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Effects of TVET on the well-being of youth from low socioeconomic backgrounds

Evidence from the Don Bosco Technical Institute in Ashaiman, Ghana





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Abstract

Considered by policy-makers of the global South as a tool to fight youth unemployment and alleviate poverty, Technical and Vocational Education and Training (TVET) has experienced resurgence in the course of the last decade. While academic research appears to focus on (macro-)economic effects of TVET and qualitative empirical research on micro-level effects of TVET participation is limited, this paper broadens the perspective on education and training by exploring the effects of TVET participation on overall well-being of youth from low socio-economic backgrounds. This thesis bases its findings on indicative data derived from a field study conducted in late 2014 and encompassing personal interviews with graduates from the Don Bosco Technical Institute in Ashaiman, Ghana and employer representatives from the industry for data triangulation.

Keywords: TVET, well-being, youth, Ghana, Don Bosco Technical Institute

Zusammenfassung

Von politischen Entscheidungsträgern im globalen Süden als ein Instrument zur Bekämpfung von Jugendarbeitslosigkeit und Armut wahrgenommen erlebt die berufliche Bildung seit einem Jahrzehnt eine Renaissance. Während die wissenschaftliche Forschung ihren Schwerpunkt auf die (makro)ökonomischen Effekte richtet und es kaum qualitative empirische Untersuchungen von Wirkungen einer Berufsbildungsteilnahme auf der Individualebene gibt, bietet diese Arbeit eine umfassende Perspektive auf berufliche Bildung durch die Untersuchung der Effekte einer Berufsbildungsteilnahme auf das allgemeine Wohlergehen Jugendlicher mit einem schwachen sozioökonomischen Hintergrund. Die Erkenntnisse dieser Arbeit basieren auf indikativen Daten einer Feldstudie, welche im Jahr 2014 durchgeführt wurde, und auf persönlichen Interviews mit Berufsbildungsabsolvent/innen des Don Bosco Technical Institute in Ashaiman, Ghana, und Arbeitgebervertretern aus der Industrie zwecks Datentriangulation fußt.

Schlüsselwörter: Berufliche Bildung, Wohlergehen, Jugend, Ghana, Don Bosco Technical Institute

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Abbreviations

BECE	Basic Education Certificate Examination
COTVET	Council for Technical and Vocational Education and Training
DAC	Development Assistance Committee (of the Organisation for Economic Co-operation and Development)
DBTI	Don Bosco Technical Institute
EED	Evangelischer Entwicklungsdienst
GBCE	General Business Certificate Examination
GES	Ghana Education Service
GHS	New Ghanaian Cedi
GIZ	Deutsche Gesellschaft fuer Internationale Zusammenarbeit
GPRS	Growth and Poverty Reduction Strategy
HND	Higher National Diploma
ILO	International Labour Organisation
JHS	Junior High School
MDGs	Millennium Development Goals
NABPTEX	National Board for Professional and Technician Examinations
NGO	Non-Governmental Organisation
NHIS	National Health Insurance Scheme
NVTI	National Vocational Training Institute
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
SHS	Senior High School
SME	Small and Medium size Enterprises
SSNIT	Social Security and National Insurance Trust
TEU	Technical Exams Unit (of the Ghana Education Service)
TVET	Technical and Vocational Education and Training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNESCO-UNEVOC	International Centre for Technical and Vocational Education of the United Nations Educational, Scientific and Cultural Organisation
USD	United States Dollar
WAEC	West African Examinations Council

Acknowledgement

The findings of this thesis are mainly drawn from a field study conducted in Ghana in the end of 2014. The author would like to extend her sincere appreciation to *Don Bosco Mondo* for establishing the contact with the provincialate of the Salesians of Don Bosco in Ghana and for facilitating the research. A special thank you goes to the provincial, Father George Crisafulli, and the Salesians of Don Bosco in Ashaiman (foremost Father Piotr Wojnarowski, and Brother Guenter Meyer) for a warm welcome and hosting in Ghana during the research stay. The author extends her gratitude to the dedicated personnel of the *Don Bosco Technical Institute* (foremost Father Blamoh Harris and Sir Isaac Andaliga) for providing information and granting access to the field. Finally, the author would like to thank her interview partners. Without the effort and open-mindedness of 34 young Ghanaians, this research would not have been possible.

The views expressed in this thesis are solely those of the author and should not be credited to any other person or organisation.

1. Introduction

The introduction is structured as follows: The first section delivers background information to the study of 'Technical and Vocational Education and Training' (TVET) and identifies the underlying problems which led to the interest in the topic under study and the establishment of this thesis (see Section 1.1). Section 1.2 briefly elaborates on the research context, namely the case of education and training in Ghana. The subsequent section (1.3) lays down the objectives and relevance of this study and indicates the research question. What follows is the overall methodological approach of this study (see Section 1.4). The introduction concludes by indicating the structure of this thesis.

1.1. Background to the study and problem statement

Education has long been attributed a crucial role in international development cooperation and development policy. Human capital theory, the prevalent approach to education throughout the 1960s among policy makers and global financial players such as The World Bank, considered education an important factor of production (Tilak, 2002; Unterhalter, 2007). By imparting useful knowledge and skills to individuals it would increase their productivity and incomes, thereby contributing to overall economic growth (see Becker, 1962).

As one form of education, Technical and Vocational Education and Training has been ascribed particular relevance due to its alleged link with direct employability through practical skills acquisition on the micro level and productivity and economic growth on the macro level (Freiburg, 2010). As a firm promoter of TVET for development, The World Bank's first ever loan for education in 1963 was for the TVET sector. Programmes focused mainly on TVET infrastructure and the introduction of vocational elements in school curricula (Gough, 2012). However, in the 1990s the main contributor radically shed away from TVET due to "the high costs of vocationalization and the relative failure of school-based vocational programs to achieve their intended goals" (The World Bank, 1991, pp. 78). Rates of return studies supported this finding (Psacharopoulos, 1985). Particularly since the 1990 'Education for All' conference, the worldwide international development agenda led by The World Bank changed their policy educational focus to primary education (Gough, 2012).

