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Empowerment or digital divide?

The effects of ICT training on youth in Ghana

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KURZFASSUNG

Ziel dieser Diplomarbeit ist es, die Auswirkungen von ICT-Bildung auf die persönliche und professionelle Entwicklung von jungen Menschen in Ghana zu erforschen. Der Fokus soll dabei nicht auf der Veränderung von Einkommensstrukturen, die sich aus ICT-Bildung ergeben können, liegen. Die Potentiale von ICTs wirken in vielen Bereichen: Soziale Gerechtigkeit, Gendergerechtigkeit, Umweltschutz, Good Governance, Demokratiepolitik, Gesundheitsvorsoge und die Verbesserung der landwirtschaftlichen Produktion sind nur einige Beispiele. Es ist allerdings höchst umstritten, wie sich der Zugang zu und die Nutzung von ICTs in den Ländern des sogenannten 'Südens' tatsächlich auf die genannten Schlagworte auswirken. Mein Ziel ist es, ausgehend von dieser akademischen Debatte die Frage nach den Effekten von ICT-Bildung auf Jugendliche in Ghana zu untersuchen. Der Titel der Arbeit bezeichnet das Spannungsfeld, in dem diese angesiedelt ist. Es ist meine Absicht, durch die Verknüpfung der vorhandenen Literatur zum Thema mit der qualitativen Auswertung von Interviews mit Absolvent_innen einer Bildungseinrichtung für ICT in Ghana einen Beitrag zum Forschungsfeld zu leisten.

ABSTRACT

The aim of this work is to evaluate the effects of ICT education on the personal and professional development of young Ghanaians. The focus will not be laid on monetary issues (effects on income) since ICTs are said to have influences in many fields: Social justice, gender equity, environmental protection, good governance, democracy policy, health and agricultural production are only some examples in this respect. However, the effects of access to and use of ICTs on these keywords in the so-called 'developing world' are highly disputed. It is my aim to investigate the potential effects of ICT education on youth in Ghana based on the academic debate concerning the topics mentioned above. The title of this work describes the tense atmosphere of the related academic discourse. Combining the essential theories and concepts in the field of ICT for development with an empirical study conducted with ICT graduates in Ghana, this work aims to contribute to a better understanding of the role ICT education can play for potential empowerment of young people in Ghana.

DEDICATION

This work is dedicated to all victims
of the Lampedusa migrant shipwreck
tragedy on October 3rd, 2013 and to all those who fight for a new
regime of European border control that corresponds to human
rights and solidarity rather than to political opportunism and racism.

PREFACE AND ACKNOWLEDGEMENTS

This work is the result of my personal interest in the topic of ICT for development and social justice with a focus on the situation in Ghana. This interest arose in the year of 2007, when I did my civil service in an institution offering ICT training in the city of Sunyani in the Brong-Ahafo region of Ghana. The manifold experiences I made, the people I met and the stories I heard sharpened my view on the possibilities of empowerment for young people through ICTs and contributed to my perception of the role ICTs can play in the area of human development.

Thus, I first want to thank all staff and students of Don Bosco Technical Institute in Sunyani for the welcoming atmosphere I experienced during my stay. I am particularly thankful to the current rector of DBTI, Mark Anthony Okpala, who was a strong and reliable support during my field research in February 2013. I would like to thank my interview partners Martin, Constance, Frank, Isaac, Miguel, Raindolf and Emmanuel for their time and their openness. Furthermore, I would like to thank Osei Darkwa from Ghana Telecom University for his valuable inputs and suggestions. Alex Nyarko deserves many thanks for his co-operation and for his critical remarks.

In Austria, I am particularly thankful for the support and encouragement of my advisor Andreas Novy, who provided both professional guidance and valuable feedback to this work. Likewise, I am grateful to all teaching and non-teaching staff at the department of development studies for their engagement in the project 'Internationale Entwicklung'. Last but not least, I want to thank my family who was supporting me throughout the course of this study in countless ways and to whom I owe much more than I could express in a few lines.

LIST OF ABBREVIATIONS

ADP ..... Accelerated Development Plan
BDA ..... Biographical Data Analysis
BDC. ..... Biographical Data Chronology
BECE ..... Basic Education Certificate Examination
BNIM ..... Biographic Narrative Interpretive Method
CEO ..... Chief Executive Officer
CIC ..... Community Information Center
CRQ. ..... Central Research Question
cf. ..... confer (see)
GES. ..... Ghana Education Service
GIFEC ..... Ghana Investment Fund for Electronic Communication
GMOEYS ..... Ghana Ministry of Education, Youth and Sport
GNAT ..... Ghana National Association of Teachers
GPRP ..... Ghana Poverty Reduction Strategy Paper
GTUC ..... Ghana Telecom University
HDI. ..... Human Development Index
ibid. . ..... ibidem (the same place)
ICDL ..... International Computer Driving License
ICT . ..... Information and Communication Technology
ICTs. ..... Information and Communication Technologies
ICT4AD ..... Information and Communication Technologies for Accelerated Development
ICT4D ..... Information and Communication Technologies for Development
IMF ..... International Monetary Fund
ITU . ..... International Telecommunication Unit
JSS . ..... Junior Secondary School
NDC ..... National Democratic Congress
NGO ..... Non-governmental organization
NPP ..... New Patriotic Party
NRI ..... Networked Readiness Index
SAP ..... Structural Adjustment Program
SHEIOT ..... Situation, Happening, Event, Incident, Occasion/Occurrence, Time
SQUIN ..... Single Question aimed at Inducing Narrative
SSS ..... Senior Secondary School
TFA ..... Thematic Field Analysis
TQ ..... Theory-Question
TQUIN ..... Topic Questions aimed at Inducing Narrative
TSS ..... Text Structure Sequentialisation
UNCTAD ..... United Nation Conference on Trade and Development
WDR ..... World Development Report

CONTENTS

1 INTRODUCTION

1.1 Motivation and research problem

„Knowledge is like light. Weightless and intangible, it can travel the world, enlightening the lives of people everywhere. Yet billions of people still live in the darkness of poverty – unnecessarily.“
(The World Bank 1999, 1)

The above quotation illustrates the importance of Information and Communication Technologies (ICTs) for the development discourse. With the help of ICTs, knowledge can be transfered over large distances in a matter of milliseconds, and thus influence the life of people across the world. Information (the 'I' in ICT) has been used frequently as a synonym for 'knowledge' in academic literature. (cf. Mansell 2009, 7) The quotation also gives an example on how actors in the field of development co-operation and research attribute huge potentials to the effects of knowledge (or information) on the lives of people. ICTs can play a crucial role in a society where knowledge is a key concept for achieving socio-economic development. The problem of technological or knowledge gaps between and within countries has been discussed frequently: *“These gaps persist both at the level of access to ICT infrastructure, and in terms of the form of information conveyed and who is able to use, understand and produce the information and knowledge which ICTs potentially make accessible.” (Wilson 2003, 1)* As I will show in chapter two, the implications following such a view on the role of technology for the development discourse are deeply problematic.

The aim of this thesis is to evaluate the effects of ICT education on the personal and professional development of young Ghanaians. It is important to note that ICTs are said to have positive effects in a variety of socio-economic fields such

as democracy, health or decision-making. (cf. Lelliott, Pendlebury, and Enslin 2000, 46) I will thus focus on the role of ICT training for the potential empowerment of youth in Ghana in a broad sense, including topics such as equity, social inclusion (or exclusion), education and gender.

The title of this work illustrates the tense atmosphere of the discourse on ICT for development. On the one hand, there are those who see the positive effects of ICTs on these issues as a given fact, thus promoting the transfer and diffusion of ICTs for achieving socio-economic goals. On the other hand, much criticism has been raised against this enthusiastic view on ICTs, since evidence suggests that ICT for development projects can actually increase existing inequalities (e.g. economic or gender inequalities) in a community. (see Avgerou 2010 for a comprehensive review) This work is situated in the academic controversy outlined above and at the same time tries to avoid using the problematic implications of these views on the potential role of ICTs for development (see chapter two). It is my intention to combine existing academic literature on the topic of ICT for development (ICT4D) with an empirical study conducted with graduates from ICT educational institutions in Ghana in order to shed some light on the issue of potential empowerment through ICT education.

It is evident that the quotation at the beginning of this introduction must be considered in the light of a very specific historical context, namely the development discourse in the late 1990s. I think it is essential to critically evaluate the effects of ICT education on young Ghanaians in a way which takes this context into account.

1.2 Research question and aim of the research

The central research question (CRQ) of this work focuses on the effects of ICT training on the lives of young Ghanaians:

CRQ: How does a successfully completed ICT training affect the personal and professional development of youth in Ghana?

In order to answer the central research question, a thorough analysis of the academic literature surrounding the topic of ICT4D, ICT in education and youth empowerment through ICTs will be indispensable. (see chapter two) Concerning the empirical part, I will try to contextualize the results from the qualitative interviews with graduates of ICT trainings in Ghana with the findings from the analysis of academic literature on the topic.
For the qualitative research, the biographic narrative interpretative method (see Wengraf 2001) will serve as a guiding framework for producing relevant empirical material. According to the suggestions given by Wengraf (2001, 61 f.), the answers to the following theory questions (TQs) will be used in order to find an answer for the CRQ[1]:

TQ1: How does the personal background (family, kinship, social networks) of ICT professionals influence their possibilities for using ICT education for individual empowerment?

TQ2: How did educational institutions (ICT training centers) contribute to the empowerment of their graduates?

TQ3: What is the role of the Ghanaian government in the process of potential empowerment through ICT training for Ghana's youth?

1 See chapter 3.2.1.1 for more details on the evolution of theory questions.

TQ4: Is the factor mobility (e.g. willingness to move to another geographic area) relevant for the empowerment of young Ghanaians who completed ICT training?

TQ5: Which significance does gender have on potential empowerment through ICT training of young people in Ghana?

TQ6: How do graduates of ICT training institutions explain why ICT training did (not) help them in their individual empowerment?

TQ7: Which expectations did graduates of ICT trainings have prior to the enrollment in ICT training institutions?

Considering the framework of my theory questions, it is clear that I focus on the role ICT education can play in the social system of young Ghanaians. Thus, the implications ICT education had in the personal and professional development of my interviewees will be a central aspect. However, it must be noted that without taking various stakeholders of ICT education in Ghana (such as the Ghanaian government, educational institutions, development agencies etc.) into account, it will not be possible to answer the CRQ. For this reason, I conducted interviews with experts in the field of ICT for development and analyzed public policies and key socio-economic data (see chapter three).

In order to achieve the overall goal of this work, namely the evaluation of potential effects of ICT education on the empowerment of young Ghanaians, I consider it essential to take a reflective and critical stance towards what has been called the *„[...] mainstream vision of the Information Society“*. (Mansell 2009, 3) It is my intention to implement this critical stance in both the theoretical and the empirical part of this work as a guiding principle.

1.3 Results of this work

The results of my empirical research suggest that the view on ICT education as a universal enhancer of empowering processes cannot be maintained for the case of ICT graduates from vocational schools in Ghana. Similarly, the hypothesis of a digital divide (see Cawkell 2001) does not seem appropriate for explaining the effects of ICT training on youth in Ghana. In contrast, my results strongly support the view that technology is socially embedded in local structures and can (but need not) make individual empowerment possible for young Ghanaians. The social embeddedness of technology describes the relationship between technology and broader social structures. The important point for potential empowerment is that *"[...] the relationship cannot be reduced to a matter of the technology's existing on the outside and exerting an independent force."* (Warschauer 2004, 202) Thus I conclude that it is crucial to understand that ICT for development projects cannot solve socio-economic problems since it is not possible to separate 'technology' from the broader 'social system'.From this starting point, I argue that in Ghana, currently many interventions concerning ICT follow the basic assumption that through the implementation of ICT4D projects, socio-economic goals will be achieved. From the analysis of critical literature on the topic, it seems that the strength of the mainstream version of the development discourse is crucial for understanding why most actors in the field of ICT4D are unwilling to reconsider these basic assumptions concerning the role of technology for development. The Foucauldian concept of pastoral power serves well for understanding the actions of institutions in development co-operations and stakeholders of ICT4D projects. (cf. Haider and Bawden 2006, 373) Accepting the hypothesis of social embeddedness of technology has important implications for recommendations to actors in the field of ICT for development in Ghana. I argue that it would be necessary to develop a critical ICT approach in ICT training courses in order to enhance the effects of ICT education for youth empowerment in Ghana.

1.4 Overview

In chapter two of this work, I will develop a framework which makes it possible to critically evaluate the academic literature from the fields of development studies (chapter 2.2) and educational studies (chapter 2.3).
Concerning development studies, the crucial role of ICTs in the development discourse since the 1950s is a focal point of my attention. I will describe how the mainstream version of ICT4D evolved in the academic debate, which other approaches are relevant and which consequences the prevailing view on ICT4D had in policy-making and project implementations (chapter 2.2.2).
From the starting point of an analysis of the dilemma of critical ICT4D researchers (chapter 2.2.2.5), I will outline the importance of developing a critical stance towards ICTs and the necessity for producing critical knowledge in order to achieve socio-economic goals in ICT4D projects (chapter 2.2.3).
The academic field of educational studies (chapter 2.3) is extremely relevant for this work since the topic of empowerment through ICT education cannot be understood without an analysis of the potentials ICTs can have for education. A definition of empowerment (chapter 2.3.3) with focus on the significance of (digital) literacy for processes of empowerment will be developed (chapter 2.3.3.3).
In chapter three, I will provide a short overview on key indicators for development and ICT infrastructure in Ghana (chapter 3.1). Furthermore, the methodological framework for both expert interviews and biographic narrative interpretive method (BNIM) interviews will be developed (chapter 3.2). Chapter four deals with the analysis of empirical material according to the framework developed in chapter 3.2. In chapter five, I will deal with the theory questions (chapter 5.1) in order to finally answer my central research question (chapter 5.2). These findings serve as a basis for some concluding remarks on the topic (chapter 5.3).

2 THEORETICAL STANCES

2.1 Introduction

In this chapter, I will give an overview on current debates in the academic field of ICT for development with a focus on literature concerning the role ICTs can play in education and youth empowerment.

I will generally use the term ICT for development (ICT4D) for describing the academic field which is dealing with the relationship between ICTs and development theory (or practice). However, it is noteworthy that some authors use the term 'development informatics' to refer to the same relationship. (see for example Heeks 2006) I consider these terms to be interchangeable and will only use the former for the sake of simplicity.

Furthermore, I will describe the concept of the 'Information Society' which was mainly developed by Bell (1973) and link it to the concept of modern 'knowledge societies' (see for example UNESCO 2005). It seems that there are only minor differences between these concepts: *"By the 1990s, economists had concluded that knowledge creation is an important driver of the economy which underpins the Information Society vision, typically making little distinction between information and knowledge."* (Mansell 2009, 7)

I will thus not explicitly refer to a specific definition of both concepts. In contrast, I assume that they basically describe the same idea. For this reason, I will use both concepts interchangeable throughout this work.

It is the aim of this chapter to develop a comprehensive theoretical model which makes it possible to critically assess the effects ICTs in general and ICT education in particular can have on youth empowerment.

2.2 Development studies

2.2.1 ICT4D and the development discourse

> "[W]e must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas."
> (Truman 1949, cited in Rist 2002, 259)

In his now famous inauguration speech, Harry S. Truman, the 33rd president of the USA, introduced what may be called the 'era of global development'. Of course, he neither invented the development discourse out of the blue nor was he aware of the implications his words would have for the next decades. The development discourse emerged out of a very specific historical situation in the 1940s: With the Second World War turning everything upside-down, Europe needed to expose itself to both the Soviet Union and the USA to free itself from the Nazis and the main powers had neither the capacities nor the will to maintain their colonial influences in the so-called developing countries[2]. (cf. Rist 2002, 70) The reason why Truman's speech gained such influence lies in his notion of the binary opposition which divides the world into two parts: one 'developed', the other 'underdeveloped'.

Truman could never have foreseen that 30 years later, as Escobar states, the concept of development, describing the opposition between 'developed' and 'underdeveloped' countries, *"[...] had achieved the status of a certainty in the social imaginary."* (Escobar 1995, 70)

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2 In what follows, I will use the term 'developing country' without explicitly referring to the problems which arise due to such classifications. However, I am aware that the opposition between 'developed' and 'underdeveloped' countries implies a perceived superiority of the former. (see Haider and Bawden 2006, 376) I will therefore use the term with care, trying to avoid to over-simplify the analysis of economies or social structures by following such concepts.

Regarding the literature surrounding the topic of ICT for development, I think it is crucial to critically evaluate the historical and ideological background by which the authors and publishing institutions were influenced.

Therefore, in the following chapters I will try to contextualize and categorize the most important streams of arguments which shape the discourse.

How ICT4D fits the development discourse

Why did ICT become a topic for development researchers? The answer to this question is quite simple: ICT-related literature on development, which is often associated with the so-called 'digital revolution', touches various topics which are relevant the development discourse. In this chapter, I will therefore discuss the importance of ICTs for the academic debate.
To start with, I want to refer once again to the statement mentioned earlier: Truman explicitly referred to the *"[...] scientific advances and industrial progress [...]"* (Truman 1949, cited Rist 2002, 259) in his notion of what the industrialized countries are obliged to do in the so-called underdeveloped world. In 1949, computer sciences were still a marginal academic field with a relatively low significance for consumer applications. However, with the scientific progress in the area since the 1970s making computers faster, easier to use and more affordable, ICTs eventually turned into a key technology for capitalist development. (cf. Haider and Bawden 2006, 17 f.; Warschauer 2004, 38)
Although it is obvious that ICTs gained importance, an explicit theory of ICT for development was never developed: *"Most ICT4D studies avoid engaging with controversies on 'development'. They tend not to discuss what constitutes development."* (Avgerou 2010, 2) Instead, studies on the topic focused on the practical applications of ICTs in developing countries, on successes and downfalls of specific implementations or on strategies for making IT-infrastructure in developing countries faster and more accessible.

However, Heeks critically comments this attitude: *"We are changing the world without interpreting or understanding it."* (Heeks 2006, 1) Although ICT4D literature does not provide an explicit theory, various concepts within the scope of development studies pick up the topic implicitly.

The underlying theoretical concept which shaped the view on ICTs within the development discourse from the very beginning was the modernization theory: Following the acceptance of the binary opposition between the 'information-rich' (ICT users) and the 'information-poor' (all those who don't use ICTs) (corresponding to the 'developed' vs. the 'underdeveloped'), the only way for the latter group to become a member of the other was to 'catch-up', which is *"[..] the essence of modernisation theory [...]"*, as Wilson (2003, 1) states.
The term 'information' is particularly important for understanding the relevance of ICTs in the development discourse: 'information', the 'I' in ICT, is regularly used in ICT4D literature as a synonym for the more controversial term 'knowledge'. (cf. Mansell 2009, 7) It seems that the use of 'information' to describe processes of development is grounded in the fact that 'information' appears to be a neutral term. But it is not.

Firstly, the term information is evidently bound to the theoretical imaginary of the 'Information Society'. The emergence of the term can be dated back to the early 1970s, when Bell published his famous work "*The Coming of the Post-Industrial Society" (Bell 1973)* and thus brought his concept of the 'Information Age' to scholars of socials sciences in the United States and Europe. (cf. Mansell 2009, 5)
Bell was one of the first authors who explicitly described information as a key concept for understanding world development in the post-war era:

> "By information, I mean data processing in the broadest sense; the storage, retrieval, and processing of data become the essential resource for all economic and social exchanges. […] By knowledge I mean an organized set of statements of facts […] which is transmitted to others through some communication medium in some systematic form." (Bell 1979, 504)

Obviously, this view on the role of information in our society fitted well into the development discourse of the 1970s, for which 'modernization' was the key concept both in theory and practical applications of development studies. Correspondingly, academic literature surrounding the concept of the Information Age focused on topics such as efficiency of technological solutions or the effects of technical infrastructure on macro-economic figures: Indeed, technology was assumed to be a mobilizer of progress in every part of the world and under all social systems. (cf. Mansell 2009, 5)

Although there was a certain opposition to this modernist and technical view on the Information Age in the 1970s and 1980s[3], those voices were not heard in the scientific community. In 2004, Garnham concluded that the questions of the Information Society's impact on production, politics, culture, labor and social stratification are the main issues for understanding the world in which we live and that *"[t]he answers to these questions, both theoretical and empirical, offered by Information Society theory are inadequate and unconvincing."* (Garnham 2004, 182)

Manuel Castells fundamental trilogy *"The Information Age"* (Castells 1996) is arguably the most important academic study on the social, economic and cultural implications of the Information Society- and yet it oversimplifies the role of ICT for development, as I shall demonstrate later.

Secondly, the term 'information' is rarely used without dividing societies into the binary construct of the 'information-rich' and the 'information-poor'.

The following quotation from an article written by Cawkell (2001) demonstrates the way academic researchers take the basis of the development course, the construction of the 'developed' and the 'underdeveloped' world, for granted and apply it to research on ICT:

3 See for example Golding and Murdock (1978) who emphasized the importance of the political and social implications of ICTs.

> “Material poverty and information poverty go hand in hand. According to a 1994 World Bank publication more than one billion people in the world live on less than one dollar a day. [. . .] People with a poverty of income are likely to be information-poor as well. Information-poor people may be those with low incomes or they may belong to an ethnic minority perhaps without language fluency. They may have had poor education and may be inarticulate or lacking in confidence. They may live in a country with bad communications and few telephones.”
> (Cawkell 2001, 56)

This statement is interesting in a number of points, as Haider and Bawden (2006, 377) argue: In the first place, the seemingly evident linkage between material poverty (which is defined by financial terms) and information poverty is used to formulate various hypotheses on what problems 'they' (the 'information-poor') may face. The idea that ethnic minorities do not speak a language fluently (the author probably means the colonial language) and that they are 'inarticulate' is particularly interesting: Conversely, this argument makes the native language in which people communicate not necessarily a language which is capable to transport 'information' in the sense of the author. The reference to telecommunication systems (telephones) is common in literature on information poverty: Thus, whole countries and societies are classified as 'information-poor' and 'backward'.

This way of classifying countries and regions in respect to their information-poverty (which is often measured in terms of telecommunication systems) is common among authors in the field of ICT for development. The use of the term 'information' seems to correspond to a high degree to the use of 'development': Throughout the years and in line with the so-called 'digital revolution', the term 'information' gained the status of a neutral concept. The problem of 'information-poverty' became self-evident and its solutions were rarely questioned critically. All of these aspects also apply to the term 'development', as Haider and Bawden (2006, 374) remark.

Considering this evident relationship between 'development' and 'information', I will take a Foucauldian perspective on the topic of ICT4D in chapter 2.2.2.3 to show that both concepts ('development' and 'information') are part of the same

discourse, namely the development discourse. (see Luyt 2004, no page) 'Information' thus is no longer a neutral term, nor is 'information-poverty' a neutral 'problem'. Both are elements which constitute the hegemony of a specific discourse.

2.2.2 Current discourses on ICT and development

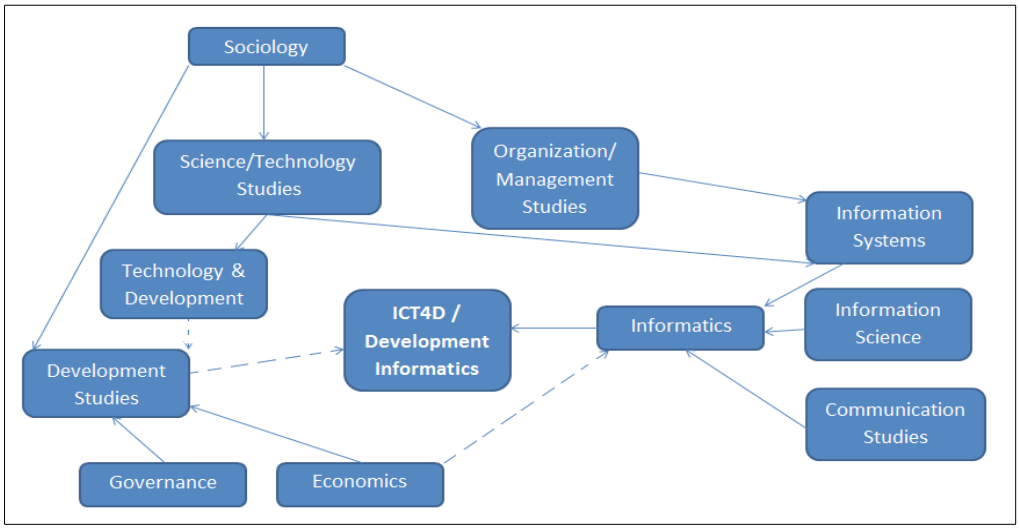

Illustration 1: Disciplinary foundations of ICT4D.

Source: Heeks 2007, 3

In order to understand the current debates concerning ICT4D, I consider it important to outline a rough framework which illustrates the relative position of the topic within the academic disciplines. Illustration one shows that the ICT4D discourse is mainly shaped by contributions from the academic fields of development studies and informatics, respectively. However, Heeks (2006, 1 f.) argues that until now, there has been relatively little effort in linking the 'D' of ICT4D with the concept as a whole. For this reason, the connection between development studies and ICT4D is represented by a dotted arrow.

Consequently, the influence of informatics (with inputs from information systems, information science, communication studies and, to a lesser extent, from economics) is considerably more important.
It might be argued that inputs from cultural studies had a strong influence on the development discourses of the past decades and that this influence must have shaped the ICT4D discourse as well. However, since the foundation of the discourse lies in modernist-technological thinking, cultural aspects played little role during the 1970s and 1980s. Evaluating literature on cultural aspects of ICTs in least developed countries (LDCs), Schneeberger (2007, 32) notes that although the topic was still relatively unimportant to the scientific community in the 1990s, questions surrounding ICTs and culture in LDCs have become more central for multilateral organizations in recent years.

In order to evaluate the line of reasoning in recent ICT4D research, I will use the framework of the "F*our Discourses on ICT4 Development"* provided by Avgerou (2010). In an attempt of categorizing current literature according to the way the authors look on the information system (IS) innovation process on the one hand and the aim (or outcome) of development on the other hand, Avgerou distinguishes between four discourses:

> *ICT innovation as 'transfer and diffusion':* In the last chapter, I tried to show how the ICT4D discourse was shaped by the modernist notion of the binary opposition between 'developed' and 'underdeveloped' countries. In this thinking, ICT innovation happens when knowledge and infrastructure are transferred from technologically advanced areas into technologically backward areas. (cf. Avgerou 2010, 3) This view is characterized by the universal claim that ICT transfer and diffusion is possible everywhere, regardless of the social, political and cultural context.

ICT innovation as 'social embeddedness': This view on ICT innovation in ICT4D uses an approach that takes more variables into account when discussing the innovation process in developing countries. The key issue is the question, how (and why) local social systems respond to innovative IT processes. (cf. Avgerou 2010, 5)

The notion of 'development' in the ICT4D literature is, irrespective of whether ICT innovation is seen as socially embedded or as a process of transfer and diffusion, highly disputed. Whereas the former categories focus on the question of the way ICTs are implemented, the criteria for the following two categories is the effect ICTs have on socio- economic developments in a country.

ICT development as a 'progressive transformation': The progressive transformation view on ICT4D has historically been propagated by multilateral organizations and development agencies. (cf. Avgerou 2010, 6) Basically, authors within the scope of this category agree upon the idea of ICT4D as a potential for reaching the aims or objectives of specific strategies, such as the eradication of child mortality or the improvement of the public health sector. The effects of ICT implementations are generally seen positive in terms of socio-economic development.

ICT development as a 'disruptive transformation': In contrast to the progressive transformation view, the disruptive transformation view questions the idea of ICTs as an effective tool of socio-economic development. Although a broad variety of theories and arguments exists in this view, the perception of a contradictory role of ICTs for socio-economic development can be considered a constant argument.

To conclude this section, I agree with Avgerou (2010, 8 f.) who formulates the following four views on implementation and effects of ICTs in so-called developing countries:

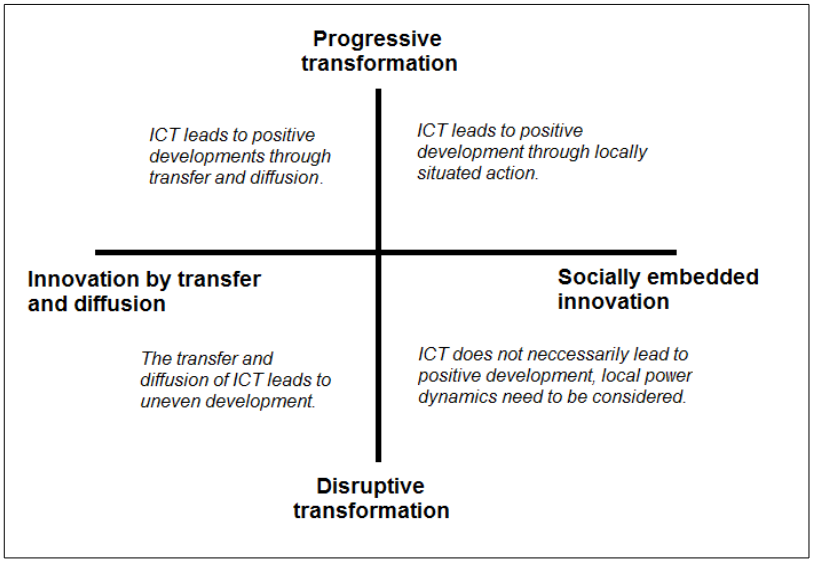

Illustration 2: Four discourses on ICT4D

Source: Avgerou 2010: 9

The left upper corner describes scientific lines of arguments who have a highly positive image of the role ICTs play in development. In contrast, the lower left corner categorizes those views which doubt the positive view on ICT4D and propagate theories of unequal development caused by ICTs. However, both the upper and lower left corner have one thing in common: They consider the topic from a technological point of view, where innovations happen through transfer (from 'rich' to 'poor') and diffusion of ICTs.

On the other hand, both the right upper corner and the lower right corner follow a scientifically broader approach, taking into account political, social, economic and cultural factors. The difference between the lower and the upper right side of the framework lies in the notion of the effects ICTs typically have: Authors following the view of 'progressive transformation' are categorized into the upper corner. Their work focuses on the question of the development possibilities of

ICTs when applied according to local structures. In contrast, the lower right corner once again questions this view on ICTs leading to positive socio-economic development and raises questions of power dynamics within the process of ICT development.

The aim of this section was to develop a framework for the critical assessment of theoretical literature which I will use for this work. Personally, I consider the transfer and diffusion view on ICT4D as too narrow to capture the topic in all its complexity. I will therefore focus on literature which can be allocated to the right side of the framework shown in illustration two in order to make a comprehensive view on the topic possible.

2.2.2.1 Questioning the modernist myth of ICT4D

It seems quite obvious that we live in an information society. The use of computers, mobile phones, GPS systems and the Internet has truly changed the way we live our everyday life more than any invention in the past 100 years. (cf. Wessels 2007, 1)
But does the use of new communication forms make a society change drastically enough to legitimize the construction of a completely new era? And if so, what are the implications of such an era?

