2000 and 19% of informants spent below 1000 and above 4000 birr in which 44 % uses cell phone until it stops working or lost, 51% uses for 1-3 years, and only 5% changes their phone in less than 1 year. The interviewed respondents also realize they spent more than 5 hours per day in average on their cell phone for more than 6 years. The result of the study regarding the relationship between cell phone use durability effect on human is significant on 4-6 years cell phone users as ( $F=4.258$ ,  $df=3$  and  $96$ ,  $P=0.007$ ) and the effect size (partial  $\eta=0.117$ ) which means modest. Cell phone usage durability vi-a-vis the gender male and female ( $F=0.311$ ,  $df=3$  and  $96$ ,  $P=0.817$ ) in which there is no significant effect on sex disparity and (partial  $\eta=0.010$ ) which means it has weak effect size. Statistically there is no significant relationship between respondents marital status (married and unmarried) and expenses spent on cell phone use as ( $F=1.282$ ,  $df=1$  and  $98$ ,  $P=0.260$ ) and the effect size also confirms as partial  $\eta$  ( $\eta=0.013$ ) which is weak. Besides, statistically there is no significant difference on male and female on cell phone use expenses as ( $F=0.996$ ,  $df=3$  and  $96$ ,  $P=0.398$ ), and (partial  $\eta=0.30$ ) which is weak. The study conducted in ORTO reveals 91% of the meeting attendants are rejecting the stage, which has negative impact on addressing the issue and weakens job efficiency. Based on the study finding 62% of respondents believe cell phone use minimizes family interaction, 13% says it exposes spouse cheating and 12% believe that cell phone causes divorce in general 87% believe that cell phone use has devaluing effect on family interaction in one way or another. The finding shows mobile use while driving has an effect to car collide and other car accidents with 52%.

The study conducted on media workers also reveals, respondents (100%) who use cell phone for a long time feel chronic headache, blurry vision, sleep disturbance, stress and depression, ear aching and discomfort which means all cell phone users perceive different health problems or symptoms. As this finding briefs, you should distant your phone about 20 feet away to reduce cell phone radiation to minimize the health problem whereas 56% has no any information. The respondents' count 93 % do not know the effect and how to access phone IMEI, which makes them, not care to cell phone originality to reduce radiation and they face health problems too. The cell phones ranked as very poor quality, counts 37% are prone to human health problem.

The result shows 41% never care in charging, 57% cares while charging. Moreover, 51% use cell phone with battery caution, 32% plug in and use it online, and only 16 % change battery, which means 83%, are prone to health problem may happen while charging. To sum up cell phone and human being has intimate relationship in which cell phone has positive and negative effects on social capital, financial and health aspects.

## RECOMMENDATION

The research entitled the assessment of socioeconomic effects of cell phone technology on human livelihood, Oromia Radio and Television Organization reveals all rounded positive and negative effects of cell phone particularly in social capital, financial capital and health. Having this in mind, the researcher states the following recommendations in order to alleviate the chronic problems regarding the essence of cellular phone.

The cell phone subscribers had better follow the "20-20-20" rule: take a 20-second break every 20 minutes using an electronic device and look at something 20 feet away. Federal Communications Commission (FCC) has adopted limits for safe exposure to radio frequency (RF) energy, which is 1.6 watts per kilogram to find the SAR use \*#07# then dial. Using \*##4636##\* code also provides information all about cell phone, battery status, and others. Cell phone subscribers should identify their IMEI code to know its originality, minimize cell phone theft and health risks using

\*#06#code.To reduce social problems particularly face-to-face intimacy various researchers recommend using cell phone for less than 30 minutes per day.

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