Since the last decade, however, TVET has been granted renewed attention by policy makers in many countries of the global South. This trend is reflected not only in the amount of recent literature on TVET, led by international organisations such as the 'International Labour Organisation' (ILO) or the 'United Nations Educational, Scientific and Cultural Organisation' (UNESCO), but also in the establishment of new international organisations such as the UNESCO's 'International Centre for Technical and Vocational Education and Training' (UNESCO-

UNEVOC) inaugurated in 2002, as well as the rising number of conferences and policy frameworks established thereupon.

One reason for is the unemployment rate among youth, which has been on the rise worldwide as a result mostly of the global financial crisis that began in 2008 (Langthaler, 2013). The focus of the international development agenda on primary education, reinforced by the 2000 'Millennium Development Goals' (MDGs), led to an increase in the number of primary school graduates, causing a rising demand for forms of secondary education which many countries could not satisfy.

Various countries of the global South, amongst many states in Sub-Saharan Africa, have integrated TVET into national educational policy frameworks or their poverty reduction strategies, based on the premise that TVET helps to fight youth unemployment, contributes to poverty reduction and engenders economic growth (Afeti, 2010; Palmer, 2007; Tilak, 2002). This in turn gave Western donor states increasing impetus for a renewed support of this sector of education.

Under increasing political and public pressure for the legitimisation of development spending since the beginning of the new century, a rethinking among the international donor community from a pure input and output focus towards an impact orientation of interventions was initiated (Bliss, 2007). A policy framework was created to address the issue of aid effectiveness, foremost the 2005 'Paris Declaration on Aid Effectiveness'[1] (OECD, 2005). The 2008 'Accra Agenda for Action' highlighted capacity development which many donor countries adopted in their development cooperation. Germany, for instance, increasingly supports capacity development in TVET through teacher training or consultancy in curricula reforms (Silvestrini and Stockmann, 2012).

The international aid effectiveness debate has also led to the rising importance of assessing projects and programmes in the field of TVET through evaluations, mostly based on the principles set by the OECD's 'Development Assistance Committee' (DAC) – 'Relevance'[2], 'Effectiveness'[3], 'Efficiency'[4], Impact'[5], Sustainability'[6] (OECD, 2015). Many multilateral and state-funded TVET projects and programmes have been externally evaluated, and these have given indications about interventions which have proved most beneficial on all levels of analysis. They appear to point to one primary condition for a beneficial application of TVET: That TVET must reflect the needs of the labour market (Silvestrini and Stockmann, 2012). Only then can TVET fulfil its potential, reach its assumed outcomes,

[1] The 'Paris Declaration on Aid Effectiveness' established the following key principles to improve development cooperation: ownership, alignment, harmonisation, managing for results, and mutual accountability (Organisation for Economic Co-operation and Development (OECD, 2005).
[2] 'Relevance' indicates "[t]he extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor" (OECD, 2015).
[3] 'Effectiveness' is "[a] measure of the extent to which an aid activity attains its objectives" (OECD, 2015).
[4] 'Efficiency' "measures the outputs – qualitative and quantitative – in relation to the inputs" (OECD, 2015).
[5] 'Impact' denotes "[t]he positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators" (OECD, 2015).
[6] 'Sustainability' "measures whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable" (OECD, 2015).

and create impact. However, this requirement appears to be one of several which constitute a substantial challenge for many countries, particularly in Sub-Saharan Africa.

The former Secretary General of the 'Commonwealth Association of Polytechnics in Africa' and a TVET consultant to the African Union, Afeti (2010, ix) explained the challenge of TVET in various African countries:

> Current training programmes in many countries are supply-driven. TVET programmes are very often not designed to meet observed or projected labour market demands. The emphasis appears to be on helping the unemployed to find jobs, without any critical attempt to match training to available jobs. This situation has resulted in many vocational school graduates not finding jobs or finding themselves in jobs for which they have had no previous training. Non-targeted skills development is one of the major weaknesses of the TVET system in many African countries.

In many African countries, tracer studies to track the labour market transition of graduates and gain valuable feedback on the quality of TVET and challenges faced appear to be largely absent. Feedback from graduates is crucial to improve TVET and make sure the training fits the need of the market. Many countries seem to have an unstructured and dispersed 'system' of TVET and lack a framework for mutual recognition of qualifications which is crucial for gaining access to further education. Often, there is a lack of analyses on the TVET sector and the labour market (Afeti, 2010). Apart from evaluations, in particular for large state-based TVET projects or programmes, there is not much empirical research or literature on the TVET sector or TVET provisions in African countries, and hardly any which builds on feedback from former students.

The literature reflects a lively debate among researchers: formal school-based education and training are broadly criticised for being too theory-based, static and inflexible, unable to impart enough technical skills for the world of work (Singh, 2009) and inaccessible to the poorest youth (Langer, 2013). Due to these deficits, and the fact that the primary destination of school leavers is the informal sector of the economy, some private or church organisations and state-based technical development cooperation have laid a focus on 'non-formal' (organised but non-accredited learning) and/ or 'informal' (e.g. traditional apprenticeships) forms of TVET (Lohmar-Kuhnle, 1994; Overwien *et al*, 1999). The results of economic 'rates of return' studies have pointed to this paradigm shift by indicating that employer-provided training appears to lead to higher returns than off-the-job training (Blundell *et al*, 1999). Although critical voices towards formal school-based TVET are widespread, empirical research and case studies on formal TVET provisions appears to be largely absent.

Above all, there seems to be broad agreement in the literature and among policy makers on the possible effects of TVET from an economic point of view. Most projects or programmes in development cooperation in TVET aim at improving employability and employment at the micro-level, and promoting economic development on the macro-level. However, this narrow focus on the economic

dimension of TVET does not reflect the paradigm shift in the international donor community since the 1990s. It furthermore ignores the rise of 'Human Development Theory' and Amartya Sen's (1985, 1992) 'Capability Approach', which both place the quality of human life above earnings and economic growth. In this respect, a new strand of literature focuses on individual effects of TVET by taking account of non-economic benefits, primarily the acquisition of enhanced opportunities, freedoms and decision-making power.