2.2.2.2 The foundation: Manuel Castells' Information Age

In order to discuss these questions, I will use Castells' concept of the Information Age which he developed in his three-volume work at the end of the 1990s. Castells' framework serves as a perfect starting point because it is

considered to be the first comprehensive, cross-disciplinary work on the topic. (cf. Pintér 2008, 25) Castells provides a profound multi-dimensional analysis of the effects which the new technologies have had on the economic, political and cultural systems of our society since the 1960s.
This work was extremely important for scholars of different academic disciplines because it provided a single point of reference to the topic and discussed both the enabling and disabling characteristics that ICTs have in different contexts. (cf. Calabrese 1999, 172; Mansell 2009, 7)
Castells argues that the technological changes I mentioned earlier are profound enough to legitimize the 'era of information' as a truly new state of society because the *quantitative changes* (for instance, more mobile phones, more information flow, more publications on-line etc.) result in *qualitative changes* of the social system. (cf. Pintér 2008, 25)

The essence of what Castells calls Information Age is that the new forms of communication have led to new forces influencing the political, social and cultural processes within society. Castells distinguishes between three forms of forces: legitimizing, resistance, and project. (cf. Calabrese 1999, 176) The legitimizing force is the classical civil society characterized by Gramsci. (see Gramsci 1971) Castells sees the power of the civil society in decline, since the classical organizations of the civil society (like the labor movement) require a strong state. Also the second force, the resistance identities, is on the decline according to Castells: Resistance identities are grounded in political action of excluded or exclusionary groups, such as religious fundamentalists or gay / queer activists. However, Castells argues that resistance identities do not have the potential of developing new projects for institution building. (cf. Calabrese 1999, 177)

This pessimistic view of the first two forces brings Castells to the introduction of the third force of identity: The 'project identities'. Project identities arise, when social actors (for whatever reason) decide to re-define their position in society

and thus seek the transformation of the overall social structure. They are different to resistance identities because *“[…] [they] seek to move beyond relations of exclusion by seeking to transform existing institutions or by constructing new ones.”* (cf. Calabrese 1999, 177) Castells argument is that because of these new power-balances caused by the Information Age, new global inequalities for those who are outside of the 'network' of the information societies will arise. (cf. Pintér 2008, 26)

Due to his hypothesis that ICTs create new forms of inequality on the one hand, and that local social processes constitute the way ICTs are used on the other hand, I would classify Castells' study in the right down corner in the framework of illustration two. It is not my aim to criticize Castells concept of the Information Age in depth. In fact, even critics acknowledge Castells for his brilliant and well-documented study of contemporary society. (see for instance Calabrese 1999; Van Dijk 2001; Mansell 2009) However, I want to outline a specific point of criticism which I consider crucial for understanding the ICT4D myth: The technological determinism which shapes Castells' view of the changes technologies caused in society.

Castells explicitly distances himself from applying technological determinism: *“Technology does not determine society: it embraces it. But neither does society determine technological innovation; it uses it.” (Castells 1996, 5)* However, various authors claim that Castells did not succeed in avoiding technological determinism in his study. (cf. Calabrese 1999, 174; Van Dijk 2001, 6; Wajcman 2013, 105) The idea that the 'old' variables (cf. Warschauer 1998) of labor and capital are replaced by the 'new' variables of information and knowledge and that these variables are the most important cause for social change permeates his analysis, as Wajcman (2013, 105) states. With these variables Castells predicts the effects of 'informationalism' (as a mode of development) on 'capitalism' (as a mode of production). Thus, the mode of development is defined as a technological relationship, which is *“[...] clearly […] a technological*

determinist claim [...]", as Van Dijk (2001, 6) concludes. Considering the fact that Castells' work is grounded on a large amount of empirical data, which supports post-modernist views of the society, Warschauer states that his book is *"[...] a sort of 'Postmodernism for Modernists'."* (Warschauer 1998)

What does this conclusion mean for the ICT4D discourse? Above all, it is important to understand that even the work of Castells, which is highly recognized as a masterpiece of social study in the area of social implications of information technology, seems to be methodologically weak when it comes to the effects of ICTs on 'development' – the result of which is a *"[...] rather simplistic view of the role of technology in society"*. (Wajcman 2013, 105)
Now, this problem has an important implication: The narratives about the Information Age play an important role in the political processes surrounding development co-operation and help to constitute what is perceived as a consensus, namely that nations have to accept the mainstream version of the Information Society.

2.2.2.3 The application: ICT for development

It seems understandable that Castells' version of the Information Society found its way into the work of policy-makers soon after its publication in 1996. Development theory and practice have always used narratives in order to legitimize their work, and the Information Society narrative fits very well into this scheme. Besides this, Castells' competence and integrity stands without doubt and, as I have remarked in chapter 2.2.2.2, there were only few critical voices concerning his thesis of the nature of the Information Age.
The mainstream version of the Information Society gained influence throughout the 1980s and 1990s, and currently there is arguably no government in the world which does not prioritize ICT development in strategy papers.

Anthony Lelliott et al quote a White Paper which was published by the South African government in the 1990s to illustrate this statement:

> "Social and economic systems 'globalised' by world market forces, the information revolution and new communications technologies, require constant innovative planning and monitoring in order to function optimally […]. The ability to maximise the use of information is now considered to be the single most important factor in deciding the competitiveness of countries as well as their ability to empower their citizens through enhanced access to information."
> (Republic of South Africa 1996, cited Lelliott, Pendlebury, and Enslin 2000, 42)

Such notions of the role ICTs ought to play in government policies dominate publications of both governmental and non-governmental institutions up to the present time. Concerning the effects that these policies have had in practical applications of development co-operation, much criticism has been raised. Despite theoretical objections raised by scholars who are critical towards 'developmentalist' approaches, thousands of failed ICT4D projects have been documented and discussed within the academic community: *"Development theory, practice and the 'development industry' that has emerged from this have been increasingly criticised since the late-1980s and early-1990s, from a theoretical basis as well as based on evidence of the failure of many development projects to improve the quality of life of those defined as underdeveloped."* (Wilson 2003, 2)

However, it seems that the lessons learned from such studies (for example that ICTs often lead to new forms of disadvantages and inequalities) have normally not been influential for policy making. (cf. Mansell 2009, 9) This refusal to critically assess the influences of specific concepts in real projects is not surprising: The mainstream narrative of the Information Society, or at least the part of the narrative which found its entry to the offices of development agencies, does not have any incentives to confront itself with such questions.

The ICT4D industry as a part of the development industry found its main objective in the production of knowledge as a means to target problems developing countries are facing. Production of knowledge in this context normally means a one-directional process, in which rich countries (Western

Europe or the USA) possess knowledge and poor countries (developing countries) receive knowledge. (cf. Wilson 2003, 8)

In order to illustrate what I mean with the mainstream narrative of ICT4D in the practical application of actors working in the field of development co-operation, I want to use the following extract which was also cited by Haider and Bawden (2006, 378) and was originally published in 2000 in an article on Nigerian agricultural libraries.

> "Over 75 percent of the population live in rural areas and are largely engaged in subsistence farming. As a result, there is widespread rural poverty. This poverty is not only limited to material things, but also includes information poverty. [...] It is a well-known fact that information is at the heart of development. Consequently, the information and resource rich societies of the west have developed at an incredible rate in comparison to the poor countries of the south which are wallowing in abject poverty and debt . " (Agboola 2000, 29)

It must be noted that this extract is, of course, just a single piece of evidence. But the hypothesis that this extract serves as a good example for the 'mainstream version of the Information Society in ICT4D research' seems quite arguable. (see Haider and Bawden 2006; Lelliott, Pendlebury, and Enslin 2000; Wilson 2003 for other examples)

Obviously, the article introduces a classical catching-up paradigm where 'the West' serves as a role model and the 'poor countries' are left behind and need 'development'. (cf. Haider and Bawden 2006, 378) But beside this observation, I want to emphasize something else: The way the author pairs material poverty with information poverty, and information wealth (of the rich countries) with poverty and debt (of the poor countries) is remarkable and gives an impression of how the mainstream version of ICT for development is applied practically.

It seems that there is no need of making the role of information for development a subject of discussion, since it is a *"[...] well-known fact that [it] […] is at the heart of development"*. (Agboola 2000, 29) This notion is typical and accounts for the widespread acceptance of the Information Society narrative in practical ICT for development research. The idea that it must be the ultimate goal of all

so-called developing nation to reach the status of an Information Society needs no further explanation. There is no controversy on what really constitutes information or information poverty, or why information is the key to development. The narrative of the Information Society serves as a legitimization for all actions that target the 'problem' of information poverty.
The goal of this process is clear, and so is the means: To reach the status of an Information Society through strategies implemented in ICT for development projects.

Considering the importance that the concept of the Information Society has gained during the last 20 years, the question of discursive power in theoretical concepts arises. Foucault's discursive analysis provides an appropriate framework for answering this question. (see Foucault 1972) Foucault's understanding of a discourse is a self-referential one: A discourse is a socially constructed regime of knowledge (and truth), but at the same time it forms the reality of a society where the discourse is applied. (cf. Haider and Bawden 2006, 373) It might be argued that a regime of knowledge and truth that is capable of determining social reality in a discursive manner is in need of a consistent and undisputed theory. Foucault denies this argument: *"A discursive formation is not […] an ideal, continuous, smooth text that runs beneath the multiplicity of contradictions, and resolves them in the calm unity of coherent thought. […] It is rather a space of multiple dissensions; a set of different oppositions whose levels and roles must be described."* (Foucault 1972, 173)

With respect to the Information Society discourse, this argument is extremely important. As I mentioned earlier, the ICT4D myth does not build on an explicit theory, it rather uses assumptions and ideas which fit to the grand narrative of an Information Society as the goal of development.
Neither the practical application of the discourse (ICT4D) nor the theoretical foundations (the Information Society) can be described as verified and acknowledged realities. And yet, with all their contradictions and weaknesses,

this version of the role ICTs play in development currently forms social reality all around the world. Another element of Foucault's discourse analysis which is helpful for understanding the ICT4D discourse is the concept of pastoral power. (see Foucault 2009) Pastoral power is seen as a technique which leads to the construction and manifestation of power regimes through salvation-oriented behavior. The meaning of salvation can vary quite substantially and can include monetary and non-monetary assets, or whatever might be considered 'valuable' in different social, cultural and economic contexts. (cf. Haider and Bawden 2006, 373)

The argument that welfare institutions engaged in development co-operation are valid examples for agents of pastoral power, as Haider and Bawden (2006, 373) suggest, is convincing. In particular, ICT4D projects tend to use a salvation-oriented language in the description of the (predicted) beneficiary impacts that these projects have on the target group. The examples which were given earlier in this work can be seen as small pieces of evidence, which together form an image of the ICT4D discourse which corresponds to the Foucauldian view on discourses in general.

In conclusion, the ICT4D myth as the practical application of the Information Society myth was extremely successful in shaping the (mainstream) view on what constitutes development in the area of ICTs. Criticism to the mainstream version of both the Information Society and ICT4D has been raised regularly, but was normally neither honestly discussed in the academic community nor did it change the practices of the development industry. I agree with Mansell, who concludes that *“[b]y the 1990s, economists had concluded that knowledge creation is an important driver of the economy which underpins the Information Society vision, typically making little distinction between information and knowledge.” Mansell (2009, 7)* I would even go beyond this and include social scientists, researchers of development studies and other academic fields in the statement.

2.2.2.4 Alternative approaches in ICT4D literature: digital divide

As I have mentioned earlier, it was difficult for critical ICT4D researches to compete with the mainstream version of the discourse, which was propagated by the powerful coalition of development agencies, social scientists and policy-makers since the 1970s. However, if we turn back to the framework of current ICT4D discourses (see Avgerou 2010, 9), the fact that alternative approaches on the topic are available becomes clear. Those authors who question the modernist myth of ICT4D (which was discussed in the last two chapters) generally focus on the effects that ICTs have on equity and social justice in developing countries. The general thesis in alternative approaches of ICT4D is that ICTs do not necessarily result in improved living conditions for all. (see for example Alampay 2006; Van Dijk 2005; Heeks 2002; Vrasidas, Glass, and Zembylas 2009; Warschauer 2004)

One of the most frequent arguments why alternative approaches for ICT4D are needed is the simple fact that failure rates in ICT4D projects are very high. (cf. Heeks 2002, 103) Possible reasons for failed ICT4D projects are manifold. Here, I want to focus on the conclusions which are drawn from the evidence of these projects.

The digital divide approach is arguably the most popular theory that authors who are critical towards the mainstream version of ICT4D use in order to explain the effects of ICTs in developing countries. The basic assumption is that ICTs do not have a positive effect on development (whichever way one defines this term) *per se* but rather leads to increased inequalities. (cf. Alampay 2006, 5; Luyt 2004; Norris 2001, 5 f. Zembylas 2009, 18)

Those who have resources (for instance education, power, money) benefit the most from ICT implementation in poor nations. (cf. Zembylas 2009, 19) Those who have nothing, neither have the will nor the possibilities to use ICTs. Or, to use the words of a women who was interviewed by an Internet working group:

“[...] [H]ow can a woman be interested in Information and Communication Technologies (ICTs) on a hungry stomach with a child crying on her back for food and another she is carrying in her arms dying because of lack of medical care? ” (Ochieng and Radloff 1998, 63)

Even though the problem that this women mentions concerning the use of ICTs in her specific situation is acknowledged by all authors who are questioning the modernist myth of ICT4D, we can differentiate between at least two views on the capacities and flaws of ICTs in the discussion which correspond with the framework of illustration two in chapter 2.2.2.

One view is situated in a 'radical structuralism' of the authors, as Harindranath and Sein (2007, 5) put it. Here, the idea is that the transfer and diffusion of ICTs in so-called developing countries leads to uneven development and a digital divide. Obviously, this is a view which postulates a rather deterministic role of ICTs for development.

The other view rejects a deterministic view on the topic, arguing that the effects ICTs have on people in developing countries depend on a number of factors, including the social and cultural context in which ICT4D projects are carried out. (cf. Avgerou 2010, 5) On a policy-level, authors with a focus on the social embeddedness of ICTs focus on topics such as locally developed software, open-source based initiatives, South-South initiatives etc. (cf. Harindranath and Sein 2007, 5)

At this point, the most important streams of argumentation in the ICT4D discourse were briefly outlined and categorized. In the next chapter, I will describe the dilemma that critical ICT4D researches face, and discuss possible solutions.

2.2.2.5 The dilemma of critical ICT4D research

Summarizing the findings of the preceding chapters, we get a rather pessimistic view on the role of ICTs for development. In a historical perspective, ICT4D is tightly connected with the ideas of modernization theory and the 'catching-up' paradigm of development studies. From the perspective of social theory, ICT4D is part of the Information Society myth, thus forming a grand narrative which seems to be resistant to criticism of both its theoretical assumptions and practical applications.

For this reasons, the ideological power of development agencies and other actors in the field makes it difficult to compete with the mainstream version of ICT4D. Wajcman notes that *"[i]n this process [ICT4D projects, note of the author], technocratic discourse, globalization and free market economics coalesce into an extremely powerful ideological force." (Wajcman 2013, 105)*

The dilemma ICT4D researchers face must be evaluated from two perspectives. When ICTs are implemented through ICT4D projects in developing countries, the educational and political significance of these projects is based on the grand narrative of an Information Society. (cf. Zembylas and Vrasidas 2005, 66) The shortcomings of such a view (as well as the failures of such projects) are well documented.

But what is the alternative to ICT implementations in developing countries, and what are the consequences? *"Without access to ICT, however, many societies are in danger of further isolation and exclusion from global development". (Zembylas and Vrasidas 2005, 66)* It is impossible to deny the potentials that ICTs have with respect to promoting democracy, participation, decision-making, health and other topics. (cf. Lelliott, Pendlebury, and Enslin 2000, 46)

What can be done in order to solve this obvious dilemma between potentials and dangers of ICT4D? To start with, Wilson proposes the following:

> "We should recognise the existence of a digital-divide between those who have access to this particular technology and those who do not, but when this is extended unquestioningly to imply information or knowledge divides the problem of technological determinism takes hold. While ICTs may provide a means of accessing certain types of information that might be needed and might not be available, the concern is that we need to be careful not to overlook the information that is available, and may not require ICTs for dissemination, so that we can also make use of this valuable resource in development efforts." (Wilson 2003, 7)

Recognizing the existence of a digital divide does not mean accepting the grand narrative of the Information Society which has shaped the ICT4D discourse for decades. In contrast, it means that a grand narrative is incapable of explaining the complex political, economic and cultural factors influencing poverty, exclusion and inequality. It is essential to rethink the role actors in development co-operation have assigned to ICTs: Technology is neither 'good' nor 'bad', as the human development report 2001 states. (cf. UNDP 2001, 26) Nor is it neutral, as Kranzberg (1986) remarked.
In the following chapters, I will try to outline a framework to critical ICT4D research which follows the ideas given in the previous paragraphs.

2.2.3 Information and critical knowledge

In order to discuss possible solutions to the dilemma of ICT4D research, I want to use an example which is mentioned by Warschauer (2004, 210). He describes the outcome of two ICT4D which were both carried out in India about the same time in an agricultural context. The idea was to use ICTs in order to provide training on agricultural topics and to inform farmers on market prices more accurately. Now, one project was carried out in a small community with almost all inhabitants receiving a very low income. In contrast, the target group

of the other project was a community where an extreme inequality persisted between the land-owners and the landless poor.
Obviously, those projects had quite different effects: In the case of the more egalitarian community, ICTs were used to increase the skills of the farmers and thus enhanced productivity. In the other case, land-owners used ICTs for increasing their personal revenue by comparing market-prices (which is understandable), and there might be a small trickle-down effect to the landless poor.
But certainly the underlying problem of landlessness prevailed. Does this example mean that it would be better not to carry out an ICT4D project in the latter case?
Warschauer argues that it is definitely possible to carry out a project which is socially and economically successful in this case, but *"[f]or this to occur, information must be combined with mobilization, and ICT projects will be in the end most meaningful if they find ways to lend support to mobilization efforts (for example, by linking nongovernmental organizations that are active among the landless poor)."* (Warschauer 2004, 210)

I think this example makes an extremely important point clear: Access to ICTs, or more generally information, is not sufficient for positive development. This finding is not new, since already in 1997, Howkins and Valantin concluded that *"[b]y adopting an uncritical approach [towards ICTs, note of the author], most countries gain access at the expense of substance."* (Howkins and Valantin 1997, 37)
Wilson (2003, 13) states that all actors in the field face the challenge to be critical about the common assumptions concerning ICTs for development and to use the power that ICTs inevitably have in order to question current hierarchical structures which are undermining development in a specific context.[4]

4 The example of the landless poor which was given by Warschauer (2004, 210) serves as an illustration for this point.

If we accept the hypothesis that for positive effects on development, a critical approach towards ICTs is essential (which implies not to follow a modernist, technological- deterministic thinking), the question of what constitutes such an approach arises. I agree with Vrasidas, Zembylas, and Glass (2009, 14) , who suggest the following:

> "The critical use of ICTs in the contemporary world should attend to the challenges presented by poverty, social exclusion and cultural misunderstandings, and it should empower individuals and groups to analyse and critique the emerging effects of social injustices around the globe."
> (Vrasidas, Zembylas, and Glass 2009, 14)

Although this definition is held in very general terms, I consider it to be an appropriate starting point for further research because it addresses the basic challenges for development studies which were neglected much too often in the past. Besides this, the definition provides us with neither a progressive, nor a disruptive, nor a neutral view on the role ICTs play in development but rather focuses on possible (but not deterministic) empowering effects.

Alampay (2006, 9 f.) is using a quite similar approach in his attempt to find a solution for the mentioned dilemma of critical ICT4D researchers. On the assumption that ICTs are just tools which can have positive development effects (cf. Heeks 1999, 12), Alampay argues that the capacity approach of Sen (2011) fits well to critical ICT4D concepts.

Sen's central argument is that the primary ends of development, but also the principal means, is to enhance the freedom of the individuals living in a society. (cf. Sen 2011, 11) Freedom in this notion is a holistic concept which makes it possible for individuals to live the kind of life they want to. According to Sen, freedom consists of political, social, economic and cultural factors which can strengthen one another. (cf. Sen 2011, 11) If we have the criticism that was raised against the modernist version of ICT4D in mind, the following quotation sheds light on the problem of solving the dilemma that was mentioned earlier: *"In judging economic development, it is not adequate to look only at the growth of GNP or some other indicators of over-all economic expansion. We have to look also at the impact of democracy and political freedoms on the lives and*

capabilities of the citizens." (Sen 2011, 150)

If we apply this thinking on ICTs in developing countries, Sen's view is basically a claim for looking at the capabilities that individuals in a certain area and context have, and to use ICTs in order to enhance these capabilities.

It must be noted that Sen was regularly criticized for making interchangeable assumptions on his fundamental concepts of functionings, capabilities and freedoms. (see Gasper 2002 for a comprehensive review)

However, I think that for the purpose of developing an alternative approach towards ICT4D research, Sen gives priority to the central topics and allows us at the same time to get a comprehensive view on the issue. In the following chapter, I will make some basic conclusions derived from the main findings the academic field of development studies can offer on the subject of ICT for development.

2.2.4 Conclusion: the best and worst of times

> "It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us […]." (Dickens 1859, 1)

The introduction of Charles Dickens' "*A tale of two cities"* (Dickens 1859) serves well to describe the ICT4D discourse in development studies, as Mansell (2010, 5 f.) states. Recollecting the findings of the previous chapters, I think it is clear that the technological changes in the last 50 years have indeed had huge impact on the world-society.

Regarding the nature of this impact, researchers can be roughly categorized according to the literary theme of Dickens, namely those who propose a progressive effect of ICTs for development, and those who propose the

opposite. I think it is useful to summarize these streams of argumentation in a few words in order to make a final conclusion for this chapter which I will use as a theoretical foundation for the empirical part of this work.

> *"It was the best of times, […] it was the age of wisdom, […] it was the epoch of belief, […] it was the season of Light […]." (Dickens 1859, 1)*

The idea that we live in an Information Society where ICTs are at the heart of development, and that it is sufficient to grant access to ICTs to all segments of society in order to reach certain goals of development, is grounded in a technological deterministic view of the world. It has been showed that the promises of access and inclusion, as Lelliott, Pendlebury, and Enslin (2000) put it, must be considered as a failure in terms of outcomes of practical development projects.

> *"It was the worst of times, […] it was the age of foolishness, […] it was the epoch of incredulity, […] it was the season of Darkness […]." (Dickens 1859, 1)*

Although it is important to question the modernist myth of the Information Society, it is equally problematic to focus only on the disruptive functions ICTs may have. The idea that existing inequalities will increase through ICT4D projects makes the subjects of these projects (the individuals) passive objects of their development. This view neglects that ICTs can also be used as tools for empowerment, social mobilization and entrepreneurship.
The problem which is inherent to both views on ICT for development lies in the assumption that the basic question is whether ICTs are good or bad for (social, economic or cultural) development. But the question is not whether ICTs are useful. The much more interesting question is what ICTs can do, and what they cannot do in order to create a socially just world where freedom and peace prevails. (cf. Zembylas 2009, 20)

This view on ICTs as tools or instruments which can be used to promote social inclusion and justice, but must be used critically, corresponds to Sen's capability approach. If we focus on the enhancement of capabilities of individuals who live in a specific socio-economic setting, we avoid the problem of making them mere spectators of their development. On the other hand, further theoretization of the relationship between technology and society is urgently needed in order to use ICTs more successfully in the struggle for socio-economic development and social inclusion.

With respect to the overall topic of this work, the effects of ICT training on youth in Ghana, I will try to apply the critical ICT4D approach with a focus on social inclusion and inequality which was outlined in the previous chapters. Since the core of this work lies in the empowerment (or dis-empowerment) of young people through ICT education, the next chapter will deal with the topic of ICT for development from the perspective of educational studies.

2.3 Educational studies

Since the aim of this work is to evaluate the effects of ICT training on young people in Ghana, it seems evident that a severe examination of academic literature dealing with topics of ICT in education is necessary. The idea of this chapter is to discuss what Bruce (1999, 227) calls *“ethical”* questions concerning the role ICTs can (or should) play in education. Those are questions which go beyond single-disciplinary discussions such as technological possibilities or empirical evidences on learning outcomes of ICT in education projects. Too often, researchers take the expected outcomes of such projects in educational settings as given: The general idea is that the effects of ICT in education projects on learning and teaching are positive.

In accordance with Warschauer, I consider this view on the computer as the *“[...] omnipotent machine [...]”* (Warschauer 2004, 202) to be short-sighted and not useful for a critical discussion of the topic. In contrast, I will use inputs from different approaches in social sciences in order to answer some fundamental questions on ICT in education for the purpose of empowering people.

2.3.1 ICT education as social practice

The French sociologist and philosopher Pierre Bourdieu focused a lot of his research on the examination of the role social practices play in a society. For him, the dialectic relation between the way social actors (individuals) structure society and how social structures influence the behavior of individuals was central for understanding processes of human interaction. (cf. Kvasny and Truex 2000, 281)

Various authors implicitly or explicitly use Bourdieus concepts for describing problems in the practical application of ICT in education programs in developing countries. The underlying assumption of authors such as Van Dijk (2005), Kvasny and Truex (2000) or Warschauer (2004) is that access to ICTs is not sufficient for promoting empowerment in a specific community. Warschauer, for example, differentiates between physical, digital, human and social resources which together constitute the potential effects ICTs may have in a specific historical and socio-economic context. He concludes that technology is socially embedded in existing social structures and that it is essential to understand these structures if a certain change is desired. (cf. Warschauer 2004, 201)

Bourdieu used the term *capital*, which is quite similar to Warschauer's *resources,* as Czerniewicz and Brown (2005, 45) note. He distinguishes between *cultural*, *symbolic*, *social* and *economic* capital which individuals do (or do not) possess. In Bourdieu's view on social practices and control, all of these forms of capital can be used to exercise power and to establish or secure power relations. However, the concept of capital is not sufficient for explaining social practices and control: Bourdieu introduces the concepts of the *habitus*, *symbolic violence* and *cultural arbitrary*. (cf. Kvasny and Truex 2000, 283) The *habitus* is responsible for the actions of individuals in their daily life. It is shaped by personal experiences, history and influences from the society in which an individual is raised. (ibid.) On the one hand, the *habitus* is important because individuals constantly need to make complex decisions: The *habitus* provides coping strategies for a lot of situations and thus helps individuals to cope with everyday-problems. On the other hand, the *habitus* may have negative consequences for social progress in society, because it tends to limit the scopes of thinking and defines fixed routines (which could destroy creativity). (ibid.)

The *cultural arbitrary* defines which forms of capital in a society (at a specific time) are valued highly and which forms of capital are seen as meaningless. Generally, the elites (or ruling class) of a society define the *cultural arbitrary.* (cf. Kvasny and Truex 2000, 283)

The concept of *symbolic violence* describes how individuals are subjects to hierarchies in a social system. Through the power of social, economic, symbolic or cultural capital, people are assigned a place in the hierarchy of society. (ibid.)

In this view, people are constantly subject to ideological forces influencing their *habitus*. Social practice is the result of individual struggles against the forces of symbolic violence: Through the *habitus*, social practices are manifested and hierarchies are reproduced. (ibid.)

Now, how can we translate these terms to the evaluation of the potentials of ICT in education projects for empowerment? Kvasny and Truex (2000, 284) apply Bourdieu's theory to ICT. They suggest the following:

Symbolic violence is exercised by those who have the power to make decisions on who can access technology or who is obliged to use a certain information system. Symbolic violence does always have a political function: Through the imposition of a certain technology (for example, new software which has to be installed in a school computer environment), a social order is established through cultural mechanisms. If the new technology gains legitimacy among the elite within this environment (for instance, the headmaster and a group of staff), the acceptance for the specific technology in the environment becomes compulsory for all other individuals (all teachers and other staff). Those who possess a certain technical knowledge of the new technology (*cultural capital*), who are able to share expertise concerning the technology (*symbolic capital*) or who can use personal relationships or money to further their knowledge (*social or economic capital*) will benefit from the implementation. On the other hand, those who are excluded from the process of the implementation are forced by symbolic violence to accept the new technology - generally, without even recognizing the oppression. Thus, technology can be used to build ideology and, in extreme cases, to construct a system of permanent monitoring and control of individuals: *"Monitoring telephone calls, examining computer usage logs, and maintaining statistics on the entire workforce place all workers under the gaze."* (Kvasny and Truex 2000, 286)

It seems clear that Warschauer's notion of the *“social embeddedness of technology”* (Warschauer 2004, 202) draws from the Bourdieuian concept which was outlined above. (cf. Czerniewicz and Brown 2005, 45) This framework shall serve as a guideline for the critical evaluation of the potential benefits, but also the dangers, of implementing ICT in education projects. The Bourdieuian analysis of power relations in ICT education shows that power is indeed a central topic for the discussion of potential effects of ICT in education projects in a community. Kvasny and Truex state that *“[...] power relations and controls are implicit in the [information] technology and in society's attitude toward that technology. Hence the deployment of new technology tends to reify the dominant relations in the existing social order.”* (Kvasny and Truex 2000, 1) In the area of ICT in education, it is therefore important to clarify questions concerning existing power structures before evaluating the effects of ICT in education as a means of promoting empowerment. As we shall see, this discussion was too long neglected by scholars of the topic.

2.3.2 History and current debates on ICT in education

The history of ICT education in developing countries is closely tied to the development paradigm which prevailed at the time of its first implementation. In line with the rise of the concept of the Information Society, which I described earlier, the necessity for implementing ICT in education both in developed and developing countries became a consensus in academic literature and political policy-making. Indeed, the idea that ICTs offer opportunities for a more efficient educational system is still very influential, as Czerniewicz and Brown (2005, 43) point out.

However, given the attention the topic received by the scientific community, there exists a surprisingly small body of literature, specifically concerning

fundamental research, on the issue. (cf. McDougall and Jones 2006, 359) McDougall and Jones argue that one of the most severe problems the sub-discipline of ICT in education is currently facing is *"[...] [that it] seems determined to neglect or deliberately ignore its own history"*. (McDougall and Jones 2006, 359) One possible reason for the lack of constant and consistent research in the sub-discipline lies in the fact that the rapid technological changes in ICTs make it difficult to use findings from previous projects in current research settings. (cf. McDougall and Jones 2006, 356) Another probable reason can be found in the discourse on ICT in education itself: Just like the discourse on ICT for development, ICT in education gained influence in a time when technocratic and modernist thinking concerning the role of technology for human society prevailed in universities and government offices. It seems probable that this happened partly because social scientists participated in such research activities relatively late.

When the topic first gained popularity among researches in the 1960s, two groups tried to push the expansion of ICT in education projects. The first group, universities and national bodies, recognized that it was essential to increase the number of ICT experts in order to provide trained staff for the private industry. (cf. Cox 2010, 11) The second group consisted of educators who were early adopters of ICTs, predicting the enormous potentials of using ICT in education. (ibid.) The release of the programming language LOGO in 1967, which offered the possibility to graphically represent how basic programming principles function, was one notable initiative which was conducted by the latter group. (cf. Brusilovsky, Calabrese, Hvorecky, Kouchnirenko, et al. 1997, 68) Thus, both groups involved in the process of enhancing ICT use in education were driven by the idea of making existing teaching and learning practices more effective. (cf. Cox 2010, 11) The problem of these approaches is that they focus on the technological possibilities offered by the new developments in the industry and rarely participate in a serious discussion on more fundamental issues concerning the topic. Or, as Roblyer formulated strikingly: *"If technology is the answer, what's the question?"* (Roblyer 2004)

This provocative remark is certainly not answered by the results of research conducted by scholars of development studies or practice. Corresponding to the technology-focused view of ICT in education, the problem of bad or inappropriate ICT infrastructure in developing countries received the most attention in academic debate in the early years of its implementation. (cf. Kozma 2011, 18) A common notion was that *"[...] [s]chools in South American and African countries identified barriers that ranged from lack of access to computers in working order, lack of software, technical support, administrative support, sufficient teacher training, Internet access, and even lack of a reliable supply of electricity."* (Kozma 2011, 18)

As a result of these problems, most governments implemented strategies for enhancing the effectiveness of ICT in education projects in their national development plans. (cf. Albirini 2006, 49; Cox 2010, 12) However, despite the considerable resources local governments and donors invested in ICT infrastructure, training for educators or learning software, the results were often disappointing. (cf. Albirini 2006, 49)

If one tries to evaluate current ICT in education literature in respect to its effect on key educational goals, an extensive but rather confusing body of literature makes it difficult to give clear answers to questions dealing with effects ICT in education projects had in different countries.