There is broad agreement among educational researchers that TVET has effects in addition to employability for the individual, and that the 2004 'Bonn Declaration on Learning for Work, Citizenship and Sustainability' has indicated TVET's potential to "help improve the quality of life for all" (UNESCO-UNEVOC, 2004). Nevertheless, there is no multi-dimensional exploration of TVET based on in-depth data from TVET participants. In addition, in evaluations or assessments, the outcome on the individual level in regard to skills acquisition focuses primarily on cognitive and technical competences gained. In fact, the acquisition of non-cognitive or soft skills in the course of TVET has not been well researched to date (Gutman and Schoon, 2013).

1.2. Context: structures and challenges of TVET in Ghana

Ghana has a youthful population: Around 57% are below the age of 25 (Central Intelligence Agency, 2015). Around 80 % of the working population among 15- to 24-year-old youth are engaged in the informal sector of the economy (Tekuelve, 2014). Privatisation reforms, trade liberalisation and a large currency depreciation have led to a significant job loss both in the public and the private sector in Ghana (Fu and Tu, 2013). Rates of investment and employment creation are low (Otoo *et al*, 2009). The unemployment rate of 15 to 24 year olds hovers at around 16% (Ghana Statistical Service, 2012).

Ghanaian policy makers and governments have long emphasised the importance of TVET. The 'Education Sector Programme' (ESP) in place from 2003 to 2015 was included in the government's 'Growth and Poverty Reduction Strategy' (GPRS II), which emphasised the promotion of education and training and skills development. GPRS II follows an "employment-centred cross-sectoral development strategy" for better job opportunities and enhanced private earnings (Republic of Ghana, 2005, GPRS II, Section 3.5, p. 39). TVET is lauded by Ghanaian policy makers based on the following assumption:

> [T]he provision of technical and vocational skills will have beneficial impacts on the poor – making them 'employable', equipping them with the skill and know-how to enter and/ or progress in self-employment and, ultimately, reducing poverty though raised incomes (Akabzaa *et al*, 2009a, p.3).

TVET is considered capable of establishing the work force necessary for industrial development and economic growth, as well as the realisation of Ghana's

development plan and the 'Vision 2020'[7] (Ansah and Ernest, 2013). However, following Akabzaa and others (2009a, p. 3) the government's optimistic view of TVET and alleged efforts to improve TVET are not evidence-based.

Across Ghana, there are 181 public and private TVET institutes with a total enrolment of 61,496 youth. Other youth are trained informally through apprenticeships (Ministry of Education of the Republic of Ghana, 2013, p. 66). The TVET system is fragmented under different ministries, agencies and private providers (UNESCO International Bureau of Education, 2010). In 2006, the 'Council for Technical and Vocational Education and Training' (COTVET) was set to bring policy under one framework and make the sector more effective (COTVET, 2014). Although COTVET seems to have improved coordination of supply, "[o]n the demand side, it will be important to better engage with the private sector and to collect more demand-side data" (Darvas and Palmer, 2014, p. 5).

Much critique concerns the formal TVET system due to a low quality, low labour market relevance and low demand. Curricula are believed to be too theoretical and good teachers appear to be difficult to attract and maintain. It is widely held among young people that general education offers better chances for employment in the small formal sector of the economy which many would like to access (Darvas and Palmer, 2014, pp. 2-7). Employment rates of TVET graduates appear to be low (EU Energy Initiative, 2013). Following Darvas and Palmer (2014), there is insufficient industrial sector demand for skilled labour in Ghana.

The literature points to the growing need for thorough research on TVET in Ghana. If there is no adequate data on the current system, how can TVET provisions improve? How can the full potential of TVET to contribute to youth employment and poverty reduction be realized? Given that formal TVET seems to be under increasing criticism, there appears to be an increasing need to explore and evaluate formal school-based TVET provisions.

1.3. Objectives and relevance of the study

A study on TVET can be of great value and offer additional insights and information. The increased relevance of TVET in international development cooperation has raised interest in the respective TVET sectors of partner countries. Exploring TVET in Ghana is of particular relevance for countries like Germany or the United States, which partner with Ghana in the field of TVET.

The international donor community places increasing importance on impact assessments. However, apart from evaluations of donor-funded projects and programmes, many partner countries seem unwilling to properly assess whether TVET indeed leads to the expected results. This study contributes to evaluation and impact research by assessing the effects of education and training on the

[7] The 1995 established "*Vision 2020*, originally entitled *National Development Policy Framework*, was a wide ranging, twenty five year perspective dedicated to the improvement of individual and social wellbeing". It constitutes part of the Ghanaian framework for poverty reduction and foresees series of five-year development plans (The World Bank, 2003, p. 1).

individual participant level. Above all, proper analyses of TVET capable of improving TVET structures require input from individuals who have participated in TVET. In-depth and thorough information from TVET graduates help to understand links existent on various levels between TVET and employability, employment and poverty reduction more deeply.

Although positive relations between these variables seem to be largely accepted, this study provides an underlying line of reasoning and explore multi-variate links behind it. In addition, this study's survey of the labour market transition and the industries where youth are employed provides insight into the situation of the labour market, especially regarding the assumed gap between supply and demand. This paper does not provide a full-scale evaluation. Instead, it explores the outcome-dimension of TVET and level of the individual in detail. The aim is to gain a thorough understanding of diverse effects of TVET participation on the individual, an approach and undertaking which is rather rare in evaluation of and research on TVET.

This research provides a perspective on TVET that differs from the traditional economic orientation prevalent among policy makers and scholars. It offers a holistic and comprehensive view of TVET and explores possible effects of TVET participation on all dimensions of human well-being, comprising both material (e.g. economic) and non-material (e.g. social) dimensions. This approach reflects more recent developments in educational research endeavouring to analyse those elements which are on the whole not well researched and so far mostly lacking in empirical examination thereby broadening the mainstream perspective of TVET. This study collects qualitative data in order to provide an empirical basis for further research on this wider understanding of TVET.

Taking the case of the *Don Bosco Technical Institute* (DBTI) in Ashaiman, Ghana, this thesis poses and explores the following research question:

To what extent and how does participation in Technical and Vocational Education and Training positively impact on the well-being of young people from low socio-economic backgrounds?

By examining one registered and accredited provider of formal TVET in Ghana, namely the *Don Bosco Technical Institute*, this study contributes to the critical debate about school-based TVET. This study delivers input from TVET graduates, a group from which Ghanaian policy makers seem to lack insight. By focusing on young people from low socio-economic backgrounds it adds a social dimension to the study of TVET – a perspective not well researched.

1.4. Methodological approach

The thesis uses deductive reasoning to explore the research question. To this end, a theoretical model is established from which hypotheses are developed for empirical testing (Diekmann, 2007). This methodology allows the exploration of a given theory and assumed relations between variables with the aim of proving,

disapproving or adding to it. Despite it being more commonly used in quantitative research, the deductive approach is conducive for this study as it allows for the investigation, testing and explanation of an assumed relationship between two variables, TVET participation and human well-being. This study does not aim at establishing theory but at in-depth exploring and empirically testing particular conceptualisations (Flick, 2010a).

In order to deliver the promised thorough and in-depth analysis of TVET and individual well-being, the research method used to explore the hypotheses is qualitative. A case study is proposed – TVET at the *Don Bosco Technical Institute* – from which one main sample composing TVET graduates and one sub-sample consisting of employer representatives are taken for empirical investigation. The latter sub-sample serves for data triangulation, i.e. adding to or validating data from the main sample (Flick, 2010b). The study focuses on the main sample. It does not strive to be representative, or to provide an impact analysis in a strict sense. The objective of the empirical research was to gain indicative data to explore context and in-depth relationships between two variables – TVET participation and individual well-being – on the basis of examples.

Empirical data was collected over the course of a field study in Ghana in October and November, 2014. Personal communications, primarily in the form of personal interviews, were used as instruments of data collection. For the focus group, data from the main sample was transcribed and analysed by means of 'qualitative content analysis' (Mayring, 2009) which included the establishment of a 'coding guideline'. For triangulation, data from the sub-sample was transcribed and field notes taken in the case of restricted recording to be then filtered and analysed according to the aspects relevant for the research question.

1.5. Structure of the thesis

This thesis is structured into five chapters. Chapter 1 introduces the thesis, alludes to the background and relevance of the study, and lays down the research question and methodological approach (see previous sections). Chapter 2 outlines the theoretical and conceptual framework, based on a literature review. Chapter 2 consists of an analysis of the relation between TVET and individual well-being, a review of quality criteria for formal TVET, and valuable input of two cross-sectional evaluations of TVET projects funded by two German organisations. Chapter 3 explicates the research design for the empirical study. Chapter 4 comprises the analysis of empirical data. The first part is the mainly statistical data description of the main sample (TVET graduates). What follows is the main body of hypotheses-testing, which integrates data of the sub-sample (employer representatives) for triangulation and input from the interviews with DBTI personnel for background information. Chapter 5 summarises and concludes this study, classing it into the broader discourse on TVET in international development cooperation and highlighting areas of potential future research.

2. Theoretical framework

A theoretical model is established. First, the definition and conceptualisation of the two main variables, TVET and well-being, are laid out as deduced from the literature. What follows is the backbone for the analysis, namely the theoretical model. This theorises on the assumed relationship between the independent variable, TVET, and the dependent variable, well-being, with a reliance on relevant academic literature. Next, value criteria for successful TVET provisions are carved out to analyse an input-perspective of TVET. This is followed by a presentation of the findings from cross-sectional evaluations, which serves to provide an empirical cross-validation and possibly complement of theoretical concepts of TVET quality and good practices. The hypotheses, guiding the analysis of the research question, are derived from this conceptual framework.

2.1. Definitions and conceptualisations

The following part clarifies the main concepts and variables of the research question. First, it seeks to clarify the meaning of 'Technical and Vocational Education and Training', followed by a definition and conceptualisation of 'human well-being'. Last, this chapter lays down an understanding of the term 'young people from low socio-economic backgrounds' to constitute the basis for the forthcoming theoretical model.

2.1.1. Technical and Vocational Education and Training (TVET)

There is no universally accepted definition of TVET. This paper follows the broad definition of the UNESCO (2005, p. 7), i.e.:

> those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life.

Therefore, TVET denotes a variety of "learning experiences which are relevant to the world of work" (UNESCO-UNEVOC, 2013a).

A generally accepted distinction is between 'formal', 'non-formal' and 'informal' systems of TVET (Cardoso, 2009). 'Formal' TVET is generally acknowledged as "organised learning whose outcomes are accredited" (UNESCO-UNEVOC, 2006, p. 15) and refers to a "type of learning activity that takes place within traditional education centres" (Cardoso, 2009, p. 2054). 'Non-formal' denotes "organised activities within or outside the workplace which involve significant learning which is not accredited", while 'informal' TVET is "less organised and less structured, and usually occurs outside educational institutions" (UNESCO-UNEVOC, 2006, p. 15).

The underlying objective of TVET is to impart knowledge and skills relevant for working life to its recipients (UNESCO-UNEVOC, 2013a). TVET can be provided by different actors. In addition to the public sector, NGOs or religious organisations have become major players in TVET provision worldwide. Offerings include a number of technical and vocational disciplines. Programmes can be offered at different levels within the educational system, although many formal TVET provisions are part of secondary education schemes (Gamble, 2013, pp. 209). This paper explores one particular form of TVET, i.e. formal centre-based TVET on the level of secondary education aimed at young people from low socio-economic backgrounds.