Generally, the evaluation of practical ICT in education projects received much more attention than fundamental theoretical research, as Underwood (2004, 139) critically remarked. Besides this, most empirical studies use quantitative data on average test scores, which makes it difficult to gather information on why a specific result was achieved with or without ICT in education elements in a school setting. These studies tell us little about the way ICTs were implemented in the classes which took part in the study. Furthermore, authors who strongly support the view that ICT in education will revolutionize learning and empower people (see Khan, Hasan, and Clement 2012) and authors who claim that computers in classrooms are unnecessary expenses (see Cuban

2009) both use empirical studies which support their views. Findings from such studies range from claims for a prioritization of cultural issues (see Albirini 2006), suggestions for overcoming problems with the literacy level in poor communities (see Hallberg, Kulecho, Kulecho, and Okoth 2011) to the urge for taking the crucial role of gender-sensitivity in such projects in mind (see Joseph 2012).

However, it seems that presently there is little evidence that an unconditional praise of ICT in education projects is appropriate: A literature survey conducted by the UNESCO in 2011 found that most studies on the effectiveness of ICT education could not verify a positive impact of ICT use on performances of students, even if infrastructure and training were provided. (Kozma 2011, 15 ff.)

Given these problems in the area of ICT in education research, I think that it is essential to critically question the relevance of existing ICT in education literature for the purpose of discussing the effects of ICTs on the empowerment of young people in general. First of all, it is noteworthy that most studies which were conducted in the field concentrate on questions concerning the technology which was used in ICT in education projects. This technocratic view is regularly criticized: *"[...] [T]oo many […] articles […] focus on the technology rather than the impacts of technology on human endeavour."* (Underwood 2004, 140) At the same time, ICT in education research is strongly influenced by a pro-technology lobby. (cf. Underwood 2004, 137) The consequences of these developments for a theoretically and empirically robust ICT in education research are described by McDougall and Jones as follows:

> "Technology-focused studies using survey techniques to evaluate or justify use of ICT in educational settings, undertaken to provide information required by administrators and funding bodies, do not constitute the fundamental research needed to refine and develop theory and practice in education."
> (McDougall and Jones 2006, 359)

The importance for ICT in education research with a focus on human behavior and social structures instead of technological possibilities seems crucial for

overcoming problems of current ICT in education projects. For example, many educators failed to make use of the possibilities which ICTs offer simply because the paradigm of education as an hierarchical process of knowledge transfer makes it difficult to effectively use ICTs. (cf. Kozma 2011, 34) A focus on the technological infrastructure or a more effective training of teachers makes little sense if the problem is rooted in an inappropriate pedagogical practice.

Over the past years, the debate for fundamental educational reforms - not only concerning ICTs in education - gained significance throughout the world. (cf. Cuban 2009, 1) The list of the raised concerns on the flaws of the current education system is long, and is getting longer every year. Some of the most important points of criticism are: a) the focus on the performances of individual students, which prevents collaboration; b) teachers lecturing in front of the class, while students are supposed to listen; c) a clear distinction between those who 'know' (teachers) and those who 'learn' (students); d) the clear-cut timetables with few possibilities for interdisciplinary topics and informal learning. (cf. Foster 2008, 18; Kozma 2011, 20)

Of course, this list cannot provide a comprehensive overview of the criticism that was raised against the current paradigm in the education systems around the world, but, as Pelgrum notes, there has been a *"[...] shift from the learner as passive consumer of educational offerings to an active knowledge gathering and productive participant in educational activities [...]"* (Pelgrum 2001, 163) which found its entry into important national and multilateral policies.

The popularity which new concepts of teaching and learning gained in the past decade was, at least partially, caused by the public and academic debate on the effects of the Information Age on our society. The idea that information[5] is the foundation of most economic and social activities in our world is presently very influential and obviously served as an argument for those who demanded

5 Information was substituted by the more general term knowledge in the past decade, as I have argued in chapter 2.2.2.2.

radical changes in the education system. In a world report published in 2005 by the UNESCO, the need for a new paradigm in our view on education was legitimized by the rise of the knowledge society:

> "Learning societies will have to enable each individual to keep up with knowledge. This will require an in-depth debate over knowledge evaluation, whether of 'learners' (schoolchildren, students, workers following a training course, seniors, etc) or of teachers and researchers. "
> (UNESCO 2005, 62)

In the same report, the *"[...] major shortcomings in existing systems and institutions"* (UNESCO 2005, 81) for providing the individuals of the world-society with the skills needed in a knowledge society are criticized.

It is quite understandable that officials of both the public and the private sector read such statements very attentively. In essence, what is proposed is a shift from a 'mass production paradigm' which is considered inappropriate to prepare future generations with the necessary skills for producing goods and services in a knowledge society, to a 'knowledge creation paradigm', where the process of learning is personalized and where creativity, collaboration and problem-solving skills are fostered. (cf. Kozma 2011, 20 f.) ICTs are considered to be a key technology for making this shift possible, which is grounded in the fact that attributes like collaboration, creative use or individualization are almost inherently connected with ICT characteristics. In a knowledge creation paradigm, Kozma argues, the capabilities of ICTs are used to achieve the goal of creating knowledge through *"[...] personalized instruction and interactive animations, games, and simulations that can make complex concepts and systems more understandable."* (Kozma 2011, 21)

Although I agree with many of the arguments which are proposed by the cited reports on the role of ICT in education for the Information Society, I propose a certain skepticism towards the capacities of ICTs for changing our education system. In the study conducted by Kozma (2011) which was published by the UNESCO, it is clearly stated that through ICT implementation in education itself,

there will be no significant change in the education system. (cf. Kozma 2011, 18 f.) Change can only happen if the introduction of ICTs is accompanied by other policies and programs with transformative power. (cf. Kozma 2011, 29) I completely agree with this statement, however I think that the very optimistic notion of ICTs in education is inappropriate, given that the topic still lacks fundamental research and that already existing results are not overwhelming. Or, as Underwood puts it: *"Islands of excellence exist, in conjunction with huge oceans of poor practice."* (Underwood 2004, 137)

To conclude this chapter, I once again want to stress that I consider it extremely important to critically assess existing literature on the topic towards its theoretical and empirical robustness. Since the main purpose of this work is to evaluate the impact of ICT education on the empowerment of youth in Ghana, the next chapter will deal with the empowering potentials of ICT in education.

2.3.3 ICT education and empowerment

The term empowerment has become one of the main concepts in development theory. (see for example Sen 2011) Of all the so-called 'buzzwords' in development (which describe the myths and fantasies of development theories), empowerment probably has the widest semantic range, as Cornwall (2007) states. It is used in very diverse contexts, *"[...] including feminist scholarship, the Christian right, New Age self-help manuals and business management [...]"*, as Cornwall and Brock (2005, 1046) point out.

2.3.3.1 A definition of empowerment

As a consequence of the wide semantic range of use, there is no universal definition of empowerment which is accepted by most scholars of the topic. In a very general definition, Rowlands suggests that *"[...] [empowerment] is about individuals being able to maximize the opportunities available to them without or despite constraints of structure and state."* (Rowlands 1995, 102)

Hennink, Kiiti, Pillinger, and Jayakaran (2012) found in a study on the perspectives of international development organizations on empowerment that they use six different mechanisms through which empowerment occurs, five domains of empowerment, and three levels of empowerment. Without discussing these categories in detail, I agree with the authors that the term is rather complex to define, simply because there is a high interdependence between various components of the term, which makes efforts to define empowerment difficult. (cf. Hennink, Kiiti, Pillinger, and Jayakaran 2012, 214)

The following definition of empowerment given by the World Bank, for example, is problematic because a) it focuses only on individuals (which is only one level of empowerment) and b) the term 'poor' is used without a definition of the meaning:

> "Empowerment is the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives." (The World Bank 2002, xviii)

For the purpose of this work I will use the following definition, which summarizes the most (though not all) categories which were found in the study of (Hennink, Kiiti, Pillinger, and Jayakaran 2012):

Empowerment is a process in which individuals, communities or organizations enhance their economic or political capabilities, their health or their access to natural resources. Empowerment can be achieved through knowledge acquisition, agency, capacity-building, changing socio-political structures or providing access to resources.

I consider it useful to further distinguish between empowerment on a professional level (where economic possibilities, employment and social security are crucial) and on a personal level (where political capabilities, self-confidence building and knowledge acquisition is more important).

In the next chapter, I will discuss one topic which is frequently mentioned as a potential to empower people, namely the concept of literacy. I will show that the concept of literacy has a lot in common with the ideas of ICT in education and that, although highly disputed, the potentials for empowerment in well-designed projects for enhancing (digital) literacy cannot be neglected.

2.3.3.2 (Digital) literacy

The concept of literacy seems rather straight-forward if we use our common sense: Literacy describes the capacity to read and write, and those who cannot read and write are illiterate. Although this is not explicitly wrong, most social scientists prefer a broader definition of the concept, including historical, cultural and socio-economic factors. (see Gee 2007) This means that the meaning of words varies according to who uses them in a certain occasion.

Take the word *queer*, for instance. Historically, the word was used to insult homosexuals (like *fag* or *dyke*) in a derogatory way. However, in the late 1980s, the homosexual communities began to use the word as an umbrella term for

sexually marginalized groups. (cf. Love 2007, 2) Thus, the meaning of the word changed significantly in the past 30 years - at first, only in a certain community, and later generally. This example illustrates how the concept of literacy can have an explicit political agenda. In social sciences, the works of Paulo Freire particularly stress the importance of education in order to re-shape the world of marginalized groups:

> "Reading the world always precedes reading the word, and reading the word implies continually reading the world […] [and] transforming it by means of conscious practical work." (Freire and Macedo 1987, 35)

The importance of literacy for socio-economic development is recognized by scholars throughout disciplinary and ideological borders. Already in the 1920s, Gramsci stressed the political importance of language, observing that Italian peasants tend to read French novels instead of Italian ones. (cf. Ives 2004, 4) He argued that language was an important instrument for the formation of a ruling class and for establishing hegemony. (cf. Henry A. Giroux, Introduction in Freire and Macedo 1987, 1) Gramsci thus made clear that language (or literacy) is never neutral and consists of much more than the ability to read and write. Besides this, he stressed the dialectic relationship between language as an instrument of power and domination on the one hand, and a possibility for social empowerment on the other hand. (ibid.)

With his focus on the discussion of the political importance of literacy, Gramsci foresaw a debate which gained importance in the 1960s and 1970s. One common version of the 'problem' of literacy was that there exists a *great literacy divide* which hinders the socio-economic and cultural development of individuals and communities. (cf. Warschauer 2002, chapter 6) Many publications focused on a cognitive interpretation of literacy, stating that illiterates think less abstractly, less critically and have fewer capacities for logical reasoning. (cf. Scribner 1984, 14) Furthermore, literacy has been said to separate humans into

different groups ('primitive societies from civilized societies' or 'traditional societies from modern societies'). (see Goody and Watt; Strauss cited in Warschauer 2002)

If we bear in mind how the essential role of ICT for socio-economic development was stressed by scholars and policy-makers and how concepts such as the digital divide determine the mainstream version of ICT for development, the similarities between the discourse on *literacy* and the discourse on *techno-literacy* becomes evident. Both concepts follow the idea that there are two separated groups of humans: those who are illiterate (or non ICT users) and those who are literate (or ICT users). Also, both concepts regularly emphasize the importance of 'bridging the gap' between illiterates and literates, or non-ICT users and ICT users, respectively. (see Servon 2008 for the digital divide)

Warschauer (2002, chapter 7) lists four main arguments why literacy and digital literacy are part of the same discourse:

- *Communication:* Both concepts are generally seen as advances in the area of human communication. In former times, the function of writing and reading letters was extremely important for the production of knowledge - being literate meant to be able to participate in the production and sharing of knowledge. Now, being able to use modern (digital) communication networks is an essential requirement for producing knowledge.
- *Participation:* ICT access is now a prerequisite for being able to participate in our society in many cases, just as the ability to read and write (following newspapers, campaigns etc.) was a prerequisite for full participation some 50 years ago.

- *Connection:* Both literacy and digital literacy are only possible if material artifacts are given. In the case of literacy, those included books and pencils, and in the case of digital literacy the minimum requirement is a working computer with basic hard- and software installed.
- Production: Literacy and digital literacy always involve the capacities for receiving and producing information.

It is a commonly recognized fact that literacy (and digital literacy) is an extremely important factor for socio-economic development. However, what remains uncertain for both concepts is a question of causality, as Warschauer (2002, chapter 7) argues: Does illiteracy (or digital illiteracy) result from unequal development, or does literacy (or digital literacy) enhance development? In a complex comparative study, Scribner and Cole (1981) found that there is no general construct of literacy which separates people into two groups. (see also Scribner 1984, 15) The effects of literacy on cognitive and socio-economic development is thus, according to their study, not causal, which leads to the conclusion of Warschauer that *"[...] literacy and social development are intertwined and co-constituted, as are technologies and society in general."* (Warschauer 2002, chapter 7)

If we accept the hypothesis that digital literacy is not a clear-cut problem of closing a gap between two groups, but rather involves various social, cultural and economic factors, the next logical step would be to discuss what constitutes the potentials digital literacy can have for social inclusion and development. (cf. Gunkel 2003, 507; Kahn and Kellner 2005)

2.3.3.3 Critical pedagogy and empowerment through ICT education

As a starting point for assessing how ICT in education projects can serve as a tool for promoting social inclusion and development, I will use a remark Freire made concerning literacy programs. Since Freire understands literacy as a process which makes *"[...] naming the world" (Freire 1988, 402)* possible for individuals, I think it is legitimate to apply his way of thinking on ICT education. Freire criticized that illiterates are seen as a marginal group which is marginalized because of a defect (illiteracy) and which needs a cure for this defect (literacy programs). (cf. Freire 1988, 402) He argued that

> "[...] [such] literacy programs can never be efforts toward freedom; they will never question the very reality which deprives men of the right to speak up. […] Therefore the solution to their problem is not to become 'beings inside of,' but men freeing themselves; for in reality, they are not marginal to the structure, but oppressed men within it." (ibid.)

How then could we imagine an ICT in education design which takes this criticism seriously and which is taking concrete action in support of those who are oppressed in the Freirean sense?

In abstract terms, I think it is useful to recall Bourdieu's theoretical framework of the dialectic relation between the way individuals structure society and the way social structures influence the life of individuals. If we consider ICT use and ICT in education as a social practice which enables or disables individuals to take certain actions according to the Bourdieuian categories of the *cultural arbitrary*, their *habitus* and *capitals*, it becomes evident that there is no single solution for implementing ICT in education projects but that the scope and shape of a specific project must fit the social context of the community where the project is to be implemented.

Both Gramsci and Freire stress the importance of critically engaging individuals and communities with their histories in the process of learning. In fact, the

engagement with individual and collective history is nothing else than an emphasis on the macro-level of social processes. (cf. Mayo 1999, 147) Connecting this macro-level approach of telling and reconstructing collective histories with the process of personal critical reflections on the socials conditions of the present, a dialectical process with possibilities for transforming social reality is created. (cf. Mayo 1999, 148)

Regarding the role of literacy projects in this dialectical process, Freire proposed to understand literacy dialectically as both a narrative for agency and as a referent of critique. (cf. Henry Giroux, Introduction in Freire and Macedo 1987, 7) The first notion refers to the importance for the learners to locate themselves in their own histories, which was discussed earlier. The second notion of literacy as a referent of critique focuses on the crucial role of literacy for social organization, collective action and democratic power. (ibid.)

Translating these ideas to the area of ICT education, I think that it is essential to reject what was described as the *fire analogy of ICT in education* by Christopher Dede. The idea of the fire analogy is that *"[j]ust as a fire radiates heat, many people expect a computer to radiate learning."* (Dede 1995, no page) This image of technology as a solution for social problems is a myth and cannot keep up with the outcomes of real-world projects. (cf. Pintér 2008, 15)

Instead, ICT in education projects should be assessed as social practices in the Bourdieuian sense, and their goals and means should be defined together with the community where these projects are to be implemented. The implementation of a successful ICT in education project must involve far more than the supply with the physical resources needed such as hardware, software, electricity and Internet connectivity. It is at least equally important to provide *relevant content* for the users of such systems in the sense of Freire. Content is relevant only if it speaks to the needs of those who learn and if those who learn are actively involved in the process of creating and using learning materials - ICTs are perfectly suited for such tasks. (cf. Warschauer 2002, chapter 8)

One major barrier towards constructing relevant content in ICT education projects is the question of language. The majority of websites in 2010 were written in English language, followed by Chinese, Spanish, Japanese, Portuguese and German. (cf. Internet World Stats 2010) This means that for ICT in education projects which are situated in the Global North it is much more easy to use and produce relevant content in the local language of the learners compared to the Global South, where the majority of the population does not speak the mentioned languages natively. However, if properly used, ICTs can also have positive effects on language revitalization, as Warschauer (2000) concludes in a case study on the Hawaiian language.

The example of language shows how ICTs can indeed be a powerful tool for changing social reality, if the focus is not on what is possible from the perspective of technology but rather on what is relevant for the learners in their specific situation. Suggestions for ICT in education projects can therefore not include step-by-step guides. However, it seems appropriate to take best-practice initiatives, which successfully transformed social reality in a specific social structure, as role models for future projects. Such projects focus on the social interactions between all actors who are stakeholders of the implementation. They do not attempt to bridge a digital divide but try to make access (understood in a holistic sense) possible and to use ICTs for promoting social inclusion, justice and socio-economic development. (cf. Warschauer 2004, 211) This is only possible if specific social problems or goals are defined together with the target group of the project in a participatory approach, which makes it possible to evaluate the role ICTs could play in reaching these goals embedded into the specific social structure which is given. (cf. Corea 2000, 14) Through such an approach, the potentials of ICTs can be used to facilitate social inclusion in a variety of contexts. Warschauer gives the example of rural teachers who could use ICTs for creating learning material which is based on the local environment of the learners - historical or contemporary political or cultural questions that are important to the target group could easily be included in such materials. (cf. Warschauer 2004, 212) The case of the revitalization of

the Hawaiian language where students and teachers use ICTs to communicate and to share ideas over large geographic distances is another best-practice example where the potentials of ICTs were used according to the social context of the learners. (cf. Warschauer 2000)

In conclusion, I fully agree with the following remark of Warschauer:

> "If handled well, these resources can thus serve as a virtual circle that promotes social development and inclusion. If handled poorly, these elements can serve as a vicious cycle of underdevelopment and exclusion."
> (Warschauer 2002, chapter 7)

If the implementation of ICT in education projects should effectively aim at making social inclusion and socio-economic development possible, it is necessary to accept the hypothesis of the social embeddedness of technology, to analyze the characteristics of the social structure and context in a community carefully and to include the target group in the process of defining the scope and the goals which are to be achieved. Only if all of these elements are taken into consideration, ICT in education projects can be instruments for empowerment and social justice.

3 EMPIRICAL STUDY: PRECONDITIONS

3.1 A country profile of Ghana

In what follows, I will briefly discuss those topics of society, economy, culture and development in Ghana which I consider particularly relevant for the purpose of evaluating the effects of ICT training on young Ghanaians. Although the emphasis of this work will lie on the individual empowerment of young people, I think it is essential to contextualize those findings with relevant macro-level considerations.

Illustration 3: A map of Ghana (regions)

Source:
http://en.wikipedia.org/wiki/File:Ghana_regions_named.png [Accessed 10.01.2014]

3.1.1 The development context

3.1.1.1 Politics and economy

The recent political history and current system of Ghana are inevitably connected with the name of Kwame Nkrumah, who led the country to independence from British colonial rule in 1957 and who won the first elections in 1960. (cf. Gocking 2005, 150 f.) Despite some initial successes in developing industrial infrastructure in the early years of his government[6], internal and foreign opposition against Nkrumah was rising steadily during the 1960s (as it was towards other leftist governments around the world) and led to his deposition through a coup d'etat in 1967. (ibid.) In the following 15 years, Ghana was extremely unstable politically, with military coups installing new governments regularly. The situation changed when Flight Lieutenant J.J. Rawlings took over power in 1982 through yet another military coup. Initially, his government followed socialist rhetoric and ideas and closely worked together with the socialist politician and pan-African activist Thomas Sankara, who was then president of Burkina Faso. However, reacting on the severe economic crisis which affected the country, Rawlings shifted his policy significantly and began to work together with the IMW and the World Bank, introducing Structural Adjustment Programs (SAPs) in order to cut public spending and to attract foreign investors. (cf. Ayee 2007, 168)

These policies caused massive protests among various political groups in Ghana and Rawlings used political oppression, violence and authoritarian rule to stay in power: Regarding the situation for journalists in the 1980s Ayee states that *“Rawlings used the legal and coercive apparatus of the state to intimidate, harass and abuse journalists […].”* (Ayee 2007, 171) However, after the Ghanaian economy recovered in the late 1980s and internal as well as external

6 The construction of the Akosombo hydroelectric project in the Volta region was arguably the most notable success and is still the main source of energy supply in Ghana.

claims for democracy and political freedom exerted significant pressure on Rawlings, democratic reforms were implemented and free elections were held in 1992. These elections marked the beginning of the era of relative political stability and democracy which still continues up to now.

The current political and economic system in Ghana must be read in its historical dimension. After the era of political instability and economic crisis (1966-1982) and the era of political oppression, structural adjustments and, finally, democratic transition (1982-1992), the multi-party democracy and the peaceful transitions of governments following presidential elections are highly valued in Ghana. The 2008 presidential elections, which ended with less than 1% margin between the major political parties NDC (National Democratic Congress) and NPP (New Patriotic Party), proved the current strength of democracy in Ghana. (cf. Bowen 2010, 16) It is probable that the relatively high trust in government institutions among Ghanaian citizens is a consequence of the political stability in the past 20 years. (ibid.)

Political corruption is a highly disputed issue in Ghana, but compared to most other countries in the region, Ghana is doing relatively good: *“Transparency International's 2010 Corruption Perceptions Index ranks Ghana in 7th place of the 47 African countries assessed (and 62nd of the 178 countries assessed), with a score of 4,1 on a 0 to 10 scale.”* (Chêne 2011, 2) Transparency International also notes that the Ghanaian government's efforts to fight corruption seem serious and that the performances in terms of control of corruption improved significantly. (ibid.)

Concerning the current economic situation, Ghana's economic performance since the new millennium has been noticeable. Average GDP growth rates well beyond six per cent were described to be a result of increased productivity in the agricultural sector and high commodity prices for cocoa and gold. (cf. UNCTAD 2011, 22) The high growth rate of Ghana's economy is one of the reasons why the country is regularly listed among the African countries with the best business opportunities for investors. (cf. The World Bank 2013, 7)

However, it must be noted that the effects of economic growth following the era of liberalization since the 1980s were not equally distributed among the Ghanaian citizens. Although there is a lack of comprehensive and consistent data on this topic, several studies conclude that inequality is unacceptably high in Ghana: *"While Ghana's economy may perhaps be experiencing the best of times at the macro level (compared to the 1970s), the benefits have not trickled down to all parts of the country, and to all socioeconomic groups."* (Konadu-Agyemang 2000, 481) Data from the Human Development Report 2010 seem to confirm this statement: Ghana managed to improve its level of human development from 0.363 in 1980 to 0.463 in 2010 and is currently ranking among the African countries with the highest human development index (HDI). (cf. UNDP 2010, 148) However, Ghana loses 25% of its HDI value due to existing inequalities. (cf. UNDP 2010, 88) Although this percentage is still low compared to other African countries (Mozambique, for instance, loses 45%), it is clear that inequality is a major issue in Ghana.

3.1.1.2 Education

The education system in Ghana is highly centralized, with the Ghana Ministry of Education (GMOEYS) (formally: Ghana Ministry of Education, Youth and Sport) being the main actor in terms of policy formulation and implementation. (cf. Government of Ghana 2004, 1) Various agencies of the GMOEYS are responsible for the operative work of the ministry. The Ghana Education Service (GES) is the central agency for all pre-tertiary education in the country. (ibid.) The Ghana Education Act, which was introduced by the government of Kwame Nkrumah in 1961, was the most influential policy for the education system in Ghana: It involved a plan to provide free and compulsory primary and basic education for all children. (cf. UNESCO 2010, 2) When Ghana returned to

constitutional rule following the democratic transition in 1992, several educational reforms were stipulated in order to enhance the capacities of all institutions involved in providing education. (cf. Government of Ghana 2012, 19)

Ghana's education system is composed by the following elements: (cf. Government of Ghana 2012, 3)

- Pre-school Education (Kindergarten) – two years
- Basic Education (Primary) – six years
- Basic Education (Junior Secondary School, JSS) – three years
- Senior Secondary School – three years
- Technical and Vocational Education – three years
- Teacher Education – three years
- Special Education
- Polytechnic Education – three years
- University Education – four years

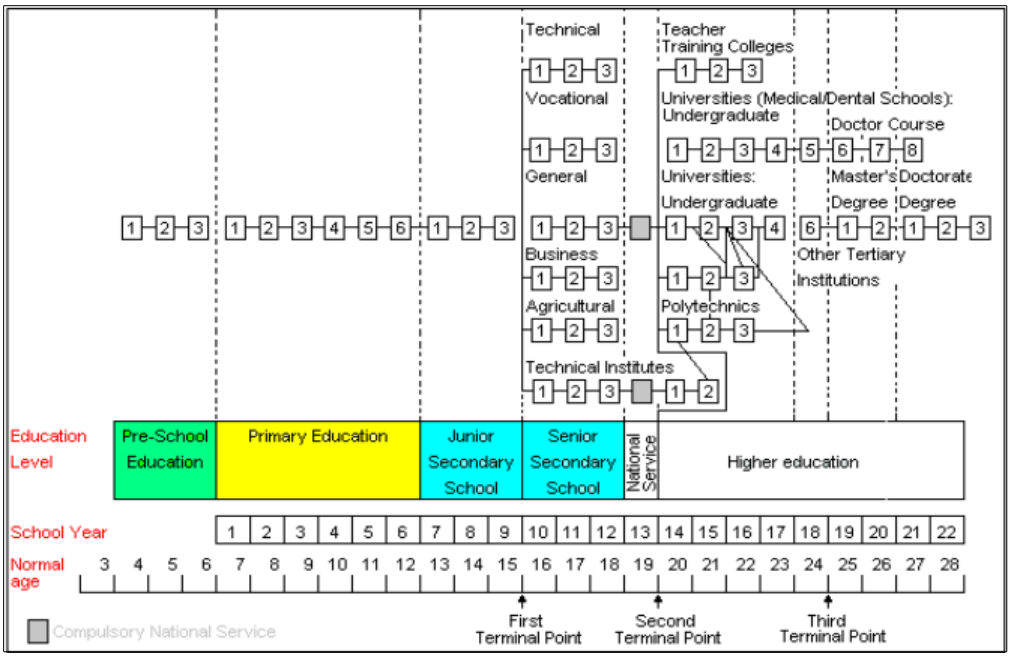

Illustration 4: Structure of the Ghanaian education system (2007)

Source: (UNESCO 2010)

Illustration four provides a comprehensive overview of the formal education system in Ghana before the reform in 2007. Although the 2007 reform brought some fundamental changes (including a compulsory two-years pre-school education and the extension of senior secondary school by one year), after the 2008 elections, the new government reverted the system to the initial one. (cf. Kuyini 2013, 166) It has to be noted that one year of 'National Service' is compulsory for all male Ghanaians who completed a tertiary education.

Basic education in Ghana consists of eleven years of schooling. At the end of JSS, all students who seek further education take the Basic Education Certificate Examination (BECE) in nine or ten subjects. (cf. Embassy of the U.S.A 2012) After taking this exam, students can apply for admittance at senior secondary schools or technical and vocational education centers. In order to

attend universities, polytechnics or teacher training colleges, it is obligatory to pass the core subjects of senior secondary school.

It is noteworthy that the government's efforts to accomplish goals in education were quite considerable in the last decade. (cf. UNDP 2007, 29) One of the most evident successes was the implementation of free basic education (up to junior secondary school) for all Ghanaians in 2005. (cf. Government of Ghana 2012, 19) The net enrollment rate in primary education has risen from 61% (1999) to 84% (2011), the rate of completing a full course of primary has risen from 57% (girls) and 72% (boys) in 1999 to 91% (girls) and 97% (boys) in 2011. Government spending on education is high: In 2011, 24.4% of the total government expenditure went to education. (UNESCO 2013)

However, the Ghanaian education system is still far from being able to provide high-quality and accessible training for all children. First of all, the quality of education in public schools (and especially in rural areas) is questionable: A UNDP study found that sixth graders had an average of 25% on a multiple-choice test, which is just the percentage of randomly chosen answers. (cf. UNDP 2010, 40) Vocational and technical schools have been criticized for providing outdated training: "*The practice has been to provide training that may not lead to gainful employment because, in many cases, the training perpetuates low skills, obsolete technologies, traditional and usually non-remunerative trades and job stereotypes."* (cf. UNDP 2007, 32)

High disparities exist between rural and urban areas, public and private schools, and also between girls and boys. Concerning geographic disparities, regions in the southern part of Ghana have better access to education compared to those in the northern part. The Northern region has the poorest access to primary education (49.9%), followed by the Upper West region (51%) and the Upper East region (56%). (cf. UNDP 2007, 29) In comparison, 80.9% of the children living in Greater Accra region have access to primary schools.

Another problem which is frequently mentioned is the fact that Ghana's education system is extremely dependent on foreign donors such as the World

Bank or the IMF, which could be one of the reasons for the lack of strategic long-term planning. (cf. Kuyini 2013, 173)

Policies such as the *“Education Strategic Plan 2003-2015”* (Government of Ghana 2003a) are currently focusing on the eradication of the problems mentioned above. Both major political parties, NDC and NPP, stressed the importance of providing better access and quality at all levels of the education system. (cf. Little 2010, 44) However, there is still a long way to go until even the most basic visions, such as full access to primary education for all children, will be reality.

3.1.1.3 Social structures, inclusion and exclusion

It is beyond the scope of this work to discuss the nature of social structures in Ghana and its influences on individual empowerment in depth. However, I find it useful to discuss at least two issues concerning the social structure in Ghana and their potential influences on social exclusion (or inclusion), namely the kinship system and the role of the chiefs in politics and society.

The kinship system & ethnicity

In Ghana, people are born into a social structure which is constituted mainly by social relations through consanguinity, although other possibilities (marriage or adoption) exist. The social structure, norms and behaviors of such groups is called the kinship system. (cf. UNDP 2007, 59) The kinship status of an individual is extremely important for social life: *"[...] [It] may significantly limit his or her opportunities and capabilities to participate in decision-making, gain access to meaningful livelihood opportunities and benefit from social services [,] […] inheriting property and ascending to political office."* (UNDP 2007, 60)

The kinship system exists in all parts of the country. However, while the kinship lineage in certain areas follows the line of the mother (matrilineal system), in other areas, the line of the father is essential (patrilineal system), and yet other systems follow both lines (double descent system). (ibid.) Generally, members of a kinship system associate themselves with one of the numerous ethnic groups which exist in the country.

In a Ghana Statistical Services survey in 2010, 67 different ethnic groups were identified, with the four major groups of Akan, Ewe, Mole-Dagbani and Ga-Dangme making up for more than 85% of the total population. (Ghana Statistical Service 2012, 34)

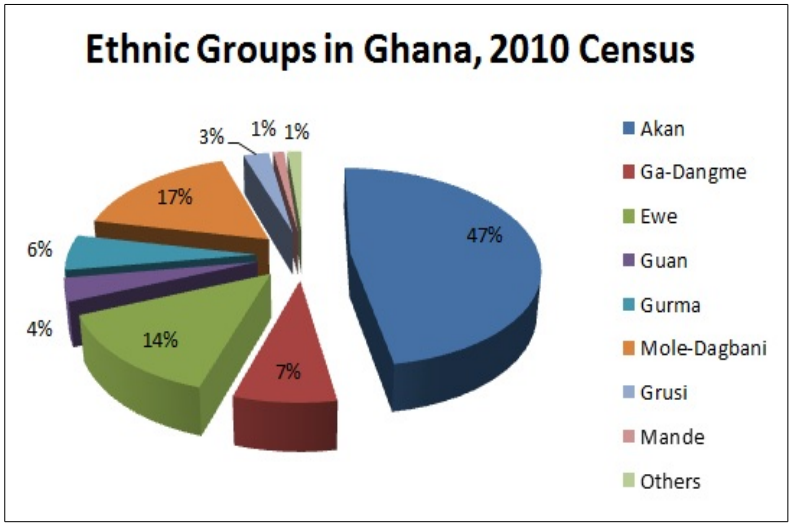

Illustration 5: Ethnic groups in Ghana by 2010 census.

Source: (Ghana Statistical Service 2012, 34)

Conflicts due to ethnic belonging are frequent: Conflict spots can be found all over the country, one of the more prominent ones includes the people of Akronpong-Akwapem and Abirew of Southern Ghana, where land and property issues played a major role. (cf. Mahama 2013, 49) It is obvious that despite such violent outbreaks, issues of ethnicity have potential empowering and dis-empowering effects on Ghanaian citizens. However, it must be noted that all governments since the independence of Ghana tried to push forward the emergence of a 'Ghanaian identity', which is based on shared practices, values, customs and history. (cf. UNDP 2007, 70)

The institution of chieftaincy

It is remarkable that the traditional political institution of chieftaincy is still in use: From pre-colonial times through colonial and post-colonial times, the chiefs played a significant role in the political system of the country, although many academic scholars in the 20th century predicted that the system was not going to last. (see Amponsah 2007) However, the role and executive power of the institution changed dramatically: In pre-colonial times, chiefs were responsible for security, war and jurisdiction. (cf. Odotei 2010)

Their influence diminished when the British colonial administration used the institution of chieftaincy for implementing the system of *indirect rule*: Although they were granted a certain political power, in fact the chiefs became agents of the colonial authorities. (ibid.) After independence, the major political parties were threatened by the power of the chiefs and tried to further limit their significance in the political system. (cf. Thomi 1999, 105) Presently, the evaluation of the role that the institution of chieftaincy has in modern Ghana is complex. On the one hand, it is clear that chiefs are highly recognized by the citizens and can effectively administer local political processes in a decentralized way. (cf. UNDP 2007, 62) On the other hand, the chiefs are in control of almost all customary lands in Ghana, which is estimated to account for 80% of all lands in Ghana. (cf. Yeboah and Shaw 2013, 23) This leads to an enormous concentration of political power, especially in rural areas.

Evidently, this political power can also be used as a tool for social exclusion. (cf. UNDP 2007, 62) The 1992 constitution of the Republic of Ghana tried to find a way of mediating between the potentials and threats of the chieftaincy system. Whereas the constitution prohibits the formal representation of the chiefs in local government as well as their affiliation to a political party, it provides them with instruments for settling disputes in their local environments. (ibid.)

To conclude this chapter, I think it is essential to keep in mind the role of the kinship system, ethnicity and chieftaincy in the evaluation of potential

empowering or dis-empowering effects of ICT training. It is evident that these are important elements of the social structure, and that they are factors for making empowerment easier (or more difficult) for individuals.

3.1.1.4 Key development indicators

In this section, I will provide some basic data on the progress of human development in Ghana in comparison to other regions and world-development, respectively. The data was taken from the UNDP Human Development Report 2013. The idea of this section is to evaluate the success of the Ghanaian governments since the 1980s with respect to enhancing human development comparatively. Since the focus of this work is on the empowerment of young Ghanaians through ICT training, the findings of these sections will help to contextualize micro-level data with long-term trends of human development in Ghana.

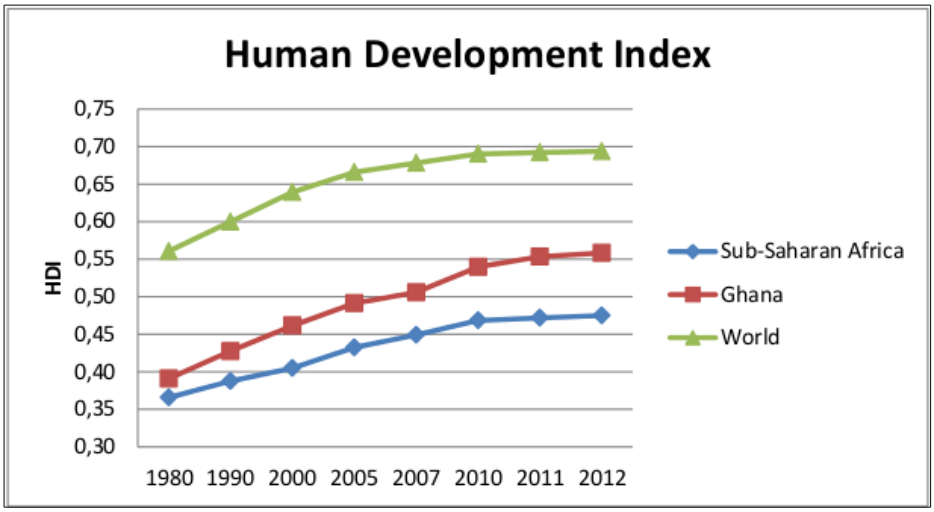

Illustration 6: HDI development 1980 – 2012

Source: (UNDP 2013)

Illustration six confirms the thesis that was outlined several times in the past chapters: Ghana is doing well compared to other countries in the region. In 2013, Ghana was ranked 135th (among 187 countries) and was one of the few African countries in the group of *Medium Human Development*. (cf. UNDP 2013)

Since the 1980s, average growth rates of the HDI were mostly higher compared to other Sub-Saharan African countries. (cf. UNDP 2010, 149 ff.)

The question which is especially relevant for the purpose of this work is in which components of the HDI Ghana is ahead of other countries or lacking behind, respectively. Therefore, it is useful to consider the three dimensions of the HDI (economy, education and health) in more detail.

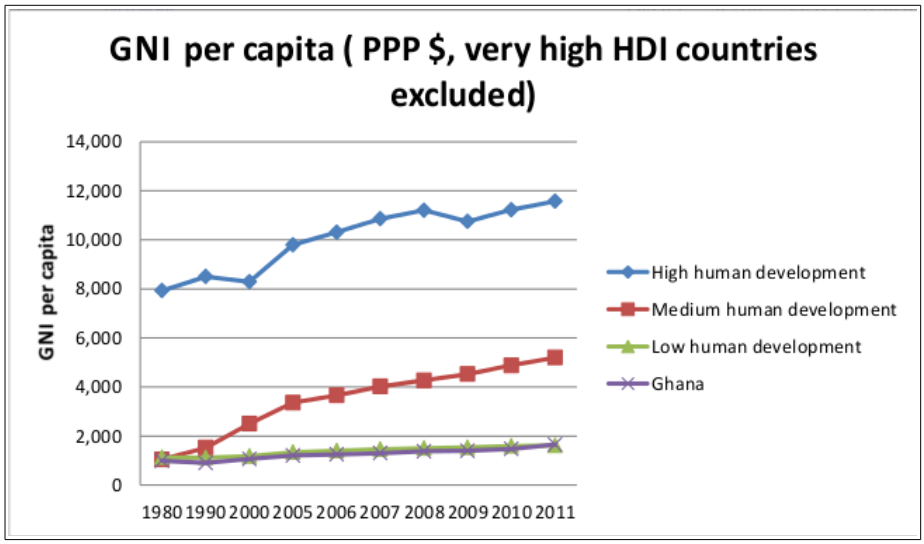

Illustration 7: GNI per capita 1980-2011

Source: (UNDP 2013)

The result of the examination of the first dimension is rather surprising: Ghana's GNI per capita is almost exactly on the level of the average GNI per capita level of the countries in the group of Low *Human Development Level*. In 2010, Ghana lost 14 ranks due to the fact that its GNI per capita is relatively small

compared to the other HDI dimensions. (cf. UNDP 2010, 145)

Clearly, the low GNI per capita level has significant effects on the possibilities for personal empowerment. However, it must be stated that these are general trends and that the data on average GNI per capita level cannot be used to explain individual processes on the micro-level.

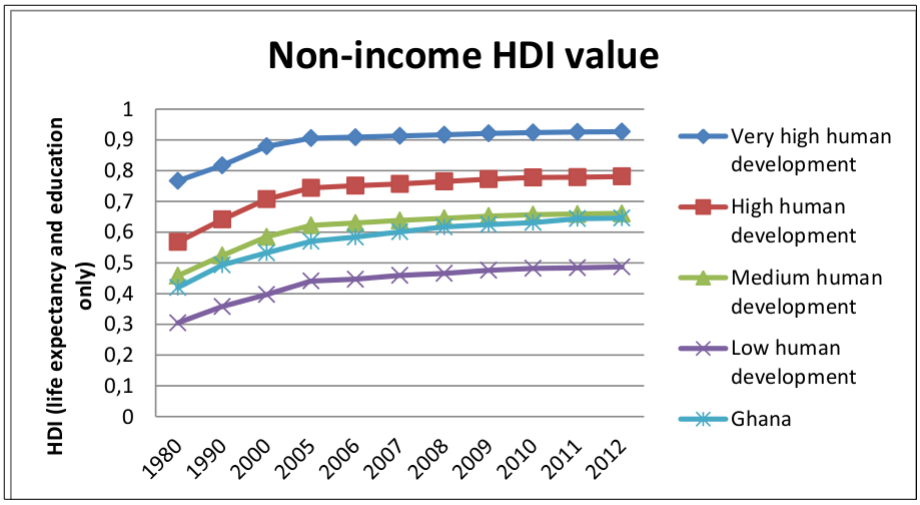

Illustration 8: Non-income HDI value 1980-2012

Source: (UNDP 2013)

Looking at the data for HDI composition excluding the economic dimension (illustration eight), it becomes clear that Ghana's performance in the other HDI dimension is far better. Excluding the income dimension, Ghana was catching up continually since the 1980s and has now almost reached the average index value of the group of *Medium Human Development*.

In 2012, average life expectancy at birth in Ghana was 64.6 years - the average life expectancy in the group of *Medium Human Development* was more than 5 years higher. (cf. UNDP 2013) Thus, it is clear that Ghana's performance in terms of education was good compared to the other HDI dimensions and contributes the most to the relatively good ranking of the country. Indeed, the

combined gross enrolment percentage (the number of students enrolled in primary, secondary or tertiary levels as a percentage of the population of theoretical school age for all levels) is high: Illustration 8 shows that 65% of those who theoretically are supposed to attend a school are enrolled in a primary, secondary or tertiary level institution. However, this index does not consider aspects of quality and inequalities in the education system. I therefore refer to the problems of the Ghanaian education system which were outlined earlier.

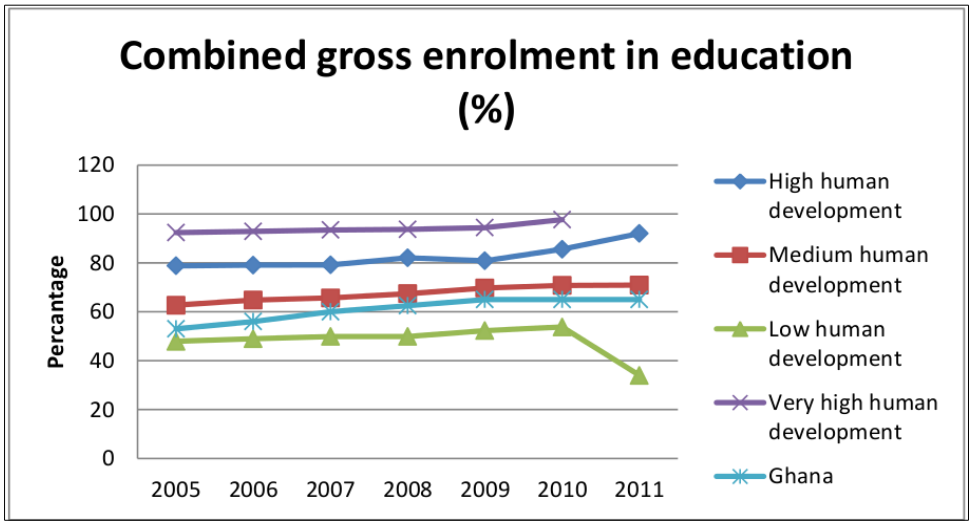

Illustration 9: Combined gross enrolment in education 2005-2011

Source: (UNDP 2013)

Given the macro-level data which was examined in this chapter, it is evident that Ghana's level of human development, notwithstanding the remarkable efforts in terms of education, is still low. The extremely low level of income (GNI per capita) is striking and shows the importance of comprehensive strategies which aim to expand the possibilities for Ghanaians to find ways for overcoming economic poverty. The education system and the role of ICTs for development particularly, seem to play a crucial role in these strategies.

3.1.2 ICTs in Ghana

In a historical perspective, Ghana's way towards a 'connected' country (in terms of ICT infrastructure) started during the government of J.J. Rawlings in the late 1980s. Therefore, it is not surprising that the liberalization of the ICT industry (most importantly, the telecom industry), was perceived as inevitable in order to boost the performance of the sector. (cf. Alemna and Sam 2006, 236) After the democratic transition in 1992, strategies were implemented which aimed to improve access to ICTs: In 1994, for example, a 5-year accelerated development plan (ADP) was introduced with the target of increasing teledensity (the number of telephones for every hundred individuals living in an area) from 0.31% to 1.5% - 2%. In the area of computer technology, Ghana was one of the first Sub-Saharan African countries which achieved full Internet connectivity in 1995. (cf. Centre of Educational Technology 2007, 22; Intsiful, Okyere, and Osae 2003, 2) At the end of the first 5-year plan of accelerated development, teledensity rose significantly to 1.16%, although the initial target was not achieved. (cf. Alemna and Sam 2006, 236) Also, some progress has been made concerning other key indicators of the quality of ICT infrastructure. (cf. Intsiful, Okyere, and Osae 2003, 2)

However, in 2003, Intsiful, Okyere, and Osae 2003 concluded that *"[...] Ghana is still to a large extent digitally isolated from the Global Village."* (Intsiful, Okyere, and Osae 2003) Is this conclusion still valid in 2013? In any case, the government's efforts of enhancing quality and access of ICT infrastructure and of promoting its use were considerable. In what follows, I will outline the relevant government policies since 2003 and evaluate the current state of ICT infrastructure in Ghana in comparison to other African countries.

3.1.2.1 Government policies

The Ghana ICT for Accelerated Development (ICT4AD) Policy

The core of Ghana's strategic ICT planning on a national level is the Ghana Integrated ICT for Accelerated Development (ICT4AD) policy, which was introduced in 2003. The main mission of the policy was *"[t]o transform Ghana into an information-rich, knowledge-based and technology-driven high income economy and society".* (Government of Ghana 2003b, 21) The focus of the policy is laid on the potential effects that ICTs can have on socio-economic development. (cf. Alemna and Sam 2006, 236) Concerning the key areas in which progress is expected, the ICT4AD policy defines 14 pillars on which the implementation should focus. These include public areas (such as ICT in education, legal framework, government administration) as well as private areas (such as export-oriented ICT products, modernization of agriculture, facilitating the development of the private sector). (cf. Government of Ghana 2003b, 31) The policy further provides a remarkably strict time schedule concerning its implementation. Five different *rollings* with a time span of three years each are covered, each rolling with different goals and areas of focus. Thus, the ICT4AD policy was introduced as the fundamental policy paper for all activities and plans concerning ICT for development between 2003 and 2022. (cf. Government of Ghana 2003b, 81 ff.) The Ghana ICT4AD policy was supported by laws and initiatives such as the African Information Society Initiative (AISI), and the Science and Technology Policy Research Institute. (cf. Kwapong 2007, 70) Many of the initiatives were supported by international donors such as the World Bank or the UNDP. (cf. Oppong-Tawiah and Boateng 2011, 27)

With respect to the rolling plan, the Ghanaian government should at the present time (2013) focus on *"[...] the consolidation of an economic base and environment for accelerated growth and developments towards transforming*

Ghana into an information-rich knowledge-based society and economy." (Government of Ghana 2003b, 82) Evidently, this goal only makes sense if the preceding goals of *building* the economic base and environment for ICT development were successfully completed. Notwithstanding the progress which was achieved in the last decade, it is questionable whether Ghana's current economic base and environment is in a condition where *consolidation* is the next logical step forward. The analysis of the current ICT infrastructure, which I will undertake in the following chapter, will shed some more light on this issue.

The ICT in education policy

Since the ICT4AD policy explicitly emphasizes the importance of ICTs for improving the quality of the education system, the Ghanaian government implemented the ICT in Education Policy in 2009. The policy was also influenced by other publications, such as the Ghana Education Strategic plan 2003-2015 and the ICT in Education Policy Framework of 2002. (cf. Government of Ghana 2008, 6) All of these policies recognize the crucial roles ICTs can play in transforming the education system in Ghana. The ICT in Education Policy states that the government is aware of the frequent failures of ICT in education projects due to a lack of policy direction, funding, training or ownership. (cf. Government of Ghana 2008, 12)

The mission statement of the ICT in Education Policy emphasizes the relevance of ICT in education in fairly general terms:

> "[T]he overall policy will be: To enable graduates from Ghanaian educational institutions- formal and non-formal- to confidently and creatively use ICT tools and resources to develop requisite skills and knowledge needed to be active participants in the global knowledge economy by 2015." (Government of Ghana 2008, 13)

It is notable that creativity is explicitly seen as a desirable form of using ICTs in education: Evidence suggests that in Ghana, ICTs were rarely used in

innovative ways in classrooms. (cf. Buabeng-Andoh and Totimeh 2013, 26) Although this shift in rhetoric can be seen as a symptom for an approach which focuses more on the social aspects of ICT in education, the concrete guidelines which are grouped into seven thematic areas in the policy do not seem to prioritize creativity and individualization of ICT learning processes as a necessity in ICT in education projects. Naturally, several of these areas focus on the issues of infrastructure, access, management, maintenance and evaluation - this is not surprising, since these issues were identified as weak points in former ICT in education projects. (cf. Government of Ghana 2008, 12)

However, in thematic areas where the introduction of critical or creative content of ICT in education projects could be expected, namely in the areas of content development and capacity building, specific strategies to promote the creative or innovative use of ICTs in education are lacking. Conversely, the focus rests on the development of technological know-how (capacity building through training of teachers) and technological possibilities (distance education and e-learning). (cf. Government of Ghana 2008, 21)

In conclusion, the policy provides a framework of strategies to target some of the basic problems Ghana is currently facing in terms of its ICT in education development. Of course, the issues of equal access, strategic management, long-term maintenance and ownership are crucial and have not been resolved in the past years. However, despite some vague concessions to the importance of the social context of ICTs in education (mainly in the mission statements), there are no concrete strategies focusing on social problems of ICT in education implementations.

3.1.2.2 ICT readiness and use

Ghana is currently ranked 95th among 144 listed countries concerning its N*etworked Readiness* by the World Economic Forum (WEF). (cf. Bilbao-Osorio, Dutta, and Lanvin 2013, xxi) The *'Networked Readiness Index'* (NRI) is calculated through 54 individual indicators which are related to one of the four key-topics: Environment, Readiness, Use and Impact. (ibid., 6) Ghana ranked better than most other Sub-Saharan African countries, excluding only Kenya, Rwanda and South Africa. (ibid., xxi)

Since the topic of ICT environment (government policies and political context) was already covered, I will focus on (physical) readiness and use of ICTs in this chapter.

ICT readiness

The most fundamental problem concerning ICT readiness in Ghana is the issue of access. In 2012, only 13.78% of all households were in possession of a computer. (ITU 2012) Although this value is well above the average of African countries, illustration ten shows that in comparison to other geographic regions it is unacceptably low. One obvious reason for the low penetration rate are the costs of ICT equipment. It was already noted that the GDP per capita is low, and the costs of computers (200 USD – 300 USD for second-hand computers in 2011) and Internet access (60 USD – 95 USD monthly subscription for standard DSL connection in 2011) are exorbitant, given the national daily minimum wage of 2 USD. (cf. Oppong-Tawiah and Boateng 2011, 27)

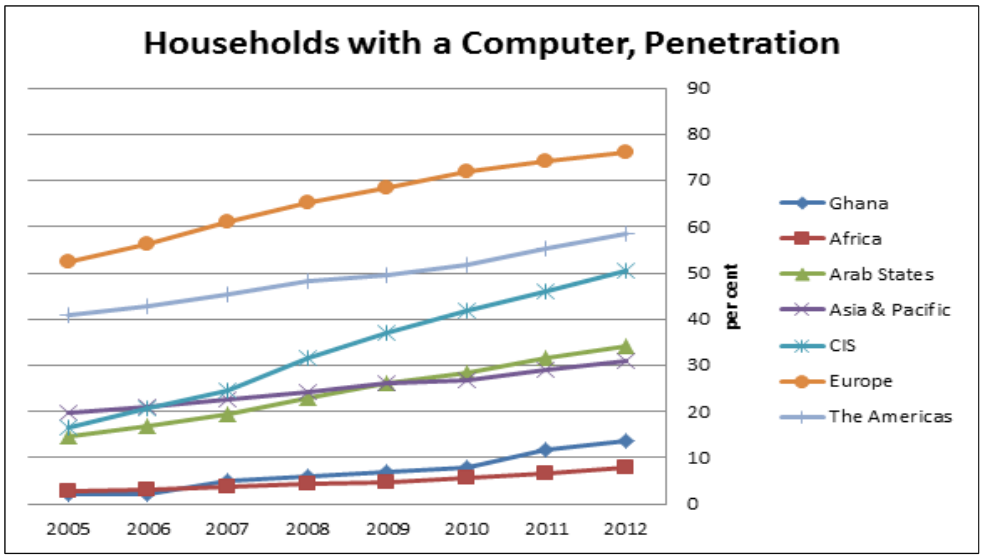

Illustration 10: Households with a computer, penetration

Source: (ITU 2012)

In terms of physical Internet connectivity, Ghana is actually well connected to the major hubs: The backbone of Ghana's Internet infrastructure is the direct connection of Accra with the submarine fiber-optic cable system SAT-3/WASC/SAFE (see Illustration eleven) which connects Portugal with South Africa and Asia. (cf. Oppong-Tawiah and Boateng 2011, 27) Through this high-speed cable, Ghana could theoretically make use of the 340 Gbit/s capacity offered by the link.

It must be noted, however, that the high costs of broadband connection, as well as the fact that only the major towns have access to the cable, restricts the use of the SAT-3 cable to important government and international institutions, universities and big private companies.

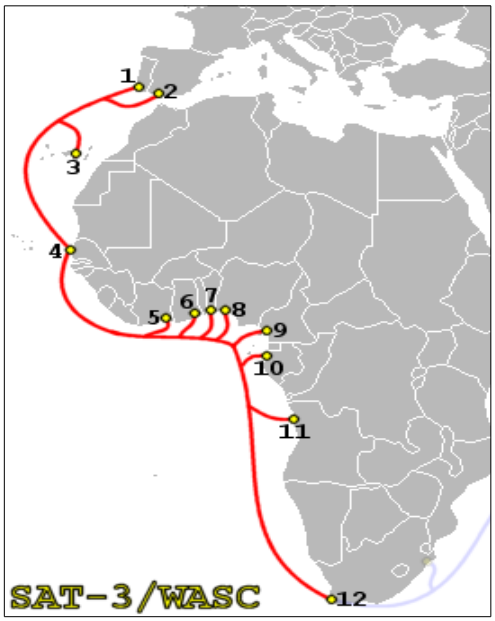

Illustration 11: SAT-3 / WASC fiber-optic cable

Source: http://en.wikipedia.org/wiki/File:SAT-3--WASC-route.png
*[*Accessed 4.01.2014]

One of the factors which certainly influenced Ghana's NRI ranking is the high teledensity, which increased by more than 1,200% between 2001 and 2006. (cf. Oppong-Tawiah and Boateng 2011, 27) However, this figure is somewhat misleading as an indicator for the evaluation of the impact of ICTs in general, since most of the increase is due to the mobile-phone sector. In 2010, penetration of telephones among Ghanaian citizens was 72.1%, of which 70.8% were mobile-users and 1.3% used landlines. (cf. Trujillo 2010, 16)

This observation is crucial, since landlines are still required in many cases for Internet access. Illustration twelve shows the penetration rate of Internet access in Ghana. Although also this indicator illustrates that Ghana is far ahead many other countries in the region, only 11% of the total population had access to the Internet at home in 2012. It was already pointed out that the penetration in rural areas is far below the penetration in urban areas. (see Alemna and Sam 2006)

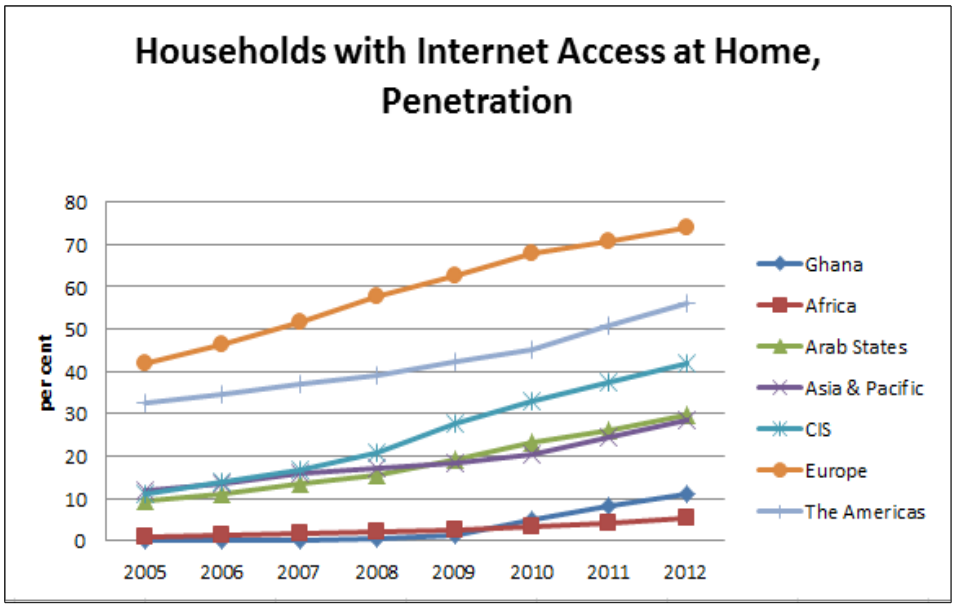

Illustration 12: Households with Internet Access at Home, Penetration

Source: (ITU 2012)

One possibility to target this problem is the implementation of public telecentres in areas with low access. Following one of the demands from its ICT4AD policy, the government (supported by international donors) is planning to construct one *'Community Information Center'* (CIC) in each of the 230 constituencies of the country. (cf. UNCTAD 2011, 117)

In conclusion, it must be stated that despite the potentials of fast and high-quality Internet access, which was outlined in the previous section, most Ghanaians have no possibilities to connect to the Internet.

Although the number of Internet users increased from below 2% in 2005 to 11% in 2012 (see Illustration twelve), which is indeed impressive, many communities (especially those in rural areas) are still digitally excluded. (cf. Oppong-Tawiah and Boateng 2011, 27) Furthermore, the high costs of Internet access are likely to enhance existing inequalities.

ICT use

After assessing the current state of ICT infrastructure in Ghana, I find it essential to discuss a topic which is frequently neglected in academic literature, namely how people actually use ICTs in daily life. In what follows, I will focus only on one issue of ICT application which I consider especially relevant for the purpose of this work, namely the use of the Internet in contrast to the use of traditional mobile-phones (without Internet access).

ICTs are frequently mentioned as being effective means of reducing poverty in a community. One of the main arguments is that through ICTs, it is possible to easily distribute information, share knowledge and co-operate over large distances (see chapter 2.2). Generally, different ICTs, such as traditional mobile-phones and the Internet are assumed to have the same effects on poverty reduction. (cf. Slater and Kwami 2005, 1) In this view, the tremendous increase of households who own a computer and use the Internet (see illustration ten and twelve) would have just the same effects on poverty reduction as the increase in mobile-phone users, which was particularly high between 2000 and 2006. (cf. Oppong-Tawiah and Boateng 2011, 27) However, evidence suggests that ICT use in Ghana follows a more complex pattern. In an empirical study on Internet use in Ghana Slater and Kwami (2005) found that for many Ghanaians, the Internet is some sort of *'escape strategy'*: People (especially the youth) use it to connect to foreigners (preferably from Europe or the U.S.A.) through E-Mails or chats in order to find possibilities to travel abroad. The average Internet user is described as follows: *"[H]e reads nothing on the web, and makes little use of the web as a search facility to rationally target business communications."* (Slater and Kwami 2005, 6) Conversely, mobile-phones were found to be *'embedded'* into everyday life and work of Ghanaians. They are primarily a means for local distribution of information and a method for keeping contact with existing social networks. (ibid., 10 f.) The conclusions of the study severely question the predominant view of ICTs for poverty reduction on two levels: Firstly, it is argued

that both mobile-phones and the Internet are essentially tools for communication in Ghana, and not tools for acquiring information. (ibid., 13) Secondly, both were already in use for different strategies of poverty reduction, however these strategies differ from the prominent version which is commonly associated with ICTs. (ibid.)

If we accept these hypotheses (and, as I will show, there are further pieces of evidence supporting this view), it appears clear that for a successful use of ICTs for socio-economic development the predominant way of using ICTs cannot be neglected and must be included in policy-making and project implementations.

It seems evident that in many cases, ICTs were not used according to the way initiators of ICT projects planned it. One example is the use of computers in classrooms: In their study of teacher's use of computers in secondary schools, Buabeng-Andoh and Totimeh (2013, 26) found that more than 50% of the teachers in the sample never used computers for teaching. Only 12.6% of the respondents reported to use computers frequently as instructional tools, and less than 10% used computers for organizing their lessons. (ibid.) The authors conclude that use of ICTs in classrooms corresponds with computer attitudes of teachers, and that the government should aim at targeting factors that discourage teachers from using ICTs. (ibid., 32 f.) I would go beyond this statement and once again refer to the findings of (Slater and Kwami 2005) which I mentioned earlier: The way ICTs are actually used in Ghana does not necessarily correspond to the ideas policy-makers had in mind when implementing a specific project. Once again I consider it useful to keep in mind that ICTs in classrooms do not automatically create knowledge. In this respect, is essential to understand the social embeddedness of technology, which implies to investigate how people actually use technologies. (cf. Warschauer 2004, 203)

Only if it is clear how different technologies are embedded into the social system of a specific community, the precondition for developing relevant content is fulfilled. In the case of Internet users in Ghana, it seems that they use the Internet primarily as a tool for communication with foreigners. In order to enhance the use of ICTs for local development or education, the mere distribution of computers through telecentres or subsidies will not be sufficient.

3.2 Qualitative research design

In this chapter, I will develop the conceptual framework with which I am planning to answer the central research question (CRQ) outlined in chapter one. I decided to make use of two qualitative research approaches, namely the biographic narrative interpretative method (BNIM) and the analysis of expert interviews.