2.1.2. Human Well-Being

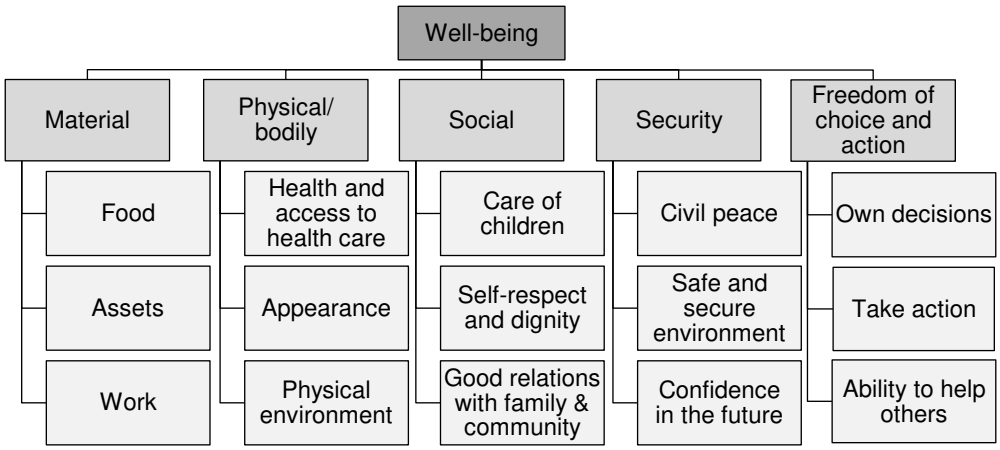
Traditional neo-liberal and utilitarian approaches to well-being and poverty defined and measured the concepts solely in economic and material terms. In these models, income constituted a proxy, thereby failing to capture the complex reality of well-being and poverty at the individual level (Tenaglia, 2010). More recent approaches offer richer conceptualisations of poverty and well-being in their multi-dimensional complexity.

Well-being has been approached from diverse theoretical backgrounds. These include the human rights perspective (Universal Declaration of Human Rights, 1948), the basic needs perception (Hamilton, 2003) and the widely accepted human development perspective (Human Development Index, 1990). The last perspective was strongly influenced by renowned economist Sen (1985, p. 200; 1992, pp. 56, 92) who argued that “the central feature of well-being is the ability to achieve valuable functionings”, “beings” and “doings” which are of value to a person. Governments, international organisations and agencies today use multi-dimensional conceptualisations of poverty and well-being, entailing a set of social indicators (Atkinson *et al*, 2002).

This study uses a multi-dimensional understanding of well-being which aims to reflect the complexity of human well-being, depicting it in contrast to ill-being. In aiming to offer a conceptualisation most appropriately befitting the context of the group under study, this paper bases its understanding of well-being on a 1999 field study termed ‘Voices of the Poor’. This study compiles the opinions and perspectives of over 20,000 poor people from 23 countries, among them the country of the case study, Ghana. It was conducted for The World Bank as background for the ‘World Development Report 2000/1: Attacking Poverty’. It constitutes the first comprehensive, qualitative research aimed at grasping the multidimensionality of poverty and well-being which is based on the voices of poor and marginalised people from a variety of countries, thereby taking account of socio-cultural context. People surveyed were from low socio-economic backgrounds and lived in slums or slum-like areas (Chambers *et al*, 2000). Due to the empirical base of the study, the type of group under study and the integration of Ghana into the research, this conceptualisation is used for this thesis.

Based on the high frequency of designation during the inquiry of the target group, the report distinguishes five interlinked dimensions of well-being: (1) material, (2) physical or bodily, (3) social, (4) security, and (5) freedom of choice and action (see Figure 2-1). Material well-being is broadly understood as “having enough” food, assets (savings and capital, access to consumer goods, housing) and work to make a living. Physical well-being encompasses health and access to health services, good physical appearance (body and clothing) and a healthy physical environment (not living in the ‘places of the poor’). Social well-being includes care of children, self-respect and dignity (living without being a burden to anyone, being listened to, and popularity) and good relations within the family (harmony, supporting each other), community and country. Security means predictability and safety and confidence in the future. Hence, it encompasses civil peace (absence of war and civil conflict), a physically safe and secure environment (no environmental threats or natural disasters, personal physical security, access to justice, security in old age) and confidence in the future. The last dimension, freedom of choice and action, entails the capability to make one’s own decisions, take action without constraint and the ability to help others (Chambers *et al*, 2000, pp. 22-28).

Figure 2-1: Human well-being (see Chalmers et al. 2000)



Own compilation

Although TVET may not be directly targeted at all dimensions of human well-being and may be focused on material well-being only, this study examines possible effects on all dimensions of well-being with a view to offering an all-encompassing analysis of both TVET and well-being.

This study understands well-being as a procedural concept, meaning that well-being does not constitute an end but can reach different states in its entirety and in its five dimensions. This approach is reflected in the setting of the hypotheses (see Section 2.3).

2.1.3. Young people from low socio-economic backgrounds

In international development cooperation, the 'United Nations' (UN) have established an age-based definition of youth which is broadly acknowledged. It defines youth as those individuals between the ages of 15 and 24 years (UN, 2004). The 'African Youth Charter' defines youth as "every person between the ages of 15 and 35 years" (African Union, 2006, 'Definitions'). In line with the geographical context of the empirical research and taking into account that the form of education under study can be gained at various ages, this thesis follows the latter definition of youth.

This study examines a particular group of young people characterized by their family's socio-economic status. The OECD's worldwide 'Programme for International Student Assessment' (PISA) study defines socio-economic status on three variables: economic capital (financial resources), cultural capital (familiarity with high-status cultural practices), and social capital (available social network) (Turmo, 2004). Indexes usually contain data on parental education and occupational status and family wealth (Caró and Cortes, 2012). A thorough investigation of all parameters would have been beyond the scope of this thesis.

Due to the topical and geographical proximity, this study bases its understanding of 'youth from low socio-economic backgrounds' on an empirical study which was conducted in the TVET sector in Ghana. Personnel and graduates from diverse Ghanaian TVET institutions have established a list of common characteristics of students from poor families. They referred to the following points: "insufficient money to buy food", "low ability to pay training/practical fees", "low ability to pay for their exams, "arriving late to school or being repeatedly absent", "poor quality of clothing/ appearance/ foot wear", "the need to work to pay fees" (Akabzaa *et al*, 2009a, p. 4).

2.2. Theoretical model

The theoretical model is based on subject-specific international literature from development research, reflecting the traditional economist point of view to TVET and well-being as well as opinions from sociologists and educational researchers dominating more recent discourses. This part also indicates a set of criteria of good-quality TVET which evolved from the literature, thereby adding an input perspective (in addition to the outcome dimension) which is relevant for the analysis. This section focuses on formal TVET in order to fit the premises of the empiric analysis. As this thesis explores elements of an evaluation, this part also includes the key findings of two cross-sectional evaluations in TVET cooperation by two German actors in development cooperation. Evaluations indicate the empiric for which reason they serve to prove (or add to) literature-based presumptions regarding possible effects and quality criteria of TVET.