The first approach was chosen because I was looking for a method for qualitative research which is capable of capturing the personal system of relevancy of the interviewees for further analysis to the largest extent possible. According to Wengraf (2001, 69), BNIM *"[…] allows[s] the gestalt of the interviewee to become observable, adopting an interview strategy that minimizes […] the interviewer's concerns […] to allow fullest possible expression of the concerns, the system of value and significance, the life-world of the interviewee."* At the same time, the BNIM method allows the interviewer to focus on certain points mentioned in the narrative in a second sub-session. Thus, it is well suited for the purpose of evaluating the effects ICT trainings had on the personal and professional development of young Ghanaians in their own perspective.

Evidently, the personal perspective of graduates on ICT trainings is not enough to answer questions of potential effects on empowerment. For this reason, I interviewed experts in the field of ICT in education and ICT for development in order to gain material which can be used (together with other data such as government policies, statistics, evaluation reports, etc.) to contextualize the results from the biographic narrative interviews.

Both the results of the expert interviews and the BNIM interviews will be used in chapter five in order to first answer the theory questions (TQs) and, finally, to answer the central research question (CRQ).

3.2.1 Design for BNIM interviews

In this chapter, I will outline the theoretical foundations and practical application of the qualitative research design which I chose for my thesis. As already mentioned, I will use the biographic interpretive narrative method developed by Wengraf (2001). Without going into detail regarding other possible designs or theoretical controversies in the field of empirical social sciences, I will focus on the practical application of the method in my research setting.

3.2.1.1 Preparations for the interviews

The BNIM is based on the CRQ-TQ-IQ (central research question - theory question - interview question) algorithm which describes the relation between questions on abstract levels on the one hand and concrete interview questions on the other (see illustration thirteen). Of course, it is not possible to simply use the CRQ as IQs in qualitative interviews. In contrast, Wengraf (2001, 61 f.) suggests to formulate TQs which are derived from the *instrumentation theory* and to produce the IQs following the TQs, but in the language of the interview setting.

The CRQ was already formulated in chapter one:

> *CRQ: How does a successfully completed ICT training affect the personal and professional development of youth in Ghana?*

The TQs, however, are yet to be defined. These questions must follow the theoretical concepts used for answering the CRQ. (cf. Wengraf 2001, 61) Obviously, the TQs in this work are derived from the theoretical considerations in the fields of development studies and education studies. (see chapter two)

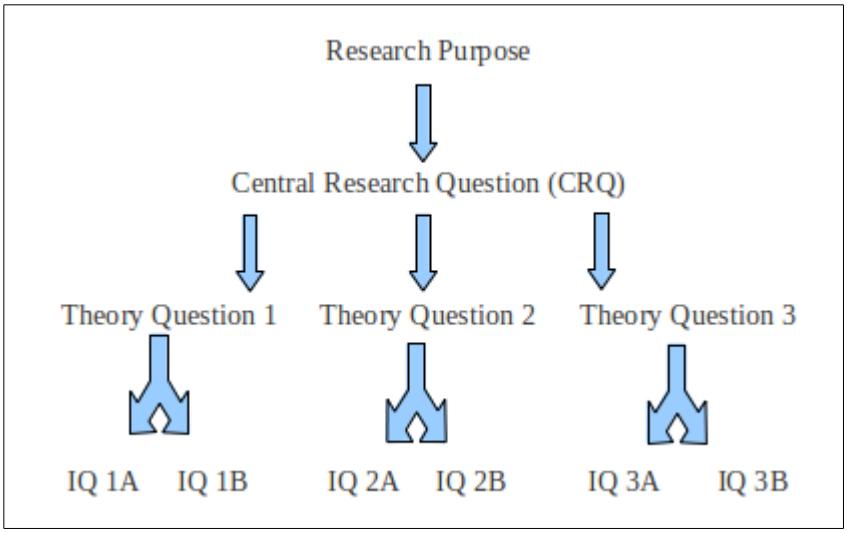

Illustration 13: CRQ-TQ-IQ Algorithm

Source: (Wengraf 2001, 63)

After considering which questions might be most useful for gathering empirical material in Ghana, I decided to focus on TQs which focus on the relation between ICT training and social structures in the lives of my interviewees:

TQ1: How does the personal background (family, kinship, social networks) of ICT professionals influence their possibilities for using ICT education for individual empowerment?

TQ2: How did educational institutions (ICT training centers) contribute to the empowerment of their graduates?

TQ3: What is the role of the Ghanaian government in the process of potential empowerment through ICT training for Ghana's youth?

TQ4: Is the factor mobility (e.g. willingness to move to another geographic area) relevant for the empowerment of young Ghanaians who completed ICT training?

TQ5: Which significance does gender have on potential empowerment through ICT training of young people in Ghana?

TQ6: How do graduates of ICT training institutions explain why ICT training did (not) help them in their individual empowerment?

TQ7: Which expectations did graduates of ICT trainings have prior to the enrollment in ICT training institutions?

It is essential to note that it is most unlikely that these questions can be answered solely through the biographic narrative interpretative method. The findings from the comparsion of case-histories (comparison of cases) will provide material for evaluating the potential empowering effects of ICT trainings on the basis of their own system of relevance and their personal life-experiences. These findings will then be used in conjunction with other empirical data in order to answer the CRQ of my thesis.

After defining the TQs, the next step towards a comprehensive research design is to prepare for the two phases of the interview. In the first sub-session, the interviewer starts a narrative session by asking a single question aimed at inducing narrative (SQUIN). I chose a SQUIN which is based on the example given by Wengraf (2004, 29). I tried to make clear that the interviewee decides where to start and when to stop, which events he or she should mention and what to spare out. To do so, I used the following SQUIN for the first sub-session of my interviews:

"Please, can you tell me the story of your life, all the events and experiences that were important to you, personally. Start wherever you like!" (example by Wengraf 2004, 29)

In the second sub-session, which should be conducted shortly after sub-session one, the interviewer asks for more stories about the topics which were described earlier by the interviewee, but always following the exact same order in which they were raised. (cf. Wengraf 2001, 120) It is possible to take notes on the topics mentioned in sub-session two, and to make further follow-up questions on

the raised issues, thus trying to initiate narratives of the interviewee. However, no questions should be raised on topics which were not part of earlier narratives. (ibid.)

3.2.1.2 The fieldwork phase

The interviews were conducted between February 1st and February 25th 2013 in the cities of Accra, Sunyani, Odumase, Techiman and Cape Coast. The locations where the interviews took place were chosen according to both the wishes of my interview partners and my personal preferences (I was looking for a quiet, relaxing atmosphere). During the first sub-session, I initiated the narrative by explaining the overall purpose of my study, the proceedings of the interview and, finally, by asking the SQUIN. I took notes of the mentioned topics following the suggestions of using a '*SHEIOT notepad'* for writing down information on Situation, Happening, Event, Incident, Occasion/Occurrence and Time given in Wengraf (2001, 133). After sub-session one, I took a pause of approximately 15 minutes where my interview partners could relax while I prepared some narrative-inducing questions for sub-session two. In sub-session two, I aimed to initiate as many TQUINs (topic questions aimed at inducing narrative) as possible: The idea of sub-session two is that, through the narratives of sub-session one, the interviewee might have been stimulated to give more detailed accounts on his/her system of relevance and personal perceptions. (cf. Wengraf 2001, 138)

The end of sub-session two was always initiated by the interviewee through statements such as "*I have nothing more to tell you."* I normally waited for a considerable amount of time whether this was really the end of the narrative before concluding the interview by thanking the interviewee for his/her time and switching off the recorder. Immediately after the interview, I took brief notes

about my personal experiences and perceptions during the interview, as suggested by Wengraf (2004, 4).

3.2.1.3 Analysis of the interview material

Transcription

The recorded material of the interviews was transcribed using a simple digital audio player and a text processor. I used the following matrix in order to efficiently gather relevant information while doing the transcription:

Line no.	**Topic**	**Transcript**	**Comments**
1	Topic a)	TEXT TEXT TEXT TEXT TEXT TEXT.	Comment a)
2	Topic b)		Comment b)
3			

Table 1: Transcription matrix (blank)

Besides the column for line numbers, the transcription matrix consists of three columns: One for the overall topic mentioned, one for the actual transcript, and one for (rather free and associative) comments which came to my mind while transcribing the interview and re-reading the notes I made during the interview. Strauss (1987, 109 ff.) stresses the importance of going beyond the simple transcription of interviews in order to produce relevant material for later analysis. With respect to the formal notation of the narratives, I followed the suggestions made by Flick (2008, 52 f.).

Analysis and interpretation

The empirical material which was gathered during the interviews and transcribed using the method outlined above evidently needs systematic analysis in order to help answering the CRQ.

On a very abstract level, this is done by simply reversing the algorithm for developing interview questions (CRQ - TQ - IQ).

Thus, the algorithm for finding answers to the CRQ (ACRQ) follows an IM - ATQs - ACRQ structure (interview material - answers to theoretical questions - answer to research question). The formal scheme for applying this algorithm is outlined in table 2 below.

Theory Questions / CRQ	**Interviewee A**	**Interviewee B**	**Answers to TQs**
TQ0	All contacts	All contacts	ATQ0
TQ1	IQ1.A.1	IQ1.B.2	
	IQ2.A.2	IQ2.B.2	
	+ all other materials (interviews, data)		ATQ2
...	...	...	...
...	...	...	...
			Answer to CRQ

Table 2: Structure for the analysis of interviews

Source: (Wengraf 2001, 228)

Analysis of SQUIN-BNIM interviews

In general, the analysis of the BNIM interviews is based on the reconstruction of two stories, namely the *told story* and the *lived life*. (cf. Wengraf 2001, 233) Through the structured analysis of every interview from these perspectives, case histories can be found which are used for finding the underlying structures of cases.

In a nutshell, the procedures which are necessary for finding these structures are the following: (Wengraf 2001, 232 ff.)

1. *BDA:* Analysis of the biographical data (chronology of the lived life);
2. *TFA*: Analysis of the thematic field, which aims to reconstruct the told story;
3. Construction of the case history in an interpretative way;
4. Micro-analysis of selected text segments for the testing of hypotheses on the case;
5. Construction of the case-structure through the interpretation of the interrelation between lived life and told story;

Without going into detail concerning the concrete concepts which are necessary for the procedure outlined above, it is noteworthy that the essential aspect is to develop many diverse hypotheses on the case which are, in the process of analysis, subject to verification, falsification or modification by the evidences extracted from the material. Thus, the formulation of hypotheses is crucial for producing relevant case-structures for further analysis and, finally, for answering the CRQ.

3.2.2 Design for expert interviews

In what follows, I will briefly outline how I used expert interviews as a part of my research design and which methodological points had to be considered in more depth in order to get relevant material. According to Bogner and Menz (2005, 7 f.), interviews with experts can be particularly fruitful when the expert is a key figure in the respective research field and can provide specific information about both inside knowledge and context information. In the field of ICT for youth empowerment in Ghana, some (obviously not all) of the experts with such characteristics are policy makers, government officials and actors in ICT education. The main target for me was to receive relevant material which can later be combined with the findings from other sources (BNIM interviews and quantitative data) for answering the CRQ.

3.2.2.1 Experts and expert knowledge

It is essential to note that there is no consensus on the topic of experts and expert knowledge in academic literature. Some authors focus on the problematic connotation of the term and point out the dangers of differentiating between experts and non-experts for democratic processes, others stress that there is an evident difference between experts and non-experts due to various forms of knowledge (e.g. special knowledge, secret knowledge, implicit knowledge) which the formers possess and yet others reason that an expert is someone who is assigned by the researcher to be an expert in a certain field according to very specific criteria which are relevant for the topic. (cf. Meuser and Nagel 2005, 258 f.) All of these points are crucial for conducting expert interviews, and a critical reflection of the role assigned to experts is necessary.

However, I follow the basic assumption of Schütz (1972, 89 ff.) that the main criteria for differentiating between experts and non-experts is the ability of an expert to critically reflect problems in a certain field and to move in a system of relevance by deliberately choosing to be an expert. In the case of my empirical research, I tried to apply these criteria by choosing experts who do not only work in the relevant field (e.g. teachers of ICT) but whom I considered capable of critically evaluating the complexity of the topic. This does not imply that these experts are able (or willing) to relate their expert knowledge with the various theoretical and practical approaches and their respective problems in the research field. The relevant criteria was that I considered them capable of at least taking these problems into account.

3.2.2.2 Practical issues for expert interviews

Potential problems in expert interviews

There are a number of potential problems which need to be considered when conducting expert interviews in order to prevent negative consequences for the quality of the material. As in all qualitative research interviews, it is essential for the researcher to be aware that the interview in itself is a social interaction between at least two actors, namely the interviewee and the interviewer. Various difficulties can arise from this specific form of social interaction. Leitner and Wroblewski (2005, 248) describe these difficulties as 'stakeholder problems' because the interviewee is primarily recruited from institutions which work in the field of the research. Some possible difficulties in this situation include the *iceberg*-effect, the *paternalism*-effect, the *feedback*-effect and the *catharsis*-effect.

The *iceberg*-effect describes a situation where the interviewee is not willing to give relevant information to the interviewer. Possible causes could include lack of interest or mistrust. (cf. Leitner and Wroblewski 2005, 251; see also Meuser and Nagel 1991, 491) The *paternalism*-effect is problematic because in this case, the interviewee is 'taking over' the interview and questions the authority of the interviewer. (cf. Leitner and Wroblewski 2005, 251) If the interviewee starts to ask questions to the interviewer which are not aiming to better understand what the interviewer wanted to know, the situation can be described as a *feedback*-effect. (ibid.) Finally, a *catharsis*-effect can arise when the interviewee takes the opportunity of the interview to talk about issues which are important to him/her personally but irrelevant to the researcher. (ibid.)

It is evident that all of these problems can bias the findings of expert interviews profoundly and that it is extremely important for the interviewer to have them in mind when planning, conducting and analyzing expert interviews. Since my interview partners are not members of the same institution, problems resulting from conflicts within the institution itself are less likely to occur. However, the *iceberg*-effect is especially relevant since the different institutions are not directly involved in the research and might not be willing to share their expert knowledge to an 'outsider'.

Conducting expert interviews

As suggested by the findings from the last chapter, the first step for conducting a successful expert interview is to define relevant institutions and persons within these institutions which could possess expert knowledge. If these persons are willing to participate in an expert interview, it is essential to prepare for the interview since a well-prepared interviewer will much more likely be treated with respect compared to someone without relevant knowledge (in the perception of the interviewee) concerning the field. (cf. Bogner and Menz 2005, 8)

Additionally, special knowledge can help to prevent a *paternalism*-effect to occur.

After the interviewer feels prepared to conduct the interview, it is advisable to produce a rough interview guide with the main thematic areas to be covered during the interview. Even if the interviewer decides not to stick with the plan suggested by the interview guide when conducting the interview, it provides a valuable backup strategy. (cf. Meuser and Nagel 2005, 268) One possible option to start the interview is to give some background information about the research topic, the applied concept, methodology and the role which expert interviews play in the study. (cf. Leitner and Wroblewski 2005, 251) Additionally, the main thematic areas and the relation between the interviewee and the interviewer can be discussed before the interview in order to clarify possible misunderstandings right from the beginning. (cf. Leitner and Wroblewski 2005, 251)

Finally, the interviewer should try to use the terminology suggested by the interviewee during the interview. On the one hand, misunderstandings can be prevented by using the same terminology. On the other hand, the interviewer is more likely to be accepted as a 'serious' partner by the interviewee using this strategy. (cf. Leitner and Wroblewski 2005, 251)

Analyzing expert interviews

The analysis of expert interviews is quite different from other qualitative interviews. Whereas the interpretation of single-case interviews is based on the sequence of the narrative (e.g. the sub-sessions one and two in the BNIM method), it is legitimate to bundle thematic entities irrespective of the sequence in expert interviews in order to illustrate an opinion or a topic. (cf. Meuser and Nagel 2005, 268) Thus, the main arguments which were covered during the

interview are outlined in the analysis of the interview and contrasted with other empirical or theoretical material on the topic.

A relatively detailed scheme for analyzing expert interviews is provided by Meuser and Nagel (1991, 483 ff.). In this scheme, six main steps for the analysis of expert interviews are identified: a) transcription; b) paraphrase; c) headlines; d) thematic comparison; e) sociological conceptualization and f) theoretical generalization. The first three phases (transcription, paraphrase and headlines) aim at structuring the interview and should enable the researcher to find important opinions and topics rapidly in the later phases. In the last three phases (thematic comparison, sociological conceptualization and theoretical generalization), the idea is to gradually move from the 'plain text' of the interview to possible implications of the text for the research topic. Ideally, the results of the analysis should include sociological categories only in the last two phases. However, as Meuser and Nagel (1991, 481) point out, it is logical that researchers use sociological categories in earlier stages and that it is important not to ignore these initial assumptions in later stages.

In the last stage of the analysis, the theoretical concepts and empirical results of the expert interviews are contrasted and three different scenarios for these results are possible: a) the concepts are inadequate; b) the concepts can be falsified; c) the concepts can be verified. Thus, the results of the expert interviews can be used together with the results of the BNIM interviews in order to answer the theory-questions (chapter 5.1) and, finally, to answer the central research question (chapter 5.2).

4 EMPIRICAL STUDY: RESULTS

This chapter deals with the results from the analysis of both expert interviews and BNIM interviews.

Concerning the BNIM interviews (chapter 4.1), a case history and a case structure were developed based on the method outlined in chapter 3.2.1, which follows the general guidelines for the analysis of BNIM interviews proposed by Wengraf (2001, 231–300). The results of the analysis, particularly the results of the case-structures, will be essential for answering the TQs in chapter five.

The expert interviews (chapter 4.2) were analyzed according to the design which was described in the previous chapter. The questions of the expert interviews aimed to cover as many topics within the frame of the TQs (e.g. infrastructure, socio-economic background, gender, etc.) as possible. Whereas the BNIM analysis is based on the interviewees' systems of personal relevance, the analysis of the expert interviews is based on the assumption that due to their expert knowledge, they can make qualified statements within the scope of the research topic. Of course, these statements will later be critically contrasted with other empirical material and relevant academic literature.

It can be assumed that within the analysis of both BNIM and expert interviews, many statements contradict with the theoretical considerations which were outlined earlier in this work. However, this contradictions will be a subject of critical analysis in the following chapter which will contextualize the findings from this chapter with the relevant theoretical concepts.

4.1 Analysis of cases – BNIM interviews

4.1.1 Case history and structure: Martin, interview MK_ 1_1

Because they thought, farming is always the best position to be. Aha.
But, which I think was wrong, because they didn't know the importance of education.
MK_1_1: line 241

Age: 28
Highest completed education of father: JSS
Highest completed education of mother: none (illiterate)
Income: 300 – 400 GHC per month (self-employed)

a) BDC

- Grows up in a small village
- Mother is the second wife of his father
- School education up to JSS in the village
- Mother dies (father and brother 'taking care' of the family)
- After JSS: financial crisis in the family
- Works (wood processing) for three years
- Ideas: Schooling or traveling abroad (Libya, seeking employment)
- Decision: 2-years of ICT training course
- Employment in the school, quits the job, self-employment in ICT
- Plans to further his education (stops self-employment)

b) TSS (sub-session one)

Lines	***DARNE***	***Keywords***
2-5	Report	growing up, village life
6-9	Argumentation	school and problems (financial)
10-17	Report	managing life in the village
18-23	Evaluation	traveling vs. schooling
24-35	Report	schooling, starting a business (hardware) for the school
36-39	Evaluation / Argumentation	Starting his own business
40-45	Report	education / problems of education (financial problems), sister not in school
46-63	Narrative	life of brother, father, sister (education and work)
64-71	Evaluation	considering further education

c) BDA (summary)

Martin grew up in a big family; his father had three wives (his mother was the second wife). After his basic education in the village (which was financed by the parents), his mother died, which led to several problems in the family. His father and his brother supported him in his educational career, but due to a severe financial crisis (father took out a loan however was unable to meet the installments), he felt that it was necessary to find a job in order to help the family. Thus, his initial idea of continuing schooling proved to be impossible at that moment of his life.

However, after three years of working as a wood processor, he decided that it is time for a change of the situation: Either he wanted to travel (working in Libya in order to earn money for education) or to go to a school. Martin decided to go to a vocational school for two years to train as a computer technician (ICT professional) because a friend recommended the course. He was among the best students in the course and the school administration decided to employ him in its hardware department (where he was responsible for doing business with customers of the school).

After two years, he decided that his salary was not sufficient for his plans and quit the job at the school. He used his contacts for starting his own hardware business and worked on his own account for two more years. However, he found it difficult to get contracts without the network and contacts he had when he was employed by the school. For this reason, he is planning to further his education in order to get a job with a better salary.

d) TFA (summary)

Martin's initial narrative is relatively short and pretty precise. His focus is clearly laid on his origin and is presented in a way which suggests that he considers his personal background (especially his family) to be the major influence in his life.

For instance, he regularly stresses the topic of the financial problems of the family, which was, to him, a result of the **'traditional' understanding of family and marriage** which prevailed in his village:

> M: Because you are managing three people. All of them are having children. My, my (.) the first wife is having five children. And then my mother is having six children.
> M: And then the other one was having two children. And then already, he was having two or so outside. So in all, we are about 14 in numbers.
>
> MK_1_1: line 85-86

He saw himself caught in this 'traditional structure' where he was **not able to follow his own dreams and plans**, most importantly regarding education. After several years of working (in order to save money and support his family), Martin starts with the ICT course in a vocational center. He presents this episode of his life with **the argumentation of why he had to 'break out'** of his current situation. In the **ICT course, he gained a lot of self-confidence** since he was one of the best students. After the course, he was **immediately employed** by the school, which further increased his self-confidence. However, he concluded that the **payment was no match to the efforts and knowledge** he provided at his job. Here, one of the major topics of his narrative becomes clear: **financial independence**. He sees himself as somehow 'different' from colleagues and (partly) his family, but this perception of 'feeling different' is not reflected by his financial situation - he is still **lacking the money to continue schooling** or to attend university, and he is still **lacking the 'appropriate' certificates** for being employed by an important private company (or government institution).
Quitting his job at the school (because of the low payment) and stopping his business (because it only provided him with enough resources to 'survive') were logical consequences of this **perceived inconsistency between 'what he can' and 'what he gets'**. Martin is developing an **image of himself as an 'outsider'** both in his family (where his values don't correspond to what is expected) and his current environment (where he still wants 'more' in terms of money and education and where he is not satisfied with a job that merely pays the bills).

e) History of the case (summary)

Martin's case history could be described as **'a never-ending struggle towards independence'**. Born into a family where he could expect little support in terms of education and 'career' (defined in monetary terms), he decided early in his life (after working three years in the wood processing business) that he had to 'move on'.

His efforts of succeeding in life were considerable: He did very well in school and was able to position himself 'ahead of the others'.

He chose the ICT course not because his interests were clear (he had no previous contact with technology) but because it was recommended by a friend. Again, financial independence was the major motivator for doing the course. After all the efforts he put into his education, he considered the 'output' **(the salary) not adequate and 'moved on' again**.

But also in the next stage, the self-employment (hardware business), he was not satisfied because he lacked the professional environment (network) necessary for a business. Again, he felt that he was treated 'unfairly' and that he 'deserved something better'.

Presently, he is continuing with his search for more independence, better education and more social security, and this search is reflected by his notion of multiple options (traveling, working, university) which are **only means for achieving his overall aim: being independent.**

f) Structure of the case (summary)

Martin is evidently trying to 'escape' from what he perceives as the dangers of growing up in rural Ghana: unemployment, financial insecurity and the lack of possibilities to participate in the 'modern society'. The **basic problem** in his case is that he is lacking sufficient support (and/or networks) to establish a business which can provide him with what he expects from life. At the same

time, the alternative (furthering education in order to find a better job) proves unattainable due to his financial situation.

His **response to the problem** is to try out various approaches of self-empowerment (education, employment, self-employment, more education) in order to achieve his goals. Although he was pretty successful in all his approaches (he has been a good student, had a good reputation at his workplace and was able to make some money at his business), he regularly 'moves on' because his personal ambitions are beyond the scope of his engagements.

However, he **perceives this problem** to be primarily a financial one:

> M: So, the reason I quit was (..) the money (..) my salary wasn't enough for me. And there (..) I thought of it for several times, in order for the management to consider.
> M: But (..) there wasn't any hope (.) in considering my, my (..) opinion. My (?) So, I decided to have a (..) to quit, and then to work on my own.
>
> MK_1_1: line 180

The same arguments for 'moving on' are presented at earlier (and later) turning-points in his life. Being aware of his abilities and potentials, he feels that external (primarily economic) factors hinder his personal self-empowerment. The 'plan to travel' in order to find a job with a high salary which he could use for furthering his education is a common notion of an "*escape strategy for poverty reduction*", as outlined by Slater and Kwami (2005)**.**

4.1.2 Case history and structure: Constance, interview CO_1_2

And, (...) yeah (...) I can do whatever I like, I can buy whatever I like, I don't need of anything, aha.
CO_1_2: line 41

Age: 29
Highest completed education of father: JSS
Highest completed education of mother: none (illiterate)
Income: 200 - 300 GHC per month (secretary in a small enterprise)

a) BDC

- Grows up in a small city
- Divorce of parents (mother was 'only' the second wife)
- Mother is a farmer, moves to Western region for farming (without her)
- Grows up with father and stepmother
- Basic education in the small city. Plan: Nursing school
- Stepmother prevents her from attending a tertiary institution
- Mother comes for a visit and encourages her to do further (vocational) training
- Violence (father), moves to her mother
- Attends vocational training center (ICT course)
- After the course: teacher introduced her to a company in a nearby city
- Employment in this company as a secretary
- Satisfied with her job and the salary

b) TSS (sub-session one)

Lines	***DARNE***	***Keywords***
1-5	Report	growing up in a family of farmers, mother discovers that her husband has another wife
6-12	Argumentation / Report	good student, but father does not allow further education after SSS because of the opinion of her stepmother
13-16	Report	mother returns and sends her to a vocational school; ICT course by chance
17-29	Argumentation / Evaluation / Report	stepmother accuses her of gossiping, violence, ran away from her father, mother supports her
30-35	Report	uncle stops support, difficult financial situation, had to work in order to pay school fees / feeding
36-47	Report / Evaluation	found a job with a good salary, financial security, independent, plans to marry, is happy with the situation

c) BDA (summary)

Constance grew up in a family which fell apart when her mother discovered that her father had another wife and she was only his 'second wife'. Her mother immediately got a divorce. She was a school kid when her father decided (without consulting her) that she will be living with him and her stepmother; her mother moved to another region and had no contact with her for several years.
Constance enjoyed going to school during her basic education and her father even allowed her to go to a SSS (although she had to work in order to raise additional money to pay the fees). After SSS, her father refused (influenced by his wife) to finance further education (she wanted to attend a nursing college). Staying home for several years, she helped her father with the work on the farm and kept trying to convince him that further education is a good option for her.
Only when her mother came for a visit, the situation changed: Her stepmother accused her of 'gossiping' and as a consequence, her father abused her physically. Together with her sister, she ran away to their mother, where they did not only find a safe environment but also someone who supported them in their struggle for education. With the support of her mother, she was able to attend a two-years ICT course.
Immediately after the course (where she did well academically) she found employment in a small company dealing with agricultural supplies in a nearby city. She is not working as a computer technician, but her tasks as a secretary include many ICT related issues. Constance is currently very satisfied with her situation.

d) TFA (summary)

The thematic field in which Constance's narrative is situated could be described as follows: '**One needs to struggle hard, and struggle long, to make his or**

her way in life.' In a report-style, she presented her 'problems' (divorce of the parents, but more importantly growing up in a hostile atmosphere with a stepmother who is all but supportive regarding her stepdaughters) and critically evaluates which possibilities she had in mind at this time of her life.
In her perception, **performing well** in educational institutions (starting with her basic education) **was pure self-empowerment:**

CO: But even, he called my mother and told her that don't let your daughter stop schooling, because she is good. Don't let her.
CO: And because of what is going on, I was not happy to go to school. But what he said, it pushed my morals to go to school.
CO_1_2: line 81-82

The physical violence she experienced in the house of her father was a turning point for her: Being convinced that she was **morally entitled to leave** her father's family, she fled to her mother and demanded not only protection but also further education.
From then, she **describes her personal life-story as a success**: She enjoyed the ICT course (although she picked the subject by chance) and worked hard to succeed academically and, at the same time, to raise funds for her education.
When she found a job immediately after completing school, she saw herself in a very privileged situation. **Financial independence** and the possibility to decide what to do on her own terms, together with the possibility to support her mother and sister with her salary, mean a lot to her.

CO: And, (...) yeah (...) I can do whatever I like, I can buy whatever I like, I don't need of anything, aha.
CO_1_2: line 41

For her, the ICT course was a tool for reaching this goal, and it proved to be a suitable tool.

d) History of the case (summary)

The case of Constance could be classified as a (successful) **struggle to overcome oppression.** Early in her life, when her parents got divorced, she was marginalized in terms of financial (and perhaps moral) support. She was a subject of both domestic violence (from the side of her father) and violence in educational institutions (primary school):

> C: And there was one master, even he (..) he gives you a homework and we didn't do it, then, that day, you don't come to class, he will beat you up!
>
> CO_1_2: line 72

However, during her educational career, she developed a **reflective stance towards her potentials**. When her mother supported her decision of doing a post-SSS training course, her **self-confidence gradually increased**, especially when she was able to succeed academically. Being accepted as a part of a community (with colleagues and teachers at the vocational center) was something she could be proud of. Another important aspect of taking the ICT course was the **end of isolation**, which is typically described as 'being in the house' of the parents and helping them (in her case, at the farm or with house duties).

To Constance, the ICT course was in essence a (successful) **way to overcome oppression** and led to self-confidence, financial security and personal empowerment.

d) Structure of the case (summary)

In order to become free (see CO_1_2: line 41), Constance had to fight **two basic problems**: Firstly, she was separated from her caring mother and was forced to stay with her stepmother and father who were unwilling to support her. And secondly, she neither had the resources nor the self-confidence to

overcome the oppression and violence she experienced in the house of her father.

After a particularly unfair attack from her father, she **responded to these problems** and fled to the house of her mother. This event proved to be the starting point for a process of personal empowerment for her, which finally led to her current situation.

Her **perception of the problems** are related to a clear understanding of what is morally right and what not. She is confident about her decisions to leave the house of her father and move to her mother. Considering the financial difficulties during the time she did the ICT course (where she needed to work after school hours in order to get money for the fees) she feels proud that she was able to manage the situation and to complete the course. After she found a job (where her knowledge of ICT is considered highly relevant), she is sure to be in a privileged position where she is able to live a secure and fulfilling life that corresponds to her own moral standards.