2.2.1. TVET and human well-being

Since the 1960s, education was broadly considered mainly as an important factor of production, thereby contributing to economic growth. On the micro-level, investments into education were regarded as a means to create earnings, thereby contributing to the reduction of poverty (Blaug, 1972; Tilak, 2002). Although macro-level effects could not be proved, rates of return calculations established a positive link on the micro-level, finding that individuals who undertook TVET earn more than those who do not (Blundell *et al*, 1999). A foremost economic view on education and TVET prevails in the academic literature and debate to date.

In the 1970s and 1980s, the general meaning of education changed to focus increasingly on the micro-level. The concept of education came to be perceived as offering more than an increase in income, namely an increase in the individual's freedom, allowing for critical reflection and overcoming inequality (Tenaglia, 2010). The 'Capability approach', brought forward by economist and philosopher Amartya Sen, has contributed to this development. Offering a micro-level analysis of education, it draws attention to the actual chances and freedoms (capabilities) people gain from education (Tikly, 2013). Following Sen (1992), the meaning of TVET should be broadened to emphasise the ability to expand people's capabilities, meaning their freedom to achieve what they value doing, which might include gaining a job, or food, or further education. The term 'capabilities' hence also denotes "the freedom and opportunities that individuals are provided with through TVET to convert whatever resources they may have at their disposal into achievements or outcomes of different kinds" (ibid, p. 19). The rise of the 'Capability approach' brought about a strand of academic literature, mostly from educational researchers, which surveys a wide range of competences gained from TVET. Following Tikly (2013, p. 18),

> the capabilities developed through TVET may include literacy and numeracy and the ability to apply basic scientific knowledge, but they are not reducible to these and may relate to a wider range of cognitive, affective and practical outcomes.

In many TVET programmes, awareness of the potential of TVET to enhance a wide range of capabilities led to the inclusion of so called 'life skills'. These embrace communication, teamwork, motivation, responsibility, training in reproductive health and violence prevention which shows that TVET is increasingly recognised as a way of enhancing young people's capability sets (Debrah-Karikari *et al*, 2013). It appears that in international development cooperation, TVET is also increasingly considered a driver of a range of non-economic effects on individual well-being. In conjunction with the rise of a broader meaning of poverty and well-being, there also came about a broadened understanding of education and TVET. Following a 2012 German strategy paper, aside from economic factors, TVET may also increase social competences and strengthen personality (Federal Ministry for Economic Cooperation and Development, 2012).

TVET is increasingly cherished for its contribution towards "enhancing the social and cultural capital needed for full participation in society" (Chakroun *et al*, 2015, p. 158). The German state player for technical development cooperation, *Deutsche Gesellschaft fuer Internationale Zusammenarbeit* (GIZ), has indicated that TVET leads to satisfaction resulting from the acquisition of skills, the establishment of social contacts, increased in-house reputation, and better health and safety (Erdle and Wolf, 2009). In a qualitative research study on TVET in Ghana, Akabzaa and others (2009b, p. 15) found that indeed "benefits of acquiring skills transcend economic remuneration". They named "respect, confidence, family services, hope/vision for future" as additional benefits from TVET (ibid, p. 14). There is a wide consensus in the academic literature about the potential of TVET to bring various positive effects towards individual well-being (see Hayman *et al*, 2007; Maclean and Wilson, 2009). Following the 'Bonn Declaration on Learning for Work, Citizenship and Sustainability', TVET can "help improve the quality of life for all" (UNESCO-UNEVOC, 2004, p. 1).

As regards non-material well-being effects of TVET, some scholars have argued that these do not necessarily arise directly from educational inputs, but rather by means of intermediary pathways or variables, foremost employment or income (Heise and Meyer, 2004; Ong *et al*, 2006). The idea of the functional chain is the following: TVET participation leads to employment, which in turn raises earnings, which in turn enables a rise in other well-being effects (Hollander and Mar, 2009).

Overall, what prevails in the academic literature and debate and what has been statistically verified is that, above all, TVET is meant to enhance employment capabilities. In order to meet its objectives, the literature points out that TVET should provide individuals with particular competences – employable skills. The ILO (2004, p. 3) has defined employable skills as

> skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the labour market at different periods of the life cycle.

Though employability – the possibility to take up paid employment (Kraus, 2005) – is a dynamic concept and may relate to the changing demands of diverse labour markets, there is broad agreement in the academic literature on a set of employable skills to be gained through TVET. The ILO (2013, p. 2) broadly distinguishes the following four categories of employable skills: 'basic'/ 'foundation' skills, 'vocational'/ 'technical' skills, 'professional'/ 'personal' skills, and 'core work' skills. Basic or foundation skills refer to literacy and numeracy, meaning language and computational skills. These often constitute a requirement for continuing education and for obtaining technical skills. They may also include computer skills. Vocational or technical skills comprise technical or trade-specific knowledge and skills, namely those skills "geared towards a specific occupation" (Burnett and Nayaram, 2012, iii).

Employable skills also include soft or non-cognitive attitudinal and behavioural skills, namely 'personal skills' and 'core work skills'. Professional or personal skills include the personal work ethic - single-mindedness and discipline - as well as reliability, trustworthiness and honesty. Core work skills include learning to learn, communication – the capability "to gain understanding from others […] and to put across ideas clearly and effectively" –, teamwork – the "abilities necessary to operate smoothly and efficiently within a group, including those related to both cooperation and leadership" –, and the ability to solve problems – "analytical skills required to evaluate information or situations and decide on the most appropriate ways of addressing problems" (ILO, 2013, p. 2).

In TVET research, employability refers to those skills associated with "developing personal characteristics, general competencies and specific vocational skills" (Maclean and Pavlova, 2013, p. 57). Based on the finding of six skills development initiatives in Asia and Africa, the 'Results for Development Institute' (2013, p. 1) found that "(w)hile technical skills are valuable in helping youth secure jobs in the short term, the skills that employers value the most are cognitive and non-cognitive". Some scholars also refer to 'entrepreneurial skills' which include "an individual's ability to turn ideas into action and […] therefore [constitute] a key competence for all, helping young people to be more creative and self-confident in whatever they undertake", and further emphasise customer relations (European Commission, 2008, p. 7). By imparting employable skills, TVET is considered to have the potential to constitute a "vehicle of transition for individuals to the world of work" (Hollander and Mar, 2009, p. 42). However, there is no agreement in the relevant literature about the best percentage-based allocation or hierarchical order of different types of employable skills. This may well depend on contextual factors, such as the branch and industry or the overall labour market situation.