4.1.3 Case history and structure: Frank, interview FY_1_3

And I think /eh/ (..) that I became successful. And I am successful!
Because, I am still working with computers, you see.
FY_1_3: line 92-93

Age: 27
Highest completed education of father: JSS
Highest completed education of mother: Primary School
Income: none (unemployed)

a) <u>BDC</u>

- Grows up in a small city
- Primary school in the small city
- Possibility to go to JSS and SSS (support from aunt)
- Various years at home (no resources for further education)
- Vocational training center (ICT course, support of the aunt)
- Job in an Internet café (cousin)
- Quits the job (insufficient payment)
- Unemployed since more than 2 years

b) <u>TSS (sub-session one)</u>

Lines	***DARNE***	***Keywords***
2-8	Report	growing up in small city, parents support him in his education, completed school up to SSS, aunt supports him
9-15	Report / Argumentation	need to continue education for 'finding a better job', need to have a 'better life'

c) <u>BDA (summary)</u>

The initial narrative of Frank was extremely short and superficial. It included the basic facts about his live: He grew up in a family of farmers in a small city.
His parents valued education and supported him in his school career, thus he was able to continue schooling after completion of the JSS level (which he considers a privilege given the financial background of his family).
After completing SSS, he had to stay at home for several years because his

parents were not able to provide the financial resources for further education. He helped his father at the farm during that time. Finally, his aunt paid some share of the school fees, thus making it possible for Frank to attend an ICT course in a nearby vocational school. According to the report forms, he was not among the best students, actually his performance in the second year of the course was rather poor in academic terms. He did not complete the ICDL certificate, which is the main certificate students in this course could achieve.
After the ICT course, Frank found employment in the Internet café of his cousin, in the environment were he grew up. However, due to the very low salary (a maximum of 20 GHC per month) he quit the job. Since then, he is occasionally repairing computers for friends and family.
He is currently unemployed and plans to continue his ICT education, although he is not sure which courses he could take.

d) TFA (summary)

When Frank started with his main narrative in sub-session one of the interview, he told the story of a young man who grew up in a **poor, but protected environment** and managed (with the help of his family) to reach a high standard of education.
Concerning the thematic field, the main narrative surrounded the topic of his knowledge and **how he was able to acquire his education**. In conclusion, his narrative could be summarized as follows: '**I have been trying hard, but ...'**

He presented a version of his life story in which he emphasizes that he was successful in terms of schooling and knowledge:

F: Because, most of the time, I got the first position. (..) When I was in the primary school.
FY_1_3: line 23

It is noteworthy that Frank's understanding of his past is marked by the perception that his life was determined by external factors such as the lack of **resources** (but also the financial support from his family), the problems of **mobility**, the lack of **jobs** in his environment and the high **costs of education**.
Although Frank mentions several strategies which he considers relevant for achieving his aims ('a better life' and 'being successful'), he does not explain these strategies in detail, nor does he describe the implications his decisions would have (e.g. administrative, financial or academic implications).
His ICT knowledge is definitely relevant in his personal environment, and he proudly mentions that he is "*[...] still working with computers*". (FY_1_3: line 93)
However, staying 'in the house' for two years, he feels that something is missing for him to really become 'successful' and he considers further training (with appropriate certification) to be the best option to reach his goals.

e) History of the case (summary)

Analyzing the case of Frank in a superficial way, **no explicit turning points** in his life can be identified. However, the comparison of his 'lived life' and the 'told story' suggests that he **feels betrayed** by the possibilities his life offered to him. The frequent notion of his academic and personal successes since childhood reveal that in his perception, he did everything he could in order to reach his goals.
However, his accounts on future plans and decisions in his past suggest a **certain passivity** in shaping and evolving the ideas he had for his life. Growing up in a relatively protected environment, he found his role as a good son, a good nephew and, eventually, a good student. But after these categories lost importance in his life (after the ICT course), he **did not catch up** with the requirements of the reality for ICT graduates in his specific environment. Frank did not have the **personal networks** to find a good job, nor did he have **certificates** for competing at the labor market for ICT professionals.

Additionally, he was **not willing to expand his search** for a job to other regions: Even the neighboring city (10 minutes by car) seemed far away to him. His perception of 'success' is particularly interesting:

> F: And I was successful, repairing them. So (..) /eh/ I became more practical. Because (..) it was a daily, daily activity. Because everyday, I had to open this computer, the next day, I had to open this computer, the next day, I had to do this one (…).
>
> FY_1_3: line 100

In a situation where he worked for his cousin without receiving even the minimum wage one could expect for ICT professionals, he feels successful because his knowledge and abilities are considered highly relevant by friends and family.

In his current situation, he perceives a contradiction between what he deserves (for his efforts and his knowledge) and what he can expect. Concerning the labor market, his situation must be classified as a **long-term unemployment** with little perspectives for a change of the situation in the near future.

f) Structure of the case (summary)

Regarding the experiences of unemployment and passivity, Frank's case must be considered as evidence that ICT education is not per se an enhancer of empowerment processes. The **problem of his case** is that he is not able (and perhaps not willing) to compete on the labor market for ICT graduates in his environment. Having complied with the norms of the social system around him (good student and good son), he seems to wait for this social structure to provide him with what he expects for a 'better life'. However, since the time he graduated from the ICT course, no possibilities and options for his life opened up, and it is unlikely that the situation will change in the near future.

Frank **responded to the problem** by focusing on what he knows and what he can provide: The knowledge he acquired during the ICT course is indeed

relevant for his personal environment, where ICT penetration (as in most areas in Ghana) dramatically increased since Frank started with the ICT course. He enjoyed working in the Internet café of his cousin because he was able to do something which was highly valued:

F: How to work with Bit, installations, and /eh/ after I went to Don Bosco[7], everything became all right with me. Because I can now make everything with the computer.
F: I can work with /eh/ all kinds of computers, I can make formatting, installations, and so on.
FY_1_3: line 6-7

However, at a certain point he was not willing to do this free of charge, and nobody was willing to pay for his services, which led to a kind of professional inactivity.

His **perception of the problem** is that he did his part for organizing his life in a promising way: He completed both SSS and the ICT course at the vocational institute (although he did not complete one of the core certificates) and he gained practical experiences in the Internet café. Now it seems that he is waiting for the situation to change by itself.

7 Don Bosco Technical Institute (a vocational center offering ICT trainings)

4.1.4 Case history and structure: Isaac, interview IF_1_4

And I went and the man said, I am very fortunate. Out of all of them I am the only person that has been chosen. This is because I did well at computing.
IF_1_4: line 192

Age: 31
Highest completed education of father: illiterate
Highest completed education of mother: illiterate
Income: 200 GHC per month (teacher)

a) BDC

- Father died before he was born
- Grows up in a small village
- Basic education in a small city close to his village
- Mother is partially disabled, together they operate a small farm
- Possibility to attend SSS (help from the mother)
- 'Ghana Cocobod Scholarship' in 2nd year of SSS, but not enough money for food
- Does not write final SSS exam (lack of funds)
- Works as a cold store manager for two years
- Finds a job as a teacher in a small city
- Training as a secretary in a vocational school
- Finds a job as a secretary
- Training as a computer technician in a vocational school
- Employed in the school as a teacher since he completed
- Attends additional ICT-related courses
- Plans to go to university

b) TSS (sub-session one)

Lines	***DARNE***	***Keywords***
2-5	Report	growing up in a small village, father died, basic education in the village, opportunity to attend private school
5-21	Report / Argumentation / Evaluation	good student and 'advanced' (because of private school education), but financial difficulties, scholarship, but still not enough money to complete SSS
22-29	Report / Evaluation	found a job as a teacher, decided to do further education, did secretary course, found a job as a secretary

30-33	Argumentation	did another course (ICT course), knew that his education is not enough, was accepted at the school
34-44	Evaluation / Report	was employed in the school, got support from volunteers for further ICT training, plans to go to the university
45-59	Report	head of department ICT, likes teaching, other (administrative) responsibilities in the school
60-68	Evaluation	school was formerly private, now public, he sees a negative development

c) BDA (summary)

Isaac's father died before he was born, and his mother, who was partially disabled, tried to support Isaac and his siblings so that they can at least complete their basic education. Naturally, he had to work early in his life and he **learned to take responsibility** for his life, education and family. He was **granted a scholarship** (which is particularly notable because competition for such scholarships is usually intense) and was thus able to attend SSS. However, due to the financial situation, he **could not complete SSS**.

Isaac worked for several years (first as a 'cold store manager', later in a school were he was employed as a teacher). He realized that without the appropriate **certification**, he could not find a suitable job (with **adequate salary**). After doing a **course for secretarial studies** in a vocational center, he **immediately found employment** in this field. He saw this job as an opportunity to save money for further studies and after two years, he decided to do **another course (ICT)** at the vocational school. The reason he took the ICT course was that he expected to find a job relatively easy because of the growing demand for ICT professionals in Ghana. Because of his former experiences, he was **ahead of most other students** academically and finished the course as one of the best students. He was **immediately employed** by the school administration after he graduated and since then works as a **teacher for ICT**. Isaac decided to do an **additional ICT course** because he was not satisfied with the certificates he already had (mainly because his salary depends on the 'level' of the

certificates).

He was promoted after two years of employment in the school and is currently **head of the ICT department**. Besides his teaching duties, he is responsible for various administrative tasks in the school. Currently, Isaac is considering the **possibility to attend university.**

d) TFA (summary)

Isaac told his story in a very structured way, his initial narrative is relatively long. He seems to consider his story as confusing and **'hard to tell in a few words'** and was very cautious in his explanations and arguments.

The thematic field in his narrative was clearly his **(successful) way 'out of the village'** and his **(ongoing) 'struggle for education'**. He told the story of a boy who was aware that he **needs to work very hard** when he is planning to succeed in an environment without a father and with a partially handicapped mother. He is very critical towards the attitude of some people in his village:

IF: Anytime I go to my village, my colleagues, some of them, they are drunkards, they drink, others lose more (..) older (..) many people are unemployment, people begin to (..) /eh/ beg you for something to eat.
IF: Yeah so that (..) I separate myself from (..) those who are not passing the right path, yeah.
IF_1_4: line 84 and 88

Even during his basic education, he **felt specia**l because he was able to attend a private school where he learned to speak fluent English (which was not common).

Concerning his educational career, he tells the story of the **difficulties to learn** in the public school system of Ghana.

IF: And (..) and the teachings (..) were not like today's one. You go there. Your teacher tells you, let's go to the farm - by that time we were young - we will go to the farm, fetch water, everybody goes for water.
IF_1_4: line 95

However, he made his way through the basic education and was able to attend SSS due to a scholarship program. According to him, the only thing that prevented him from completing SSS was a financial misunderstanding between the donor of the scholarship and himself. In his narrative, the **sorrow of never completing SSS** was a central point which he mentioned frequently (see for example IF_1_4: line 141). The part where Isaac explains his work experiences after SSS is rather short, he clearly considers this episode as a **necessary time of transition** for continuing with his education.
After completing two different courses at vocational school (secretary studies and ICT), his **professional profile** (several years of working experience both as an office manager and as a teacher) was impressive and appreciated by the administration of the school, which he is proud of.

He does not seem bothered by the fact that after many years of schooling, he is still not at a level were he can expect **a salary that reflects his professional profile** and his **commitment**. Isaac is happy to be in a position where he is needed and his work is valued and he is telling a story of his life as a teacher which suggests that his only problem with the current situation is that his **certificates are not considered 'valuable'**.

e) History of the case (summary)

The case of Isaac illustrates the problems of **fragmented education**, problematic **certification** and the possibilities of empowerment through **non-creative use of ICT** in Ghana.
Although Isaac succeeded in all schools and courses throughout his life (except the SSS final exams), he is still not on a level of **acknowledged skills** which he considers appropriate for his current engagement as a teacher. His educational biography is marked by long **periods of absence** from school due to financial problems. In his narrative, he does not mention that he was unhappy with the

situation during his various jobs, but for pragmatic reasons (social security and money) he constantly pushed his education in a direction which he thought could prove favorable.

His decisions for doing additional courses (first secretarial studies and later ICT) cannot be explained by emotions towards these subjects, but rather by a **rationality** which Isaac applied to these subjects. In his case, this rationality proved to be successful: He was immediately employed in the school were he did the course, and he is **satisfied with the current situation** (some minor problems put aside). His case also shows that ICT education can indeed be a way to overcome poverty. The **non-creative use of ICT** seems to be appropriate for him to achieve **empowerment.** Evidently, teaching ICT is one of the fields where a non-creative attitude towards ICTs is considered suitable (e.g. teaching how to use office programs).

f) Structure of the case (summary)

Isaac was confronted with the **problem** of poverty and its consequences (in terms of education possibilities and social exclusion) early in his life. The death of his father and the handicap of his mother strongly influenced his social network and according to his narrative, it seems probable that he found little support through 'traditional' channels (e.g. family or kinship) in his life. He soon developed the self-perception of a 'single combat' and his experiences during basic education where he describes himself as being *„[...] different from my colleagues“* (IF_1_4: line 6) can be seen as a symptom for this situation.

His **response to the problem** was a strategy which contained two main elements: Firstly, he did everything he could to comply with the rules and norms of his respective environment, and he probably succeeded in this approach: He was prefect during his basic education, successful as a cold-store manager, popular as an employee in the GNAT office, and finally he was employed in the vocational center where he did the ICT course. The second response strategy

involved some kind of professional selfishness during his career. Since Isaac left SSS, he was very well aware that there is no straight way towards education (and a good job) for him. As a consequence, he tried to make his way through shorter, less expensive trainings (vocational center courses, additional ICT course) in order to find employment. The interplay of both approaches proved successful for him, although he is still not on a certification level that forces his employer (the vocational training center) to pay a salary which corresponds to his knowledge and commitment.

Isaac perceived this problem in a way which supports the hypothesis of the 'single combat'. He does not act in passivity, not even in times when life is especially difficult. He perceives the difficulties and problems rather in the way of 'trials' where his integrity and knowledge are challenged.

4.1.5 Case history and structure: Miguel, interview AM_1_5

I love that! I have found so much interest in ICT. I am just looking for at now, for (..) you know (..) to better my (..) certificates, and then to do something better with my life.
AM_1_5: line 21-22

Age: 29
Highest completed education of father: SSS
Highest completed education of mother: illiterate
Income: 300-350 GHC per month (administrator in an Internet café)

a) BDC

- Grows up in a small town in the Eastern region of Ghana
- Basic education and SSS in the town, father supports education
- Death of father (after SSS)
- No possibility to continue education (mother did not support him financially)
- Works in Accra without specific plans
- Sister encourages him to take a course at a vocational center in Sunyani
- Finds a job in Accra after completing the course
- Moves to a small city on the coast for a new job (Internet café)
- Is currently responsible for the administration of an Internet café
- Plans to attend university

b) TSS (sub-session one)

Lines	***DARNE***	***Keywords***
2-5	Report	growing up in Eastern region, education up to SSS, dad passed away
6-8	Report / Evaluation	working in Accra without a real plan, talks with his sisters on the topic of education
9-17	Evaluation / Argumentation	deciding which course to do (ICT), interests and dreams, completing ICT course
18-21	Argumentation	ICT as his real interest
22-27	Evaluation / Report	higher level of certification relevant for his professional career

c) BDA (summary)

Miguel grew up in a relatively protected environment in a small city in the Eastern region of Ghana. His father was an administrator in a secondary school and his mother worked as a trader. His family lived on the campus of the school and **education was highly valued** both in his family and in his immediate social environment:

> MA: You study, you play football, you study. Yeah, such people. Because I lived (..) /eh/ we were living in the campus, yeah. So, that's it.
>
> AM_1_5: line 41

Up to his SSS education, his **father was influencing him** heavily in terms of education. He pushed him towards specific courses (administration courses) and motivated him to complete his schooling with good grades. After the death of his father, Miguel decided to move to Accra in order to find a job. His **mother did not show much interest** in his education:

> MA: My mom was (..) /eh/ a trader (..) and /eh/ she wasn't educated. So I was /eh/ maybe, she didn't know the (..) advantages of education.
>
> AM_1_5: line 63

After working in Accra for some time, Miguel realized that he wanted to **learn a profession**, because he did not want to be employed without being professionally educated. He told his sister about his plans and she encouraged him to do a vocational course in Sunyani. He decided to do an ICT course there and graduated after two years **holding the first academic position in class**.

After the course, Miguel returned to Accra where he was employed in an ICT company. Although he did no make a lot of money during this employment, he enjoyed it because of the professional environment and the skills of the other employees. However, due to **financial considerations**, he decided to accept another job offer as a **system administrator** in an Internet café in the Western region of Ghana.

He is still employed there and **plans to attend university** in the near future in order to improve his professional profile (mainly on the level of certification).

d) TFA (summary)

The thematic field analysis of Miguel's case revealed the image of someone whose **life was turned upside down** after the death of his father. In his narrative, he frequently refers to the protected environment in which he grew up: The caring father, life on the school campus, playing football and studying were the main activities besides doing some farming and enjoying life in a big family.
He does not mention any problems, neither financially nor of another kind, until his father died shortly after he completed SSS. He describes his biography in a way which suggests that he would have had an easy life in the school administration if his dad had been alive for some more years:

> MA: But (..) /eh/ I also did like it but /eh/ after completion, as I said, he wasn't there to (..) push me in as I wanted, so that's why I also migrated from there.
>
> AM_1_5: line 55

In an evaluation of his decisions during the interview, he states that this **lack of guidance** led to his migration to Accra, where he was working without specific plans for his future for some time. According to his narrative, the **support and encouragement of his sister** were essential for his decision to learn a profession. He entered into the field of ICT with little previous knowledge, but he soon developed **real interest in the topic**. In an argumentative style, he describes this development as a lucky coincidence. From the time he started with the ICT course, he seems self-confident towards his personal and professional development in his told story.
He is critical towards the content which was taught at the school and enthusiastic about the possible ICT applications he saw during his first employment in Accra. He now outlines the image of an ICT professional who is successful in what he does, but who needs appropriate certification in order to climb even further up the professional ladder.

e) History of the case (summary)

The case of Miguel could be used as a **prototype for the empowering potentials of ICT** education by ICT4D enthusiasts. It seems obvious that Miguel is comparatively well off considering both his personal background and the opportunities he had right after secondary school. He works in the field of ICT and receives a relatively high salary, given the fact that he 'only' completed a vocational school. He is responsible for all kinds of problem-solving tasks in his current employment and is constantly acquiring **new relevant knowledge** (first during his apprenticeship in Accra, later at his current job). He is planning to go to **university** and due to his current employment this seems to be a realistic plan.

He achieved all of this without being part of an exceptionally wealthy family and without having a strong social network 'pushing him' in his professional development.

However, these successes must be evaluated in the light of some relevant factors which are not common features of graduates from vocational schools in Ghana. Firstly, the **factor mobility** seems to be essential: Miguel moved from his home town to Accra, from Accra to Sunyani, from Sunyani back to Accra, and from Accra to the Western region. He evidently had little problems to move from one environment to another, and his family and friends seem supportive (or at least indifferent) in this matter.

Secondly, the **factor guidance** cannot be neglected: His father was the central role model in his life. Although his death caused some sort of personal crisis in the life of Miguel, the encouragements to educate himself still seem to play a role for him. Thirdly, the **factor intelligence** seems relevant. In academic terms, Miguel was clearly on top of the class, at least during the time of the ICT course. The **factor financial support** is important too: Through the support of his sister, he could attend the vocational school and complete his basic training as an ICT professional. Last but not least, the **factor enthusiasm** must be included in the evaluation of Miguel's case: It was a lucky coincidence that he found so much

interest in ICT without having been exposed to the field in detail before he started the course.
All of these factors (and probably more) are important for understanding why in the case of Miguel, the ICT education actually empowered him and enabled him to live his life according to his own means.

f) Structure of the case (summary)

It is self-evident that the death of his father was the **basic problem** with which Miguel had to cope when he completed SSS. Before this event, his life was structured in an orderly manner, and he was protected by the caring support and encouragements of his father. Furthermore, it is possible that the strong influence of his father caused a certain passivity of Miguel towards his personal ambitions. However, after Miguel was 'left alone' (his narrative suggests that he felt like this after his father died), it took him some time to find a way for effectively **coping with this problem**. Without being sure about his own goals, he approached his sister who encouraged him to do a course at the vocational center in the city where she lived (Sunyani). The shift from passivity (in Accra) to activity (in Sunyani) marked the point where Miguel was taking his destiny into his own hands. For the time of the course, he could stay with his sister (and thus did not spend money for lodging). During the course, he developed real enthusiasm for the field of ICT and tried to further his professional knowledge by doing an internship right after the course (for the sake of working with professionals). This strategy turned out to be successful, and he was offered a job by a client of the company during his internship.
His **perception of the problem** is still focused on the role of his father in both personal and professional terms.

MA: I wanted to have a better life. Like my dad did. Yeah, OK. Fine. My dad's life wasn't that better, but I wanted to get something more than what he did. (..) Yeah.
AM_1_5: line 83

Although he takes his father as a role model, he is not willing to 'copy' the way of life his father lived. In a process of personal reflection (after the death of his father) he found that his real interests do not correspond to the plans his father had for him. In the field of ICT, he was able to develop self-confidence and through his achievements (first academically, and later professionally) he developed a new perspective on his potentials, which is reflected by the statement above.

4.1.6 Case history and structure: Raindolf, interview RO_1_6

And it was very much exciting, it was so beautiful, it got to a time I didn't have any (..) passion for anything that was apart, apart from the computer. Then, it was Windows 98, yeah.
RO_1_6: line 13

Age: 22
Highest completed education of father: SSS
Highest completed education of mother: JSS
Income: none / not regular (software developer and student)

a) BDC

- Grows up in a big family in Accra
- Big brother gets a computer (parents provide it)
- Uses the computer of his brother regularly in his childhood
- Basic education and SSS in Accra
- Develops a passion for ICT during SSS (but no courses are available)
- University student (ICT) in Accra
- Starts a small company (software development)
- Awards and public attention for his company
- Looking for funds for his software open-source projects

b) TSS (sub-session one)

Lines	***DARNE***	***Keywords***
2-19	Report	growing up in a big family in Accra, family life, first contact with technology
20-33	Evaluation / Report	experiences in school, learning ICT by doing ICT, learning from others, becoming a 'geek', distributing software
34-42	Evaluation / Argumentation / Report	discovering the Internet, weaker performances at school, 'real' interest is in ICT, fist experiences with software development (online blogs)
43-60	Argumentation / Narrative	finding his 'real' passion in coding, being part of an online community, developing first pieces of software
61-64	Report / Evaluation	considering the success of role models in the ICT industry
65-76	Argumentation / Evaluation	criticism towards commercial software in Africa, finding software solution which fit the 'African context'
77-112	Narrative	first successes in producing code, idea to establish a business
113-156	Report / Evaluation	establishing his business, producing open-

		source software, good reception of his products
157-178	Report / Evaluation	financial difficulties, finding investors, role models in the ICT industry, plans for the future

c) BDA (summary)

The initial narrative (sub-session one) was relatively long and included both personal anecdotes and professional opinions. Raindolf grew up in a relatively wealthy family in Accra and did his basic education in a nearby school. His father was employed as an administrator (government sector) and his mother worked as a housewife. He was **exposed to ICT very early** in his life, around the age of 8 years. His father was supportive of technology in general and bought a computer at a time when ICT penetration was still very low in Ghana:

> RO: My father had a belief that in the new generation, computers are gonna play a big role. And I am happy that he had this perception.
>
> RO_1_6: line 184

Thus Raindolf learned how to operate computers when he was still in primary school. In secondary school, he wanted to do a course (elective course) in ICT, but at that time, there was **no specific ICT curriculum** in the Ghanaian school system. During his time at secondary school, Raindolf increased his ICT knowledge through various channels. On the one hand, he learned from people in his environment (his brother and friends who possessed ICT knowledge). On the other hand, he discovered the Internet and was soon engaged in activities of low-profile software development (e.g. blogs).

When he finished SSS, Raindolf decided to **study ICT** at a university in Accra. At the same time, he founded a company which deals with software development. After some time, his products (open-source software projects) **received international attention**. However, his company is still **lacking investments** and he is currently not making much profit with his developments.

Raindolf is still in university studying ICT and his parents support him in both his educational career and his business.

d) TFA (summary)

When Raindolf told the story of his life, he did not spend much time on the topic of his family, friends or other elements of the social structure in which he grew up. His whole narrative focused on his **metamorphosis from the *'*average Accra boy' to the 'open-source software developer starting a revolution'**. Raindolf describes his first contact with ICT (which was possible because of the positive attitude of his father towards ICTs) as a key event in his life. He soon developed basic ICT skills and describes himself as **'being ahead of the others'** ever since he was introduced to the basic ICT concepts by his brother and friends. Conclusively, the Ghanaian **school system had little to offer** to him, neither regarding the 'technical' aspects of ICT (basic operations) nor regarding the 'creative' aspects of ICT (e.g. basic programming).

According to his narrative, he was 'taught' by the **Internet**, specifically by online forums, tutorials and web sites for junior software developers. During secondary school, Raindolf seemed to have struggled with the question of his professional future. Retrospectively, he tells this part of his life story as the point where he **made the right decision**, namely to study and build up a software company on his own. He regularly argues that his personal decisions are intertwined with **political reasoning**, most importantly with the idea that **'Africa needs African solutions, also in ICT'**.

Evaluating his decisions and activities, he develops an image of himself where he appears as a possible key figure for starting an **ICT revolution in Ghana**, which contributes local (and open-source) software programs to solve some of the pending problems that Ghana is currently facing (he particularly mentions the health sector and education).

e) History of the case (summary)

In his long and detailed narrative, Raindolf continually oscillates between **different perspectives** he had during his personal development. He prefers to focus on his 'success story', on his way from an average ICT aficionado to a software developer of international reputation. The role his family took in this process was to **support him financially** in order to pay for the expenses of his projects (Internet costs, servers, ICT equipment) and to leave him sufficient freedom for following his personal goals. He thus had a strong backing and could focus on his passion without having to fight for access to education (most importantly to university).

It cannot be neglected that Raindolf was able to make his first experiences with ICT very early in his life. The knowledge he acquired at that time was extremely valuable because it fostered his perception of **ICT as something that he was good at**, even though he repeatedly states that he was far from being a 'professional' in those early days of his ICT career. When Raindolf discovered the **Internet** as a source of both social community (he particularly mentioned the influence of social networks) and source of knowledge, he rapidly develops ICT skills which further increase his self-confidence in terms of ICT knowledge. At this point in his life, an important shift in his attitude can be observed:

> RO: What if I actually writing my own (..) software. Where do I have to start from, if I want the (.) the computer to do something that I want, how can I build a software to do that?
>
> RO_1_6: line 43

The decision to be a producer of software must be considered in the light of his previous ICT experiences. He gradually increased his ICT knowledge in a **game-based way** and concluded that with the help of the Internet, it should be possible to build software on his own. It is notable that Ghanaian **educational institutions played no role** in this process. Obviously, one reason lies in the fact that at the time when Raindolf started his first software projects, he was still a SSS student and there was no ICT curriculum for SSS in Ghana. However, in

his told story, he frequently stresses the point that the Ghanaian education system had little to offer for someone with his needs and potentials, which is particularly interesting given the fact that he is currently studying ICT on university level in Accra.
Considering his self-employment in the software development sector, it is important to note that his engagement has a **clear political connotation** ('Africa as a producer, not a consumer of software') which seems to compensate the lack of remuneration or funding. In this context, the discrepancy between his BDA (where the future of his business seems vague) and the TFA (where he tells the story of 'starting a revolution') must be attributed to his political motivations.

f) Structure of the case (summary)

The underlying structure of Raindolf's case could be classified as a **'self-made empowerment through ICT'**. Growing up in a safe and supportive environment, he could choose relatively freely which path to follow in his life. After his decision to follow the ICT passion, his **basic problem** was how to make use of this passion for his future life. It must be stated, however, that Raindolf was still relatively free to choose his plans when he was in SSS and thus 'played around' with ICT without being pushed in one direction by his social structure (most importantly, his parents).

After Raindolf completed SSS, he finally had to decide what to do with his life and started a double strategy for **coping with this problem**. On the one hand, he decided to study ICT at university in Accra, although he was not enthusiastic about the study program. On the other hand, he started his software development company, produced his first open-source projects and received international reputation. The first part of this strategy seems to be important mainly from the perspective of a young Ghanaian who is very well aware that he

lives in a country where certification is crucial. The second part reflects a situation where he is relatively free to try out what he can achieve in the field of ICT using the Internet as the main source of both commercial activity and as an information medium.

His **perception of the problem** is that he is actually participating in some sort of ICT mission in Africa. He considers himself to be part of an African network of open-source software developers who are starting a 'digital revolution' in their respective countries right now. The ICT industry in the U.S.A. (with companies such as Google, Facebook, etc.) serves as a role model for him. This perspective enables him to consider the lack of funding to be of minor importance, given the public interest his projects created already. To be on an ICT mission for Ghana means to him to believe in the power of his ideas, almost irrespective of the financial difficulties his company is experiencing presently.

4.1.7 Case history and structure: Emmanuel, interview EK_1_7

Right now in Ghana here, if you don't upgrade the certificate that you have, when you apply for a job, then they say that your certificate is too low, then they will not give you the job.
EK_1_7: line 136

Age: 29
Highest completed education of father: illiterate
Highest completed education of mother: illiterate
Income: none (unemployed)

a) BDC

- Grows up in a small city
- Basic education in the small city
- SSS in the small city
- ICT course in the neighboring city
- Finds a job (ICT teacher) in a school in another region
- Fired when government took over the formerly private school
- Moves to his sister (Accra)
- Unemployed since two years, helping his sister at her business
- Plans to either find a job or continue his education

b) TSS (sub-session one)

Lines	*DARNE*	*Keywords*
2-11	Report	growing up in a small city, basic education in the small city, vocational center in a nearby city
12-14	Evaluation	future plans, working or further education
15-19	Report	helping his sister at her shop, hoping to find a job or support for further education

c) BDA (summary)

The initial narrative of Emmanuel was extremely short. It covers only the cornerstones of his life: Growing up in a small city, attending school there, doing an ICT course in a vocational school, being employed as a teacher in another region and moving to Accra to help his sister at her business.
In the follow-up session, he adds important information for the BDA. Emmanuel

grew up in a big family, his **mother was the second wife** of his father and the whole family lived together in the house of his father. After his basic education, he was able to attend and complete SSS. However, after completing SSS, the family was not able to afford the fees for further education. For this reason, he started to **work in a private business for two years** and saved some money.
Emmanuel decided that he wanted to **enhance his education** and enrolled himself in an ICT course which was offered by a vocational school in a neighboring town. He did not inform his parents since he was afraid that they **could prevent him** from pursuing his plan. When he was accepted by the vocational center, he informed his parents and they agreed to support him, although they could not provide the necessary financial means to pay the fees for the whole course. Emmanuel got further support from one of his teachers and completed the ICT course. Academically, he was an **average student**.
After the ICT course, he immediately found a job as an **ICT teacher in a private school** in another region. He was employed for two years in this school, but when the government took over the school, he **could not present the appropriate certification** for ICT teachers and lost his job.
Emmanuel decided to move to his sister to Accra in order to help her in her business, which deals with curtains. For the last two years, he has been working with his sister, looking for a job or for an opportunity to continue his education.

d) TFA (summary)

The told story of Emmanuel's initial narrative was mainly held in a report-style, with minor elements of evaluation and no argumentation at all. In sub-session two of the interview, he outlined some events in more depth, particularly those which he is proud of (admission at the vocational school, working as a teacher).
Concerning his educational career, Emmanuel presents the image of himself as having been a **serious student** who ought to be employed as a technician. In an argumentative style, he explains that due to financial problems of his family,

he did not feel supported by his parents concerning further education after SSS:

EK: And besides that too (..) I was also thinking my parents could even argue that if I asked my mother about it, they will tell me that they don't have the school money to pay for the school fees and (..) admission fees.
EK: So they (..) they (.) they will discourage me, so I should not go but I made my mind.
EK_1_7: line 71-72

Given this **perceived discouragement**, it is hardly surprising that he feels proud of his (successful) struggle for starting (and completing) an ICT course in a vocational center. Similarly, he stressed how he was able to get the **affection of his students** when he found employment in a private school right after his graduation. However, the nature of the narrative changes profoundly when Emmanuel gets to the point of his **dismissal** from the school. He did **not go into detail** concerning his current situation and neither talked about possible plans for his further life in depth. He preferred to refer to the future as a point of reference:

EK: So if anything comes by this year, I am praying that, maybe I will move to (..) I will get a new school, or (..) I will get a job to do, right now.
EK_1_7: line 17

His narrative later oscillates between **detailed descriptions of his family** and their respective occupations, **vague reports** concerning his **personal problems** to find a job and clarifications concerning his **professional potentials** and his **ICT knowledge**.

e) History of the case (summary)

Evaluating the case of Emmanuel, it is extremely important to focus on the discrepancy between his lived life (as suggested by the BDA) and his told story (as suggested by the TFA). Given the biographical facts extracted from the interview (in conjunction with other sources), his current situation must be classified as a '**failed attempt of empowerment through ICT**'.

Coming from a family where the financial resources where rather scarce (especially after Emmanuel had completed SSS), the ICT course was clearly an **escape strategy** for him. His motivation for doing the course was mainly **influenced by friends** who completed the school and who achieved something which Emmanuel considered valuable. His **willingness to inform himself** about various possibilities, move to another city and to pay the admission fee proves that he was ready to take his destiny into his own hands. After the course, he accepted a job offer from another region (where he had no social relations at all), which shows that the **factor mobility** is not an obstacle for him. Neither does he lack **self-confidence**, since he found the courage to teach ICT immediately after his graduation. According to his narrative, the reason why he lost his job was that the government took over the formerly private school and **required specific certification** (teacher training college certificates) from all teaching staff (which is a plausible argument).

After he was dismissed, he went to Accra in order to help his sister at her business. He did not take great initiative in finding another job in the field of ICT, which could be a consequence of the **discouragement** following the treatment he received in his earlier employment. Without a 'higher' ICT certification (university degree or private institutions), he does not feel prepared to find a job in Accra. However, he **does not have the financial resources** for acquiring these perceived preconditions for employment. Consequently, he is **stuck in unemployment and inactivity**, although he is not 'idle', as he frequently points out.

Referring to the discrepancy between the 'told story' and the 'lived life', it seems that Emmanuel can hardly understand why he is currently without employment, since he did his best to **'be prepared'**. However, it must be noted that from the perspective of his lived life, he could neither present valuable certificates when applying for specific jobs, nor was he among the best ICT students in his course, nor did he acquire further knowledge through internships after the course. Thus he could not prove his **qualification by certification**, nor could he

prove it by **reputation or experience**. Teaching in a private school was definitely a good option given his professional profile, as long as no specific teacher education certificate was required.
When the government introduced general guidelines for employment in the education sector for ICT teachers, he lost this opportunity.

f) Structure of the case (summary)

Emmanuel is currently in a situation where he feels that with his educational background and his potentials, it should be easier for him to find employment. The **fundamental problem** for him is that until now, he was not able to enter the regular labor market for ICT technicians. The job as a teacher in a private school was a good opportunity and he would probably have continued teaching there. His dismissal due to a lack of certification as a teacher was definitely a turning point in his life. His job was not only important in financial terms but also concerning his self-confidence and motivation. Emmanuel **responded to the problem** by using the help of his family (specifically his sister), who is also a central point of stability and security for him. The work at the business keeps him busy, and he frequently mentions that he is still using his ICT skills in daily life:

EK: I still do work with the ICT, helping people with the ICT, teaching people with the ICT.
EK_1_7: line 12

Despite the importance of his ICT knowledge for himself, he did not find a way to proceed in his professional career. It seems that he is literally stuck in the current situation, without clear plans which path to follow. His family is not pushing him (and perhaps not encouraging him) to change the situation, and he does not have the social network (friends or family) guiding him in this respect.
His **perception of the problem** is difficult to analyze, because he carefully avoided talking too much about his personal plans in general and his

possibilities in particular. From his TFA, it seems that his dismissal weakened both his motivation and his self-confidence severely. Although he considers the work with his sister to be a temporary solution, he does not undertake a lot to change the situation. It seems that in his perception, the current situation is unsatisfying but bearable, which provides him with some sort of calmness in terms of his professional future. However, it is evident that he feels the urge to make use of his knowledge and his abilities in the field of ICT, but given the structural difficulties which were described above, it is deeply problematic for him to achieve this goal.

4.2 Analysis of cases – expert interviews

4.2.1 Interview with Mr. Alex Nyarko, GES_2_1

Mr. Nyarko is currently working for GES (Ghana Education Service) in the area of curriculum development for ICT education in technical schools (e.g. vocational schools). He was trained as a teacher for electrical engineering and is now responsible for implementing projects which aim to improve ICT literacy in the pre-tertiary education sector. According to him, the education reform in 2008 was extremely important for developing a more comprehensive curriculum for ICT in the school system:

> JN: But it was during the 2008 educational reform, that we had a uniform curriculum of all institutions starting from basic (..) to /you know/ senior high [secondary] schools and then the technical schools.
>
> GES_2_1: line 29

During the 2008 education reform, ICT was integrated as a core subject in the curriculum of all pre-tertiary institutions in Ghana. Before the reform, ICT teaching in Ghana differed considerably between the various school types. With the development of a uniform ICT curriculum, the Ghanaian government positioned itself as a leading nation in Africa concerning ICT, Mr. Nyarko remarks. (cf. GES_2_1: line 75)

Making ICT a core subject (the other core subjects are maths, integrated sciences, social sciences and English) has definitely led to various challenges for those who are involved in the implementation of ICT for teaching and learning. Mr. Nyarko particularly stresses the importance of training teachers to implement ICT in their lessons and he carried out several projects for ICT trainings in schools. Even if the teachers are trained in ICT, they should attend refresher courses frequently in order to keep track with latest developments:

JN: But, for you to go and do training (..) is a problem, because from time to time, at least, there have to be some refresher courses we organize for teachers.
JN: Because, every day the technology keeps changing.
GES_2_1: line 117-118

One of the main problems Mr. Nyarko identifies in the ICT policy of Ghana is that there are not enough financial resources to conduct regular ICT trainings for those who ought to use ICTs in their everyday professional work. According to him, the Ghanaian government is actually prioritizing ICT compared to other fields in education. However, the main focus is laid on the issue of ICT infrastructure in Ghanaian schools: Laptops (financed by the government) are given to students free of charge, ICT labs are established in both rural and urban areas and solar systems are implemented in case of problems with electricity supply in a certain community. Mr. Nyarko is of the opinion that these developments have positive effects on the quality of teaching in Ghana:

JN: So, /eh/ that is also (.) in a (..) in a way to improve the teaching of ICT in various institutions. And we have other groups that are also expanding (..) you know labs, for schools, schools in remote areas, that did not have anything like power are given solar.
GES_2_1: line 32

These infrastructural projects, which are mainly carried out by GIFEC (Ghana Investment Fund for Electronic Communication) could enhance teaching and learning in various aspects. Mr. Nyarko gives the following example:

JN: While we talk much about collaborative learning. Where students are given projects to do (..) so maybe if a teacher should say OK, go and set it to this and prepare it (..) you can give it to them, ask them, after school they proceed under the tree (..) with the, because of the wireless connectivity of the Internet.
GES_2_1: line 54

Although this notion of the potentials of using ICT in the classrooms seem very optimistic, Mr. Nyarko repeatedly mentions that beside the development of infrastructure (which is of course crucial), it would be necessary to put more resources in the area of ICT trainings for teachers. According to him, teachers who are able to use these technologies can teach more effectively.

The Internet could play a particularly important role in this process, although its potential is presently not really used in teaching and learning in Ghanaian schools, argues Mr. Nyarko. The possibilities of the Internet, mainly for the purpose of retrieving relevant information that teachers can use in their lessons, could save costs on the one hand (no need to buy books) and increase quality on the other (because information could be more up-to-date). For this reason, Mr. Nyarko advises school administrators to make investments in ICT infrastructure, particularly in Internet connectivity. Mr. Nyarko concludes that the Ghanaian government is on the right track concerning its ICT in education policy, although it would be essential to put more emphasis on ICT trainings for teachers. However, he also sees a development where young people are empowered by ICT without the government or the school system being involved, namely through simply using mobile-phones with Internet connectivity in order to browse the Internet, get information or communicate with others. (cf. GES_2_1: line 126)

It seems obvious that Mr. Nyarko, in his role as the representative of GES, stresses the potentials of using ICTs in teaching and learning. His assessment of the relationship between ICT infrastructure development and ICT teacher trainings seems particularly important. The Ghana ICT4AD policy clearly states that it is part of its strategy to: *„[d]evelop re-training and re-skilling ICT programs for the management staff of Ministry of Education and educational institutions at all levels.“* (Government of Ghana 2003b, 39)

However, it seems probable that it is more difficult to organize funding for such activities compared to investments in ICT infrastructure, since in the latter case, collaboration with private companies is easier. For instance, the CEO of GIFEC declared in a conference conducted by UNCTAD in May 2012 that his institution collaborates with MTN (a local private telecommunication provider) in one of its rural telephony projects. (cf. Attor 2012) Such partnerships are evidently more difficult to realize in the field of ICT trainings for teachers or other staff of educational institutions.

In conclusion, the view of Mr. Nyarko on the Ghanaian ICT development could be classified as very optimistic in general, but with some doubts concerning the effective use of ICTs in classrooms if teachers are lacking the appropriate ICT training.

4.2.2 Interview with Dr. Osei Darkwa, GTUC_2_2

Dr. Osei Darkwa is arguably one of the most important experts concerning ICT for development in Ghana. He initially studied sociology and later moved to the academic field of ICT with a focus on strategic counseling. Dr. Darkwa is currently the director of Ghana Telecom University (GTUC) and is frequently involved in government projects concerning ICT implementations and policies.
Dr. Darkwa agrees with the argument that Ghana underwent an important and successful development regarding its ICT infrastructure as well as establishing the awareness of stakeholders concerning the necessity for strategic planning:

> OD: But /you know/ over the years, yes, improvement in connectivity, improvement in hardware, and also awareness. /You know/ of what technology can do.
>
> GTUC_2_2: line 23

The argument that Ghana has indeed been an early adopter of ICTs compared to other African nations has been outlined in chapter 3.1.2 in more detail. According to Dr. Darkwa, the recent developments of the ICT market (prices of hardware and connectivity) are promising, though still not low enough for making these technologies accessible to all people. (cf. GES_2_2: line 18, 20 and 23) Notwithstanding the successes that could be observed in the Ghanaian ICT sector, there is still a lot to be done in the country to make use of technologies, Dr. Darkwa argues.
Regarding the topic of digital equity, Dr. Darkwa is of the opinion that the ICT for development approach of the government of Ghana (with the ICT4AD policy as the main strategy paper) was first and foremost designed in an economic sense and not as an instrument for targeting problems such as the digital divide:

> OD: /You know/ about even though they talked about the digital divide, but specific strategies to bridge that divide have really not been explored.
>
> GTUC_2_2: line 49

In his personal perception, this economic focus changed to a certain degree

during the last years in policy formulation and implementation. In line with what can be observed in the academic literature concerning ICT for development in the past decade, the Ghanaian government has formulated various strategy papers which implicitly or explicitly discuss the crucial role of technology for socio-economic development. One example is the Ghana Poverty Reduction Strategy Paper (GPRSP), which was formulated in a co-operation between the Ghanaian government and the IMF. (see for example Government of Ghana 2010, 58 ff.) But still, as Dr. Darwka remarks, "*[...] specific intervention is [...] lacking.*" (GTUC_2_2: line 56)

One specific example Dr. Darkwa gives is the role of ICT in education. In the 2008 ICT in education policy, it is explicitly stated that "*ICT equipment should be deployed according to internationally acceptable standards.*" (Government of Ghana 2008, 23)
Five years later, the situation regarding ICT infrastructure is still unacceptable to Dr. Darkwa, especially considering the fact that ICT is a core subject in pre-tertiary education since the education reform 2008:

OD: But you go to most schools, they don't even have computer labs, most of them have never seen computers before.
GTUC_2_2: line 41

Another point of criticism for Dr. Darkwa is the slow pace of implementations of formulated policies concerning the role of women in the process of ICT development. Dr. Darkwa is appreciating the efforts of the Ghanaian government for empowering women through ICT, but according to his opinion, the spectrum of government action must be increased:

OD: More interventions! Just like what I mentioned. /Eh/ /you know/ incentives for women. Scholarship programs for women. Awareness creation, socialization at the senior high [secondary] school and junior high school level.
GTUC_2_2: line 66

However, he also recognizes that these interventions are difficult to implement in a society where a clear division of labor based on gender prevails. (cf. GTUC_2_2: line 60) Similarly to the problems of poverty reduction and marginalization of rural areas concerning ICT development, he is critical towards approaches which focus on the role of individual actors (e.g. the state, NGOs, or religious groups) in the process of ICT empowerment. He propagates a multi-stakeholder approach where governmental as well as non-governmental groups (both commercial and non-profit ones) work together to achieve specified goals:

OD: So it is a collaborative work, between the private sector and the public sector, to make sure that awareness is created, to make sure that we have the right resources to invest in the technology and education, which is key /you know/.

GTUC_2_2: line 79

This collaboration must not be understood solely in terms of sharing the costs of ICT infrastructure. Dr. Darkwa argues that awareness-creation is still a major issue in order to make better use of the potentials ICTs can offer for socio-economic development. (cf. GTUC_2_2: line 26) One aspect of awareness-creation which must be targeted according to him is the support of high-potentials in the field of ICT:

OD: Well in the (..) the /eh/ cultural change /you know/ you need champions. You need people who will say /you know/ we want to lead and spear ahead development /you know/ in this area.

GTUC_2_2: line 72

In the view of Dr. Darkwa, measures must be taken to guarantee that those who are willing and capable to lead (e.g. entrepreneurs or software developers) are supported by the public. Again, Dr. Darkwa states that theoretically, the policy papers of the government regarding ICT development point out the same arguments.

Similar to many other aspects of ICT development in Ghana (notably the topic of ICT in education, ICT in public administration and ICT for poverty reduction), it is not a problem of wrong policy formulation but rather a problem of implementation:

> OD: Even though the policy has almost everything that you can think of, but when it comes to applying the policy /you know/ to most sectors, it is still a challenge.
>
> GTUC_2_2: line 35

This does not mean that Dr. Darkwa sees no room for improvement regarding the official ICT policies themselves. He believes that especially in the sector of cultural production there could be a huge potential for ICTs in Ghana:

> OD: /You know/ people can tell stories, they sing, but they do all that for free. We can begin to digitize all this cultural resources. /You know/ and create a multimedia platform, so that we can market those things in a global economy.
>
> GTUC_2_2: line 88

Such implementation could also have the side-effect of awareness-creation, especially in areas where people are less exposed to ICTs, which could foster the perception that ICT is "*[...] not for a selected few, but it is for everybody.*" (GTUC_2_2: line 89)

In conclusion, Dr. Darkwa is definitely recognizing that ICTs can only lead to socio-economic improvement if different actors (grass-root organizations, government organizations, etc.) use interventions on various levels. He is aware that the government is actually taking steps in this direction, but he is not satisfied with the pace of these developments. (cf. GTUC_2_2: line 92)

4.2.3 Interview with Mr. Mark Anthony Okpala, DBTI_2_3

Mark Anthony Okpala is the director of Don Bosco Technical Institute (DBTI), a vocational school close to the city of Sunyani in the Brong-Ahafo region of Ghana. He is a Salesian of Don Bosco (a religious congregation) and holds a post-graduate diploma in education.

According to Mr. Okpala, it is essential to provide ICT training in all educational institutions:

> MA: So in the next ten years, anybody who doesn't know computer in Ghana, will be an illiterate. Even if the person has the doctorate degree.
>
> DBTI_2_3: line 17

The role of vocational schools, which focus on the practical applications of technologies and not on the theoretical background, is crucial in providing the necessary human capacity to cope with this development, Mr. Okpala argues. (cf. DBTI_2_3: line 14) In his personal observation, ICT graduates of his institutions have many possibilities on the labor market. According to Mr. Okpala, ICT graduates can work as teachers in pre-tertiary institutions, in various offices, government agencies as well as in hospitals. (cf. DBTI_2_3: line 16) Generally speaking, he is satisfied with the performance of ICT graduates on the labor market:

> MA: Right now, /eh/ most of our students have decent work. Those who completed from the ICT and they are (forecast?) in life because there are not many people yet in Ghana who know ICT very well.
>
> DBTI_2_3: line 14

Mr. Okpala appreciates the efforts the government has taken in the last years in the field of ICT in education. Especially since the introduction of the education reform in 2008, some of the main problems for his institution (including the certification of ICT skills) have been targeted by government policies.

The implementation of core subjects in the curriculum of vocational schools (which also led to the expansion of the whole program by one year) offers new possibilities (e.g. further education university or teacher training college) to ICT graduates of his institution. (cf. DBTI_2_3: line 26-27) Besides this, the national certificates such as the NVTI (National Vocational Training Institute) certificate are now recognized in the field of ICT. However, he also notes that certification is still a problem because: "*[...] in Africa we pay you according to your certificate, not according to the productivity.*" (DBTI_2_3: line 32) This attitude is especially problematic for graduates of vocational schools according to Mr. Okpala, because they still face prejudices compared to other institutions:

MA: Many of them find /eh/ look at technical school as a dumping ground for those who are not able to cope with academic challenges.

DBTI_2_3: line 23

Although Mr. Okpala appreciates the initiatives of the Ghanaian government, he is not convinced that the current engagement is sufficient. Similar to other experts, Mr. Okpala concludes that there is a gap between the policy level and the level of implementation.

I: Do you have the feeling that the government puts a lot of emphasis in the, in developing a better IT education, infrastructure?
MA: Yes! And no! Yes because the government always talk about ICT as the key to teaching and learning today. That anybody who doesn't know ICT, is not on the right track. But […] they are not really equipping the schools with the sufficient computers.

DBTI_2_3: line 35-36

In the case of his institution, the government is still not able to provide a solution for connecting the school to the Internet, which is very problematic for all staff and students in the school. (cf. DBTI_2_3: line 42) Besides providing ICT infrastructure, Mr. Okpala observes that there is a need for training teachers to effectively and efficiently use ICTs in the classroom. (cf. DBTI_2_3: line 9) According to him, the potentials ICTs could offer for teaching and learning are not used because of the mentioned difficulties concerning infrastructure and teacher training. Another problem Mr. Okpala identifies is the poor educational

background of many students who decide to attend a vocational school. (cf. DBTI_2_3: line 20)
It is probable that due to the comparatively low school fees and the prospect of finding a job as a professional without further education, students from educationally disadvantaged families tend to do vocational courses.

Concerning the prospects for women after graduating from his institutions, Mr. Okpala argues that there is a problem of perception. Since it is still uncommon for women to do technology-related courses, women are less likely to develop a strong self-confidence in their knowledge and especially in practical skills, Mr. Okpala argues:

> MA: [T]hey don't feel as confident as guys feel in dealing with these technical materials and technological gadgets. They are a little bit (..) /eh/ It's more or less the mentality that it is for men generally (?). So they feel that it is that they (..) you don't see them becoming outstanding in the, in the field. They may be quite good academically but when it comes to the practicals they are not so confident in it.
>
> DBTI_2_3: line 45

In conclusion, Mr. Okpala is confident that his institution is following the right track for helping to develop the human capacity which is needed to deal with the requirements of the Information Society. However, he pleads for a more active role of the government in the process, especially concerning the implementation of formulated policies.

5 DISCUSSION AND CONCLUSIONS

5.1 Answers to the theory questions (TQs)

5.1.1 Personal background and empowerment

TQ1: How does the personal background (family, kinship, social networks) of ICT professionals influence their possibilities for using ICT education for individual empowerment?

The results from my theoretical framework suggest that the influence of the personal background of ICT graduates in Ghana on potential empowerment is enourmous.The kinship system is still an important point of reference in Ghana, as has been outlined in chapter 3.1.1.3. Especially when it comes to livelihood opportunities (educational possibilities, internships, etc.), the social structure, which is heavily influenced by the kinship system, can have empowering or disempowering effects for young Ghanaians. (see UNDP 2007, 60 f.) However, it is probable that the influence of the kinship system in its traditional understanding is decreasing due to various factors. (cf. UNDP 2007, 70) Evaluating the results of the BNIM interviews, the traditional kinship system (or artifacts relating to it) was not mentioned in the narratives. However, 'traditional structures' in a broader sense have been mentioned in various cases. Economic and social problems arising from polygamy (particularly in communities with low financial resources) are frequently considered to be key issues for empowerment. This notion can be illustrated with the following quote:

M: Because you are managing three people. All of them are having children. My, my (.) the first wife is having five children. And then my mother is having six children.
M: And then the other one was having two children. And then already, he was having two or so outside. So in all, we are about 14 in numbers.

MK_1_1: line 85-86

In various cases, ICT education has been a strategy to escape these structures: In the case of Martin, to live a different life compared to his father. In the case of Isaac, to escape from what he refers to as 'life in the village'. And in the case of Constance, to free herself from the violence and hostility in the house of her father. Obviously, in such scenarios the social structure (most importantly the families) is often not very supportive, a fact which strongly influences the expectations towards ICT education. The possibilities to access the labor market as an ICT professional was frequently mentioned as a key motivator in those cases. However, it must be noted that in the 'escape strategies', the particular course was often chosen without a clear image on what ICT is actually about.

These strategies have been successful in some cases: In the life of Miguel, for instance, his education provided him with the tools he needed to get access to the professional world of ICT. Evaluating the structure of his case, I suggested that the factors mobility, guidance, intelligence, financial support and enthusiasm were highly relevant in his process of personal and professional empowerment through ICT education (see chapter 4.1.5). It is evident that many (although not all) of these factors depend on the personal background of Miguel in a broader sense.

In other cases, the 'escape strategies' have been less successful: In the case of Frank, the successfully completed ICT education did not empower him to live his life according to his own personal expectations. After complying with the social norms of his personal environment throughout his life, he finds himself unemployed and without good options for his future. Following the results from the BNIM analysis, it seems probable that the problem of evidence was central in his case: The vocational school did not provide him with certificates which are considered valuable in the labor market, and he lacked the social network to make his way without certification. Obviously, the latter point is closely related to issues of his personal background.

Up to now, my analysis covered merely the influence of ICT education on professional empowerment. However, the influence of ICT education on empowerment in a more sociological sense is also of major importance. In the sense of Paulo Freire, literacy is a process which makes *„[...] naming the world“* (Freire 1988, 402) possible for individuals. In line with the arguments of Warschauer (2002, chapter 7), I argued that the same view is valid for digital literacy (see chapter 2.3.3.2).

The analysed BNIM cases suggest that ICT education can indeed boost empowerment in a Freirean sense. In the case of Raindolf, for instance, ICT was both a source of information for understanding socio-political processes in Africa and an instrument for engaging himself in these processes. He strongly supports the idea of making Africa a producer of ICTs. (cf. RO_1_6: line 124) However, it must be noted that according to the analysis of his case, the formal ICT education he received in Ghanaian institutions did not play an important role in this development. In contrast, I concluded that his personal background was very important: Firstly, because he had access to ICTs (and informal ICT training) very early in his life. Secondly, because his family provided him with the necessary financial resources and personal protection to follow his own interests. And thirdly, because in the city of Accra, access to ICTs (most importantly the Internet) is clearly easier to achieve compared to other (in particular in rural) areas in Ghana.

In cases where ICT education did not lead to professional empowerment, a positive impact on personal empowerment can be observed. In the case of Frank, his ICT knowledge is important for defining his role in the social structure of his environment:

F: And I think /eh/ (..) that I became successful. And I am successful! Because, I am still working with computers, you see.

FY_1_3: line 92-93

Due to the fact that ICT knowledge is valuable for his environment, this knowledge positively affects his self-confidence and helps him to cope with the

problems arising from unemployment. However, Frank uses his ICT knowledge in a very narrow context, namely in terms of repairing computers for friends and family. The creative use of ICTs as a means for producing critical knowledge (see Warschauer 2004, 210 ff.) is not an issue in this case. It seems probable that creative use of ICTs is heavily intertwined with the social context of ICT applications. The 'fire analogy of ICT in education' (see chapter 2.3.3.3) seems to be valid also in this context: ICT education does not automatically create creative ICT use just like a fire automatically creates heat (see Dede 1995, no page). If creative use of ICT (and empowerment in the sense of Freire) is the goal, the social embeddedness of technology (see Warschauer 2004) must be understood as the starting point for processes of personal and professional empowerment. Thus, the influence of the personal background must be a central point of consideration when designing policies which target to empower youth through ICT education.

5.1.2 The role of ICT training institutions for empowerment

TQ2: How did educational institutions (ICT training centers) contribute to the empowerment of their graduates?

In order to answer TQ2, it is essential to precisely define the type of ICT training institution before analysing its role for potential empowerment. Generally speaking, pre-tertiary ICT training in Ghana is provided by the basic education system up to senior secondary school (with ICT as a core subject), and by vocational schools and commercial private training centers. Since most of my BNIM interview partners graduated from vocational schools, the results are especially valid for this type of ICT training institution.

In terms of professional empowerment through ICT education, certifiication

seems to be a major challenge for institutions offering ICT courses, as Mr. Okpala argued in the expert interview: *„[...] [I]n Africa we pay you according to your certificate, not according to the productivity.“* (DBTI_2_3: line 32) For graduates of ICT training courses in vocational centers, certification is even more important since it seems that vocational schools in Ghana have a bad reputation concerning the academic capabilities of their graduates. (cf. DBTI_2_3: line 23) Following the results of the BNIM interviews, it must be argued that ICT graduates did not perceive their level of certification appropriate for getting access to the labor market for ICT professionals in Ghana. One quote with respect to this topic is the following statement from Emmanuel's narrative:

> E: Right now in Ghana here, if you don't upgrade the certificate that you have, when you apply for a job, then they say that your certificate is too low, then they will not give you the job.
> EK_1_7: line 136

However, it is probable that due to the policies from the 2008 education reform, the situation is currently changing. Firstly, because vocational centers have been 'upgraded' in a sense that graduates can attend university (due to the extension of the courses by one year) after completion. Secondly, because through the reform, a clear level of certification for vocational schools was implemented. (cf. DBTI_2_3: line 27) With the 2008 education reform, the government managed to provide a uniform ICT curriculum for all pre-tertiary institutions in Ghana. (cf. GES_2_1: line 75) On the other hand, the short duration of vocational training courses was a motivator for students from families with low financial resources to further their education. Even before the reform, Chant and Jones (2005) found that vocational centers are often out of reach for young people with low financial resources: *„From interviews in Ghana, it was clear that the extensive network of public and private vocational technical institutes which provide electrical, carpentry, IT and financial qualifications do not necessarily meet labor market needs insofar as they are often out of reach of the poorest individuals.”* (Chant and Jones 2005, 194)

Concerning personal empowerment through ICT, it is difficult to evaluate the influences of ICT training institutions. If ICTs are used beyond the scope of professional engagements (e.g. in the case of Raindolf), educational institutions have probably not played an important role in this process. This is due to the fact that creative use of ICTs is currently not an issue in practical ICT training in the education system of Ghana. (see chapter 3.1.2) The analysis of BNIM interviews shows that the use of ICT knowledge is normally restricted to practical applications like repairing computers or installing software. In this context, it is noteworthy that the Ghanaian government explicitly states that graduates from educational institutions in Ghana are supposed to *„[...] confidently and creatively use ICT tools and resources to develop requisite skills and knowledge needed to be active participants in the global knowledge economy by 2015.“ (Government of Ghana 2008, 13)* However, as has been outlined in chapter 3.1.2.1, the concrete guidelines and strategies in policies such as the 2008 education reform do not prioritize creativity in ICT learning and teaching. Thus, it is not surprising that the production of critical content is not a major concern for graduates from ICT courses.

5.1.3 The role of the Ghanaian government

TQ3: What is the role of the Ghanaian government in the process of potential empowerment through ICT training for Ghana's youth?

It is undisputed that the efforts of the various governments in Ghana since the early 1990s in the area of ICT development were considerable: As I have described in chapter 3.1.2, Ghana was among the first African countries with full Internet connectivity and formulated ambitious strategic plans for enhancing quality of ICT infrastructure and promoting ICT use. The ICT4AD policy was introduced to target socio-economic problems in the country. (cf. Alemna and

Sam 2006, 236) The ICT in education policy demonstrated that the topic is considered highly relevant and various improvements (e.g. certification of ICT knowledge) have been achieved. (cf. GES_2_1: line 29) Thus, Ghana appears to be on the right track to enhance empowerment through ICT on a policy level in many aspects. However, I fully agree with the following argument mentioned by Dr. Darwka:

> OD: Even though the policy has almost everything that you can think of, but when it comes to applying the policy /you know/ to most sectors, it is still a challenge.
>
> GTUC_2_2: line 35

Besides the slow implementation of policies, I would add that another problem lies in the focus on economic issues in these policies. Although intervention programs for targeting social problems through ICT applications exist, a lot needs to be done in order to effectively bring about changes in society. (cf. GTUC_2_2: line 66) Following my analysis of ICT-related government policies in chapter 3.1.2, it must be argued that although the scope of topics is enormous, specific strategies focus primarily on issues such as infrastructure and access. However, such questions are not sufficient when the government is truly aiming to challenge problems of poverty and social exclusion with these policies. For this to occur, strategies are necessary to *„[...] empower individuals and groups to analyse and critique the emerging effects of social injustices around the globe.“* (Vrasidas, Zembylas, and Glass 2009, 14) It is highly questionable whether current ICT policies in Ghana include specific intervention strategies which aim at reaching the goals defined above.

One area of intervention where public activities (scholarships, investments, awards, etc.) would be particularly necessary are high-potential programs for young ICT professionals. I agree with Dr. Darkwa who claims that for making changes in society possible, it is necessary to have people who lead developments in specific areas. (cf. GTUC_2_2: line 72) The BNIM case structure of Raindolf can serve as an example to illustrate this situation.

Raindolf already received international awards for his software projects, but up to now, he has been unable to raise funds for his projects in Ghana:

I: So (...) (...) You were talking about potential investments. So you have (..) from your experience, from the government (.) from private donors in Ghana, there is nothing to (...)
RO: No, there is nothing right (about?). They don't understand how the technology infrastructure works. So I am hoping with time they will catch up with how (.) you know, how education /eh/ technology is quickly picking up.

RO_1_6: line 264-265

It seems evident that specific strategies for supporting young ICT entrepreneurs in Ghana can be effective tools for enhancing youth empowerment. However, it is essential not to consider the various possible applications of ICT projects (such as education, health, culture, etc.) as separated. Following the hypothesis of the social embeddedness of technology, government interventions must take place in different social spheres, and all interventions must be critically examined regarding their concequences for the target groups.

5.1.4 Relevance of the factor mobility

TQ4: Is the factor mobility (e.g. willingness to move to another geographic area) relevant for the empowerment of young Ghanaians who completed ICT training?

The importance of the factor mobility for potential ICT empowerment seems evident: In order to effectively use ICTs, some preconditions (e.g. ICT infrastructure, market for ICT services, access to the Internet) are necessary. In many geographic areas in Ghana, ICT penetration is still low. It is noteworthy that the government undertakes enormous efforts to overcome this obstacle for ICT empowerment. (see GES_2_1: line 38)

However, it is obvious that without ICT infrastructure, both professional and personal empowerment through ICT is impossible.

Concerning professional empowerment, the factor mobility is important since the labor market for graduates from ICT courses (as well as the market for further education) is restricted to the major cities within the respective region. In the case of Frank, the factor mobility prevented him from expanding his search for employment in the field of ICT beyond his immediate environment:

F: I also wanted to work at another place. /Eh/ I even talked to one man, who had this computer shop, in Sunyani. But /eh/ from Odumase to Sunyani, I had to take Taxi every day, you see?
FY_1_3: line 106

In his case, the family is the main point of reference in the narrative and it seems that Frank is not willing to move to another region in order to find employment as an ICT professional. In the case of Miguel, mobility is one of the factors which positively influenced his personal and professional development: After the death of his father (right after he completed SSS), he moved from the Volta region to Accra, later to Sunyani, back to Accra, and finally to the Western region. In Accra, the potential job market for graduates of ICT is naturally bigger and Miguel managed to enhance his knowledge during an internship in an ICT company. In the case of Constance, the willingness to move to another city right after she completed the ICT course in the vocational center was an important step towards personal and professional independence and empowerment. And in the cases of Martin and Isaac, the decision to leave their personal environment for the sake of further education was a precondition for their career in ICT. The analysis of these cases suggest that mobility is indeed a key-factor for professional empowerment. But what about empowerment in a broader sense?