2.2.2. Prerequisites for beneficial TVET

In order to assure quality in TVET in the long-run, TVET institutions require tracking mechanisms for their graduates. These so-called tracer studies enable them to gain feedback, which can be used to consistently review TVET and enhance the quality of training. These studies also provide constant updates on the situation and requirements of the labour market, which if reflected in the TVET provisions also enhance the likelihood of providing adequate TVET (Afeti, 2010). A mismatch between TVET and the needs of the labour market was one of the reasons why The World Bank in the 1990s turned away from TVET (ibid). To fulfil the main purpose of TVET, preparing individuals for the world of work, it ought to impart knowledge and skills on the trainees which are actually required on the labour market (Zelloth, 2014). Even the most skilled person may not find employment if there is no demand for acquired skills on the labour market.

Though there can be no accepted standard model for TVET in international development cooperation due to conceptual complexity, certain basic quality criteria necessary for TVET to convey employable skills can be derived from the

academic literature. Although quality of TVET is sometimes measured by formal qualification, and notwithstanding that a certificate may constitute a formal prerequisite for employment or enrolment in tertiary education (Colardyn, 2009; Veal, 2009), this study emphasises input criteria. A certificate only depicts certain elements of employability and is thus limited.

Quality of TVET is commonly measured by means of input variables, in particular curriculum and instructional quality (Veal, 2009). As the curriculum encompasses the framework of education and training, defining the content and scope of knowledge and skills transfer to be achieved, it is deemed to reflect the criteria of employability (see Section 2.2.1). Due to the importance thus inherent in the curriculum, many development projects or programmes in the field of TVET focus on curriculum reforms and teacher training (see Dittrich, 2009).

Formal TVET programmes are often criticised for their focus on theory, which is considered to deter students from gaining the technical skills required in the workplace (Akplu and Amankrah, 2008). Practical training can be provided in school-based workshops and requires adequate tools and equipment. Proximity of curricula to the workplace is largely considered the "'golden wand' of successful TVET" (Gamble, 2013, p. 206).

Scholars largely agree on the necessity for students to gain practical work experience in their sector of training. Empirical and longitudinal studies endorse that work experience assists youths in elucidating their career ambitions and in finding employment after education (Zelloth, 2014, p. 278). A field study conducted for the 'Ghana Education Service' (GES) stresses that "industrial attachment schemes […] will enable students to identify and gain practical knowledge required for the workplace through hands-on experience in local organizations" (Dasmani, 2011, p. 67). In an OECD (2014, p. 56) paper, it is held that

> work-based learning [for example in the form of an internship] offers realistic experience and makes it easier to acquire practical skills on up-to-date equipment and through colleagues and supervisors familiar with the most recent technologies and working methods. Soft skills such as dealing with customers are also more effectively learnt in workplaces than in classrooms and simulated work environments.

The report also refers to the role of an industrial attachment in gaining access to work. "In the workplace, employers get to know and assess trainees, who in turn get to know the workplace and the employer, providing both parties with valuable information that may lead to recruitment" (OECD, 2014, p. 56). Some programmes have integrated industrial attachments into their curricula (Tripney, 2013) and put industrial liaison officers in place to enhance dialogue with the local industry (Darvas and Palmer, 2014).

Taking into account that employability also comprises basic skills and that not all TVET students may have the same level of literacy and numeracy at the beginning of TVET due to divergent time periods between basic education and TVET or different levels of primary education, and bearing in mind that these generic

skills (e.g. language skills, mathematics) may constitute requirements for entering into further education, scholars have suggested an integration of basic skills acquisition into TVET programmes (OECD, 2014). The 2012 'Shanghai Consensus' highlighted the importance of

> [l]ink[ing] TVET with general education to ensure flexible pathways at all levels and facilitate the progression of TVET learners to higher levels of education as part of lifelong learning strategies [which shall] provide young people with skills that are relevant to the labour market, along with good levels of literacy and numeracy and transferable skills, values and attitudes (UNESCO, 2012, p. 9).

Following the OECD Synthesis Report on TVET, "[b]asic skills are needed both for jobs and to support further learning" (2014, p. 110).

With regard to quality, scholars have also raised attention to the need for adequate facilities, including buildings, equipment and didactical material. Appropriate buildings and classrooms are considered conducive to learning. "[H]aving access to good facilities can motivate and empower students, and […] further […] the internal learning process of the student" (Inter-agency Group on TVET, 2012, p. 22). In the absence of sufficient material, there may be substantial deviation between what the curriculum dictates, what teachers teach and what trainees actually learn. The result for the trainee may be insufficient knowledge and skills, which in turn negatively impacts employability (Dasmani, 2011).

There is a consensus in the literature that high-quality and effective TVET requires instructional quality. Following Tikly (2013, p. 25), "[l]earning materials, however, do not work in isolation to enhance learning outcomes for different groups, but rather are dependent on and need to be compatible with teachers' pedagogic practices, professional values and language proficiency(ies)". In addition, TVET teachers are also required to have adequate subject knowledge and industry-based experience (Gamble, 2013).

Many scholars put great emphasis on the role of entrepreneurship training as entrepreneurship "has become particularly important for TVET because self-employment and establishing one's own business is a very realistic aspiration and sometimes the option with the greatest opportunities for a number of TVET learners" (Zelloth, 2014). The integration of entrepreneurship training into TVET programmes and curricula has been broadly recognized and adopted (Anarfi and Appiah, 2012). Some states such as the Republic of Ghana have officially recognised the relevance of entrepreneurial skills for the promotion of small and medium enterprises (SME) and economic development by incorporating entrepreneurship training into the national TVET curricula (Badawi, 2013).