The BNIM analysis suggests that ICT is currently considered highly relevant knowledge in Ghana, at least in communities where basic ICT infrastructure is

available. For this reason, the factor mobility is less crucial for personal empowerment than it is for professional empowerment. In the case of Frank, his ICT knowledge has indeed led to a perception of being successful as an ICT professional because his skills are highly valued by his friends and family. The increased self-confidence following such an appreciation can lead to empowering processes. On the other hand, personal empowerment is also possible through ICTs in rural areas, provided that Internet connectivity is available: In the case of Raindolf, the Internet provided both a source of communication and a source of information and was used as a means to get involved with political discussions and community action.

In conclusion, I consider the factor mobility to be crucial for professional empowerment, but not necessarily crucial for personal empowerment, provided that basic infrastructure and ICT training is available in a specific community.

5.1.5 The influence of gender

TQ5: Which significance does gender have on potential empowerment through ICT training of young people in Ghana?

It is beyond the scope of this work to give a comprehensive overview on the role of gender for ICT empowerment in Ghana. I refer to the case study of Chant and Jones (2005) for an assessment of the interrelationships between youth, gender and livelihoods in Ghana and the Gambia for this purpose. However, since I consider the topic extremely important for understanding youth empowerment processes in Ghana, I will try to contextualize my results from BNIM interviews and experts interviews with the academic literature on the topic. Although dis-empowerment of young people in Ghana exists beyond gender boundaries, it is probable that the situation is especially problematic for girls: *“Female youth face*

even more formidable challenges as a result of sex stereotypes and other forms of gender discrimination in education.“ (Abukari and Laser 2013, 118)

Concerning the sector of ICT, evidence suggests that women are under-represented in both ICT training institutions and the ICT labor market. For instance, it is estimated that less than 20% of ICT students at Ghana Telecom University are female (whereas the reverse is valid for other courses like business management). (cf. GTUC_2_2: line 61-62) In the private sector in Ghana, only 26% of the total workforce is female - in the sector of ICT, the percentage drops to 14%. (cf. The Youth Employment Network 2009, 30 f.)

The reasons for this situation might be manifold, but it seems clear that the prevailing understanding of the role women ought to play in the Ghanaian society is crucial:

> OD: /You know/ but one aspect is cultural. /You know/ this is a society where (..) there is division of labor based on gender.
>
> GTUC_2_2: line 60

This view is supported by case studies which focus on specific problems the division of labor can cause in the context of ICT projects. (see Joseph 2012; Ochieng and Radloff 1998, 63 ff.) The socially constructed role of women in society can thus lead to increased obstacles at the labor market, but also to a decreased self-confidence of women regarding their personal ICT skills after completing an ICT education. (cf. DBTI_2_3: line 45)

In the BNIM interviews, the topic of gender was not mentioned explicitly, and only to a minor extent implicitly. In the case of Constance, her narrative suggests that she grew up in an environment where an understanding of gender based on the categories outlined above prevailed: Constance helped her stepmother with the house duties, sold self-made soap on the street in order to raise money for her education and was not allowed to attend a post-secondary training course, although she was academically successful. Her stepbrother, however, was encouraged to go to school (even though he was not enthusiastic about it):

C: Because when her son don't want to go to school, and I like to go to school, then (...) she was not very happy at all.
CO_1_2: line 91

Later in her life, she was able to attend and complete the ICT course at the vocational center (although her first choice would have been the course of secretarial studies). It seems that the combination of a traditionally more 'female' job (secretary) with ICT skills is beneficial on the labor market. The case of Isaac, who once applied for a job as a secretary, would support this hypothesis: *„Out of all of them I am the only person that has been chosen. This is because I did well at computing.“* (cf. IF_1_4: line 192)
Her ICT knowledge was definitely relevant for Constance's employer, who effectively needed a secretary and not an ICT professional:

C: Because when I (..) bring my (..) records, and then the certificates, it was the diploma in ICT. Aha, and then he said that in this business, nobody (...) even they can't use the computer.
CO_1_2: line 144

This combination is currently a good possibility for women to get access to the labor market for ICT professionals in Ghana. Naturally, it is still problematic that in many cases it is difficult for women to find employment in the 'genuine' labor market. I fully agree with Dr. Darkwa, who states that a collaboration of both public and private sector institutions is needed to question the predominant view on the role of women in society: *“[...][I]ncentives for women. Scholarship programs for women. Awareness creation, socialization at the senior high school and junior high school level.“* (GTUC_2_2: line 66) Again, I consider it essential to understand the problem of ICT empowerment for female youth in the sense of the social embeddedness of technology: ICT training alone will not be sufficient for changing the perception *„that it [ICT] is for men generally.“* (DBTI_2_3: line 45)

5.1.6 Perceptions of ICT empowerment

TQ6: How do graduates of ICT training institutions explain why ICT training did (not) help them in their individual empowerment?

It is somewhat surprising that most of the interviewees mentioned two points regarding the role of ICT education in their personal and professional development, although the specific situation of the interviewees was quite different. The first point is the relevance of ICT knowledge and the second point is the problem of appropriate certification for ICT graduates from vocational schools.

The perception that through ICT training, access to relevant knowledge is possible was a common notion in the analysis of the BNIM interviews. The idea that ICT skills are actually valued by their environment is illustrated in different ways. From a theoretical point of view, I argue that ICTs are already part of the *cultural arbitrary* in large parts of the Ghanaian society. According to Bourdieu, the *cultural arbitrary* defines which forms of capital in a society are considered valuable and which forms are considered unimportant. (cf. Kvasny and Truex 2000, 283) Obviously, ICT knowledge is currently considered important in the personal environment of most participants of my empirical study. For this reason, ICT education enhances the *capital* of young people in Ghana and can lead to personal empowerment.

The case of Emmanuel serves well as an illustration for this point. Emmanuel is unemployed since more than two years which is obviously a challenge for him in many respects. But still, his ICT knowledge (acquired almost exclusively through the training course) is a point of reference for him:

EK: So right now, I am not working about (..) I still do work with the ICT, helping people with the ICT, teaching people with the ICT.

EK_1_7: line 12

The empowering potential of ICT is in this case not a consequence of professional occuptation, nor of economic possibilities or some form of political participation. The mere fact that with his ICT knowledge, Emmanuel is able to 'do things with the computer' is an important point for defining his role in the immediate social environment surrounding him.

The problem of appropriate certification for the acquired ICT skills is mentioned in almost all BNIM interviews. The following quote, extracted from the narrative of Martin, illustrates the perception of inappropriate certification:

> M: Yeah. But the (..) employment didn't work, because the certificate we had in the school (..) was, was (..) somehow giving us a problem.
> M: Because (..) the (..) the standard of Ghanaian employment, whatever, was not working with this certificate that we have.
>
> MK_1_1: line 194-195

The problem of appropriate certification for ICT skills, especially on the level of vocational schools, has been discussed in more detail in chapter 4.2.1 and 4.2.3.

In the analysis of BNIM cases, it was regularly stated that after completing the ICT course at the vocational center, additional certification is unavoidable for being able to compete at the labor market. The following quote, which was extracted from the narrative of Constance, shows her (initial) strategy for coping with the problem of certification:

> C: I was thinking that I have to go to IMPC.[8] To continue from that place, because (..) I think, what I learned from Don Bosco [vocational center] is not all (..) that much for me to go to even (..) if you go to IPMC, they teach you how to (..) tele-accounting and then (..) aha, so I was intending to go to IMPC to continue from that place.
>
> CO_1_2: line 140

The idea that a vocational center ICT course is not enough for finding employment as an ICT professional is probably shaped by the general perception that the quality of education in vocational centers is comparatively low:

8 IMPC is a private institution offering ICT courses

„But they say that if you are in SS[S], senior high [senior secondary school], they say that it is better than being in the vocational school.“ (cf. EK_1_7: line 112) In this respect, the introduction of core subjects in the curriculum of vocational schools and the de-facto enhancement of vocational school diplomas should bring about relevant improvements for future graduates of ICT courses at vocational centers. (cf. GES_2_1: line 75)

A quite different notion of the problems with ICT training institutions in Ghana can be found in the narrative of Raindolf. The following quote illustrates the role he attributes to these institutions for his personal development with respect to ICT knowledge:

> I: OK, very good. What interests me a lot is, you were talking a lot about your school education and it sounded like school was not helping you for (?)?
> RO: No, no, no. Even (..) you know, fresh (..) secondary school, the computer education there is very low. Every week, we just had one hour to study (..) /eh/ computers.
> RO: And (..) as I am (..) right now, I am a third year university student at methodist university in Accra, and (..) once you are studying there, it is just (..) we are doing IT.
> RO: But even still, the IT we are learning, even in the university, is so old- school.
> RO_1_6: line 199-202

Obviously, his case is by no means the ordinary history of a student of ICT in Ghana. His personal way towards being an ICT professional started when he acquired a certain knowledge by exploring computers in a game-based way: *„So, people pretty much started calling me a computer geek, because of some of these basic things I did.“* (RO_1_6: line 31) It is important to note that the interest people show towards Raindolf's ICT knowledge demonstrates that these skills are somehow important. Raindolf was encouraged by the positive remarks regarding his skills and decided to further his knowledge by studying ICT at university. The formal ICT education he received by educational institutions in Ghana (particularly SSS and university) was not essential for him with respect to the knowledge he acquired. He actually states that the Internet was his main ICT training resource. (cf. RO_1_6: line 61) However, it must be noted that the specific social context and other factors (access to ICTs, personality, etc.) made this development possible, and that these factors are to

be considered in detail before making further conclusions from the case of Raindolf.

Given the different possible roles of ICT training institutions in the personal and professional development of their graduates, it is not advisable to make general assumptions regarding potential empowering (or dis-empowering) characteristics of these institutions. However, three basic conclusions seem clear:

- The perception of ICT education as highly relevant knowledge is an important resource and can be used in strategies which focus on individual and community empowerment.
- The problem of appropriate certification of ICT skills is crucial and must be targeted by public policies and co-operation with the private sector.
- ICT training institutions need to be aware of the fast pace of technological changes and react accordingly. (see also GES_2_1: line 117-118)

5.1.7 Expectations of ICT graduates before enrollment

TQ7: Which expectations did graduates of ICT training have prior to the enrollment in ICT training institutions?

Before evaluating the BNIM analysis regarding the expectations of ICT professionals before enrollment in an ICT training institution it is once again important to clarify the specific situation of vocational school students before the implementation of the 2008 education reform. Due to a number of factors (most importantly the considerably lower fees), vocational schools traditionally attracted students with a poor economic background. This might be one of the

reasons for the prevailing perception in Ghana that vocational schools are *„[...] a dumping ground for those who are not able to cope with academic challenges.“* (DBTI_2_3: line 23)

Thus, it is not surprising that many students had no former contact with ICTs, neither in their personal environment (e.g. families) nor in their basic education up to SSS. The following quote, extracted from the narrative of Constance (who was twenty-four at the time of enrollment for the ICT course) is symptomatic for this situation:

> I: Wow, so this was (..) in the school, it was the first time that you even saw a computer?
> C: Yeah, (..) yes! (..) It was the first time that I saw a computer with my naked eye.
> C: Even the mouse, I don't know. Unless I see it on the book. The book. I don't know what they are using it. Their uses, I don't know. Even (..) the monitor, at first (..) I thought it was a computer! I don't know that the monitor (laughs) is not a computer.
>
> CO_1_2: line 125-127

Those of my interview partners who grew up in rural areas found it particularly difficult to cope with the ICT course and had generally only a vague idea about the challenges and possibilities of an ICT education. Evidently, the lack of former experiences is problematic with respect to the personal and professional ICT development. In essence, most of the BNIM interviewees had no clear image on what ICT is about, which certainly influenced their attitude towards topics which were covered (or not covered) during the course. A critical stance towards both content and teaching methods is improbable if former ICT experiences are inexistent. One possible conclusion could be that the problem must be targeted through an enhancement of both ICT infrastructure and ICT training in the basic education sytem. This conclusion would imply that the problem is essentially a problem of access and infrastructure.

However, given both the results from my theoretical considerations and the analysis of BNIM interviews, I doubt that such a conclusion covers the problem in a comprehensive way.

Of course, it cannot be neglected that the question of access to ICT infrastructure, especially in rural areas, is extremely important. The

government's efforts to target this problem are considerable, as has been outlined in chapter 3.1.2. Government agencies such as the GES and GIFEC are currently conducting numerous programs in this area: *„And we have other groups that are also expanding (..) you know labs, for schools, schools in remote areas, that did not have anything like power are given solar.“* (GES_2_1: line 32) It seems evident that such programs are necessary for enhancing ICT knowledge of children in the basic education system, thus allowing for clear expectations towards the scope of ICT studies.

On the other hand, such efforts could prove ineffective if they are not part of a comprehensive strategy to promote ICT use for Ghana's youth on different levels such as the family (or immediate social network), youth centers or initiatives for women in technology. As Warschauer (2002, chapter 8) argues, it is essential to „[...] *re-orient the focus from that of gaps to be overcome by provision of equipment to that of social development to be enhanced through the effective integration of ICT into communities and institutions.“*
Thus, even for the seemingly straight-forward problem of wrong (or simply inexistent) expectations towards ICT, the provision of infrastructure will not be a sufficient means to enhance the level of digital literacy for students in the basic education system in Ghana.

5.2 Answer to the central research question (CRQ)

CRQ: How does a successfully completed ICT training affect the personal and professional development of youth in Ghana?

The scope of the empirical part of this study makes it necessary to clarify that the specific type of completed ICT education is relevant for answering the CRQ, and that the results from this chapter focus on the role of ICT training courses (conducted in vocational centers) on the potential empowerment of young Ghanaians.

This distinction is crucial, since the situation of graduates from vocational centers and other institutions (universities, private training centers, etc.) seems to be quite different. Firstly the notion of vocational centers as the *„[...] dumping ground [...]“* (DBTI_2_3: line 23) for students with certain characteristics (e.g. poor economic and educational background) is still present in Ghana. Secondly, it can be assumed that ICT students at private training centers and universities have in average more financial possibilities, simply because the fees at these institutions are generally higher.[9]

And thirdly, the certification of acquired skills was arguably more difficult in vocational schools compared to other institutions, at least before the full implementation of the 2008 education reform. (cf. DBTI_2_3: 27)

With this restriction in mind, I consider it useful to turn back to the theoretical stances which were developed in chapter two. The main controversy in the academic literature surrounding the topic took place between proponents of a transfer and diffusion version on ICT4D on the one side and authors who argue

9 For instance, the tuition fees at Legon University (Accra) for Applied Science are currently $7,056.00 per year for regular undergraduate students, excluding fees for application, registration and examination. (University of Ghana Legon 2013) In comparison, the regular fees for students at the public vocational center 'Don Bosco Technical Institute' were GHC 270.00 ($ 113.00) per year in 2013. (cf. DBTI_2_3: 58)

that policy-makers in ICT4D must accept that technology is socially embedded and its influences on human development cannot be described in general terms. (cf. Avgerou 2010, 5)

In chapter 2.2.2, I argued that the transfer and diffusion view on ICT4D is too narrow to capture the topic in all its complexity. Given the empirical evidence on the effects of ICT training on the personal and professional development of young Ghanaians which were outlined in chapter four, I would argue that these effects can be best described in the terminology of the social embeddedness of technology.

Before doing so, I consider it necessary to discuss how the policies and strategies of the Ghanaian government are to be classified regarding the outlined controversy. As has been described repeatedly, key ICT policies such as ICT4AD or the ICT in education policy basically focus on questions of ICT infrastructure and access to ICTs. The ICT4AD policy holds that the main mission is *"[t]o transform Ghana into an information-rich, knowledge-based and technology-driven high income economy and society".* (Government of Ghana 2003b, 21) Specific strategies for achieving this mission include primarily interventions in the field of ICT infrastructure (conducted by government agencies such as GIFEC). Examples for such interventions include the massive distribution of laptops to school children, the construction of computer labs in rural areas and the implementation of solar systems for supplying these labs with electricity. (cf. GES_2_1: line 31-33)

One problem concerning these interventions is the slow pace in which defined policies are implemented: *"Aspects have been implemented. But I think the pace has been slow in this country."* (GTUC_2_2: line 22) However, I consider another problem to be more important for the potential empowerment of young people in Ghana through ICTs, namely the existence of technological determinism in government policies. The policy sees ICTs, among other points, as *"[...] a Social-Enabler (Education, Health, Poverty-Reduction, Income-Distribution), […] an agent for Wealth Creation, […] [and] a Tool for Bridging the*

Gender inequality Gap in Social, Economic and Political development." (Government of Ghana 2003b, 10) When it comes to specific interventions, the mere distribution of ICTs seems to be the guiding principle for achieving these ambitious aims. The problem of organizing teacher trainings for pre-tertiary institutions in order to increase the quality of teaching, which was mentioned by Mr. Nyarko, can be seen as a symptom for the prevailing focus on ICT infrastructure: *"They take care of supply of ICT and ICT for schools. So they have given a lot of schools ICT equipment and then connectivity. [...] But, for you to go and do training (..) is a problem […]."* (GES_2_1: 116-117) This approach of simply expecting that computers will automatically create learning (or development) when they are distributed, just like a fire will automatically create warmth, has been criticized by Warschauer (2004, 203 citing Dede 1995, no page). Given the evaluation of current ICT policies and the analysis of expert interviews, I would argue that technological determinism shapes these policies of the Ghanaian government to a considerable extent.

As a piece of empirical evidence, the results from the analysis of BNIM interviews suggest that the effects of a successfully completed ICT education (vocational center) on the personal and professional empowerment of young Ghanaians are complex and cannot be understood from a transfer and diffusion point of view on ICT for development. Using the analogy outlined above, I would argue that ICT education per se does certainly not 'create' empowerment, nor does it inevitably lead to inequalities. In what follows, I will try to outline some basic conclusions regarding the complexity of potential effects ICT education can have on young Ghanaians:

a) The personal background and immediate social environment play a huge role in evaluating the effects of ICT education on empowerment. Firstly, because these factors constitute *when* and *how* young Ghanaians first use ICTs, which is highly relevant for further engagement with technology. Secondly, because the personal network of ICT graduates

(e.g. family) is an extremely important resource for professional careers in ICT. (see Taylor 2012 for the case of Internet cafés in Ghana) And thirdly, because the perception of the immediate social environment is a relevant factor influencing the decision of what ICT graduates make of their ICT knowledge after graduation.

Thus, both the professional and the personal development heavily depend on the personal background of ICT graduates.

b) The analysis of BNIM cases has shown that besides the personal background (e.g. financial stability, attitude towards education, guidance), the factor mobility seems to be relevant for potential empowerment. In the professional environment of ICT, the professional opportunities are definitively higher in major cities. However, the factor mobility seems to be less important for the possibilities of personal empowerment (especially concerning creative use of ICTs) since ICT penetration is already on a high level. The current efforts of the Ghanaian government in ICT infrastructure will most likely result in an enhancement of these possibilities and could lead to increased participation especially in the field of cultural production. (see GTUC_2_2: line 88)

c) One aspect which has received insufficient attention in the field of ICT4D in Ghana is the focus on ICT user-skills (repairing computers, setting up operating systems, etc.) in the curriculum of vocational schools offering ICT trainings. In the analysis of BNIM cases, it was shown that issues such as creative skills, innovative use of technology or cultural production were not topics which the interviewees considered relevant. Generally, it seems that ICTs are rarely used in innovative ways in Ghanaian classrooms. (see Buabeng-Andoh and Totimeh 2013, 23) This is problematic in view of potential effects of ICT education on empowerment, because issues such as historical or cultural factors are

highly relevant to empowerment (see Gee 2007) and these factors could be targeted in ICT education.

d) Given the evidence from BNIM cases and expert interviews, it is doubtful whether ICT graduates from vocational schools in Ghana experienced an education which enhanced their capabilities of *"[...] naming the world"*. (Freire 1988, 402) At least, I would argue that public ICT policies are currently not focusing on enhancing the level of digital literacy in the educational institutions in the sense of social inclusion mentioned by Warschauer (2004, 211). Of course, ICT education does affect the capabilities of young Ghanaians with respect to the categories of digital literacy outlined in Warschauer (2002, chapter 7) which include digital, human, physical and social resources[10]. But these increased capabilities are by-products of the actual outcomes of ICT education rather than specified aims. For this reason, I would argue that the effects of ICT training on the level of digital literacy of young Ghanaians is below of what could be expected, which certainly influences the potential effects on empowerment in a negative way.

e) The topic of appropriate certification for acquired ICT skills and its effects on empowerment is controversial. On the one hand, it seems rather clear that the problem of certification is highly relevant for the empowerment of young Ghanaians. The analysis of BNIM cases demonstrates clearly that the lack of 'valuable' certificates was one of the main concerns of ICT graduates in the search for professional options after completing the ICT course. The results from the expert interviews point in the same direction. (see for instance DBTI_2_3: line 32) The efforts of the Ghanaian government to target this problem through the implementation of the

10 The term 'resources' as defined by Warschauer (2002, chapter 7) corresponds to the different forms of capital in the sense of Bourdieu. (cf. Czerniewicz and Brown 2005, 45)

2008 education reform must be seen as a breakthrough in this regard, because it provides an enhancement of vocational school certificates. (cf. GES_2_1: line 29) On the other hand, it is clear that the high dependence on certificates for acquired skills makes it necessary to constantly update all resources in the certification system if aspects of the curriculum are changed. In the field of ICT, where technological changes are taking place constantly, this necessity leads to a high bureaucratic effort. Given this controversy, I would argue that appropriate certification is highly relevant for empowering Ghana's youth through ICT education. However, considering the pace of changes in ICT it is necessary to critically assess whether the stakeholders involved in the process of certification (both public and private) are able to provide relevant and up-to-date material in order to ensure a high standard of teaching and learning.

f) The role of gender for potential empowerment of youth through ICT training is particularly interesting. Women are generally under-represented in both ICT training institutions and the labor market for ICT professionals. (cf. GTUC_2_2: line 62; The Youth Employment Network 2009, 31) Although there are many possible reasons for this situation, it seems evident that the prevailing perception of the role women ought to play in the Ghanaian society is crucial for understanding the potential empowering effects of ICT training courses on young women in Ghana. This perception includes the division of labor, which is based on gender in most economic sectors. (cf. The Youth Employment Network 2009, 30) However, it must be noted that ICT education can have empowering potentials in sectors with a traditionally high percentage of female employees, such as business administration.

Given the manifold factors which influence empowerment of youth through ICT education according to my analysis, I must reject a view on the topic which propagates that ICT education will lead to socio-economic improvements by transfer and diffusion. (see Avgerou 2010, 3) In contrast, the results of this study suggest that the hypothesis of the social embeddedness of technology can be applied to the field of ICT education in Ghana. However, evaluating the ICT policies of the Ghanaian government, a clear technological determinism in large parts of the strategies and initiatives can be observed. I consider this technological determinism to be deeply problematic for achieving the specified goals of the policies in areas such as socio-economic development, health, gender, equity or education. (see Government of Ghana 2003b, 8 ff.)

5.3 Conclusion: Empowerment or digital divide?

EK: So, so far. I am now looking for (..) a job. Or (..) if maybe I will also continue my school.
EK: So whatever comes first, I will just take it. And do it.
EK_1_7: line 13-14

CO: And, (...) yeah (...) I can do whatever I like, I can buy whatever I like, I don't need of anything, aha.
CO_1_2: line 41

From the results of my empirical research, it appears clear that ICT education does not lead to the individual empowerment of young Ghanaians irrespectively of other context variables. At the same time, the hypothesis of a digital divide (see Cawkell 2001) that is enhancing existing inequalities between different groups does not fit my results, either. In order to understand the effects ICT education has on the empowerment of youth in Ghana, I consider it necessary to acknowledge the 'social embeddedness of technology'. (see Avgerou 2010, 5) As a starting point for this approach, Warschauer argues that *"[t]here is a complex mutually evolving relationship between a technology and broader social structures, and the relationship cannot be reduced to a matter of the technology's existing on the outside and exerting an independent force."* (Warschauer 2004, 202)

From this perspective, the assumption that technological implementations or innovations can solve social problems must be considered inadequate since a separation between 'technology' on the one hand and the 'social context' on the other cannot be maintained. (ibid.)

However, many interventions in the field of ICT4D in Ghana follow this assumption, as has been described repeatedly in this work (see chapter 3.1.2 and chapter 5.1.3). It seems that the 'myth of ICT for development' (see chapter 2.2.2.1) is still shaping the process of policy-making to a large extent in Ghana. This is not primarily a problem of lacking empirical evidences or weak theoretical foundations of critical approaches towards the mainstream version of

ICT4D (see chapter 2.2.2.4).

The problem, as Mansell argues correctly, is that *"[...] the insights are rarely influential when policy makers launch and implement ICT-related development strategies."* (Mansell 2009, 9)

This problem is based on the strength of the ICT4D discourse. The Foucauldian concept of pastoral power serves well to illustrate one aspect of the discourse. Institutions in development co-operations in general, and stakeholders of ICT4D projects in particular, tend to use a salvation-oriented language for legitimizing their work and are thus agents of pastoral power in a Bourdieuian sense. (cf. Haider and Bawden 2006, 373)

The discursive power of ICT4D is considerable and prevents policy-makers and development co-operations from critically assessing the actual effects of ICT4D projects on the specified target groups. In the case of Ghana, it seems that although considerable resources are spent on the implementation of ICT4D projects (with a clear focus on infrastructure and access), the effects of these projects are rarely assessed in a comprehensive way.

This situation has important implications for the effects of ICT education for Ghana's youth. If the assumption that technological implemenations cannot solve socio-economic problems is true, the current ICT policies of Ghana must be considered ineffective for achieving the goals specified therein. On the other hand, the technological determinism which prevails in the ICT4D discourse makes it difficult to think beyond the scope of infrastructure and access in ICT4D projects and policies. The danger for Ghana regarding its ICT development is to *„[...] gain access at the expense of substance [...]"*, as Howkins and Valantin (1997, 37) point out for the problem of uncritical approaches towards ICT in general.

Accepting the hypothesis of the social embeddedness of technology, I consider it essential to integrate a critical approach to ICT in ICT training courses in order to enhance the potentials of empowerment for youth in Ghana. A critical approach, as Vrasidas, Zembylas, and Glass remark, should *„[...] attend to the challenges presented by poverty, social exclusion and cultural*

misunderstandings, and it should empower individuals and groups to analyse and critique the emerging effects of social injustices around the globe." (Vrasidas, Zembylas, and Glass 2009, 14)

This can only be achieved by exploiting the possibilities ICTs offer, in order to produce relevant knowledge for questioning current problems in the perception of the target group. Such a view on ICTs makes it possible to consider them as tools for achieving specified aims in the area of socio-economic development. As has been described in chapter 2.3.3.3, ICTs can be very effective tools for reaching these goals, but only if they are designed in a non-deterministic way and focus on different spheres of potential empowerment in a specific social environment. The potential scope of such an approach is outlined by Warschauer:

> "A framework of technology for social inclusion allows us to re-orient the focus from that of gaps to be overcome by provision of equipment to that of social development to be enhanced through the effective integration of ICT into communities and institutions. This kind of integration can only be achieved by attention to the wide range of physical, digital, human, and social resources that meaningful access to ICT entails." (Warschauer 2002, chapter 7)

Thus, the main challenge for actors in the field of ICT4D in Ghana is not to 'bridge the digital divide'. Above all, it is essential to accept the social embeddedness of technology in order to enhance the potential empowerment of Ghana's youth through the possibilities of ICTs. Consequently, ICT4D projects must be designed in a way that allows using these possibilities as tools for enhancing the resources mentioned in the quote above. This will only be possible if stakeholders acknowledge that a computer is not an *"[...] omnipotent machine [...]" (Warschauer 2004, 202)* but rather a tool which must be used wisely in order to improve the possibilities of social inclusion, socio-economic development and empowerment for the target group.

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In my personal archive:

BNIM interviews:

- Interview with Martin, MK_1_1 (conducted February 10th 2013 in Sunyani)
- Interview with Constance, CO_1_2 (conducted February 11th 2013 in Techiman)
- Interview with Frank, FY_1_3 (conducted February 14th 2013 in Odumase)
- Interview with Isaac, IF_1_4 (conducted February 19th 2013 in Sunyani)
- Interview with Miguel, MA_1_5 (conducted February 25th 2013 in Cape Coast)
- Interview with Raindolf, RO_1_6 (conducted February 3rd 2013 in Accra)
- Interview with Emmanuel, EK_1_7 (conducted February 2nd 2013 in Accra)

Expert interviews:

- Interview with Alex Nyarko, GES_2_1 (conducted February 4th 2013 in Accra)
- Interview with Dr. Osei Darkwa, GTUC_2_2 (conducted February 7th 2013 in Accra)
- Interview with Mark Anthony Okpala, DBTI_2_3 (conducted February 18th 2013 in Sunyani)

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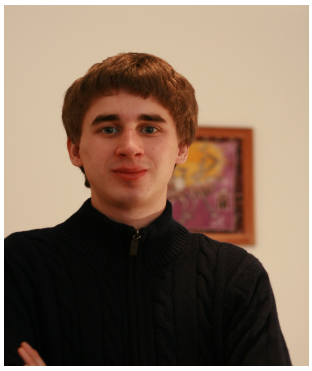
Personal information



Name:	**Patrick Korber**
Gender:	Male
Nationality:	Austria

Education and training

2002 - 2007:	*Higher Technical Education Institute (HTL)*, Klagenfurt (Mössingerstraße). Focus on computer technology. Higher school certificate in 2007.
2008 - 2012:	*Vienna University of Economics and Business*, Vienna. Bachelor program: business, economics and social sciences. Major in socio-economics. Bachelor thesis: Land reforms in Central America. Bachelor of Science, BSc (WU) in 2012.
2008 -	*University of Vienna.* Diploma studies in development studies. (Ongoing).
2011 – 2012:	*Universidad Torcuato di Tella*, Buenos Aires (Argentina). Exchange semester. Courses in history, politics and economics with focus on Argentina and South America. Interviews with experts in the field of history and politics of Central America for my bachelor thesis.

2012 -	*Vienna University of Economics and Business*, Vienna. Bachelor program: business, economics and social sciences. Major in information systems. (Ongoing).
2012 -	*University of Vienna / Technical University Vienna*. Master degree program: Informatics didactics. (Ongoing).

Work experience

2009 - 2011	*Wiener Familienbund*, Vienna. Youth work in the field of leisure education, part time.
2009 – 2012	*Vienna University of Economics and Business*, Vienna. Tutor for information systems, part time.
2013 -	*“Sale für Alle”* (youth center), Vienna. Volunteers coordinator, part time.

Volunteer activities

2007 - 2008	*Don Bosco Technical Institute*, Sunyani (Ghana). Civil servant in the field of ICT education for one year.
2009	*Eco-granja “escuela jordán”*, Valdepeñas (España). Volunteer (organic farming) for one month.
2012	*Eco-granja “las pinas”*, El Bolson (Argentina). Volunteer (organic farming) for one month.
2009 -	*“Sale für Alle”* (youth center), Vienna. Founding member of the project and still involved.