Some TVET interventions have also included activities designed to increase general and broadly transferable skills in the course of TVET, such as communication or teamwork which are attached increasing importance by employers (Chinien *et al*, 2009). These skills are to be gained through the teaching curricula or by means of extra-curricular activities (Gutman and Schoon, 2013). The former approach

includes the creation of special subjects such as religious or moral education (in religion-based TVET provisions) or citizenship education, or may an integration of particular skills into regular subjects through use of a particular teaching method. The latter approach makes use of pro-social team-sports and cultural activities or academic clubs (Barber *et al*, 1999; Dittrich *et al*, 2014). While an over-involvement in activities is seen to negatively influence personal attitude, behaviour and educational outcomes, and while a bad implementation of such activities may lead to exclusion rather than team-spirit[8] (e.g. exclusive club membership), participation in extra-curricular activities has been generally related to social development and academic success (Barber *et al*, 1999). Summing up some arguments, a field study which was conducted in Ghana and which explored the challenges for TVET graduates found that

> inadequate supply of instructional materials, large class sizes, inadequate training facilities, weak linkages with local industries for hands-on-experience for both instructors and trainees lead to ineffective and inefficient training of students […] [which brings] workplace challenges to the graduates" (Dasmani, 2011, p. 67).

This literature review has summarised important quality criteria for formal TVET provision: adequate practical training during TVET, inclusion of an industrial attachment, basic skills training, good facilities and equipment, qualified teachers, inclusion of entrepreneurship training, adequate offer of extra-curricular activities. This list constitutes an important basis of empirical research on the quality of TVET and therefore forms the basis for this thesis. However, neither is it exhaustive nor does it take account of macro-economic and political contexts or externalities which may impact the quality or the outcome of TVET as such (Hayman, 2007). Among others, external factors which may impact on the quality include such diverse factors as the economic status of companies where graduates undergo their industrial attachment and the salary levels of TVET teachers. Additional variables influencing graduate employability include qualification systems, corruption or patronage on the meso-level or learner effort or family background on the micro-level (Renaud, 2009; UNESCO-UNEVOC, 2013b).

2.2.3. Input from TVET evaluations

Having identified features of good-quality TVET from the literature, there follows now an exploration of TVET evaluations in order to add a practical and empirical perspective to the preceding sections and underpin or add to the set of quality criteria. Evaluations aim at three basic objectives: learning, control and accountability. Results of evaluations shall be incorporated into the operative work in order to steadily improve development cooperation in the respective field (Borrmann and Stockmann, 2009). Although the amount of publicly and privately funded TVET projects and programmes has increased within the last two or so decades in international development cooperation worldwide, there appears to be a limited supply of publicly available cross-sectional evaluations in the field of

[8] For negative impacts of extra-curricular activities, see Barber and Eccles, 1999.

TVET. However, these cross-sectional studies are of particular significance when wanting to gain an overview of a particular sector in development cooperation.

Based on the limited availability, this study exemplary explores the findings from two TVET evaluations – one for the German governmental organisation for technical development cooperation, *Deutsche Gesellschaft fuer Internationale Zusammenarbeit*[9] (GIZ), and one for the German non-governmental organisation (NGO) *Bread for the World – Protestant Development Service* (BftW). On behalf of GIZ and by order of the BMZ, evaluators from the 'Center for Evaluation' (Ceval) have established a synthesis evaluation of the TVET sector entailing twelve (mostly ex-post) evaluations of projects implemented in Germany's official partner countries, among them Ghana, that were conducted in 2010 and 2011. Project evaluation follows the OECD DAC criteria for evaluating development assistance (see OECD, 1991). The majority of projects focused on reforming TVET structures in the partner countries and adapting them to meet the demands of the economy or the labour market, or on enhancing TVET infrastructure or management. Projects were directed at either formal or non-formal TVET. Most projects focused on enhancing employability and targeted at marginalised or unemployed adolescents (Silvestrini and Stockmann, 2012).

The evaluation synthesis indicated that 'Relevance' – "[t]he extent to which the aid activity [here: TVET] is suited to the priorities and policies of the target group, recipient and donor" (OECD, 2015) was achieved when qualifications on offer were demand-based, learning content matched the competency level of the target group, and institutions indicated conveyance competences. Projects were particularly relevant if practice-oriented, particularly by means of dual, cooperative or internship-integrating TVET, and in cases with flexible content adaptations. Where an adaptation of the measures to the needs of the trainees and an incorporation of private sector enterprises into the measures had occurred, high 'Effectiveness' – "[a] measure of the extent to which an aid activity [here: TVET] attains its objectives" (OECD, 2015) – on the level of the target group was reached. The report identified effect mechanisms between enhanced TVET quality, better qualification and improved income possibilities for TVET participants. Qualified and engaged TVET personnel and adequate technical infrastructure contributed to the 'Relevance' of projects on the micro-level. The report emphasised that the achievement of objectives can be impaired by immanent and external factors such as political, social or economic conditions (Silvestrini and Stockmann, 2012).

The synthesis report conducted by external consultants in 2010 for Bread for the World incorporates the results of evaluations of six formal, non-formal and informal TVET projects in four West African countries, including Ghana. The central objectives of the projects were employability and income and most of the projects targeted poor communities (Lange *et al*, 2010). Since the regional focus, the

[9] *Deutsche Gesellschaft fuer Internationale Zusammenarbeit* translates to 'German Corporation for International Cooperation', however, there is no official translation.

micro-level of analysis and the target group resemble the case study of this thesis; this synthesis report is of particular relevance.

The report identified employment and income as the pivotal drivers of TVET participation for individuals in all projects. An integration of entrepreneurship and life skills training in the curriculum, exposure to practical work, qualified teachers, consultancy of the target group were indicated to have contributed to the relevance and effectiveness of projects. Interestingly, the findings showed that TVET participation had helped youth to improve their status and social standing in both their family and their community. Concerning the outcome with regard to employability, it was indicated that 70% of young people had gained employment, of whom 60% worked in their field of training. The report considered these figures a positive accomplishment (Lange *et al*, 2010). The evaluation indicated that "[m]arket relevance and market linkage, i.e. learning the skills demanded in the market and being exposed to market realities are the most decisive factors for employment" (ibid, p. 90). It was reported that 64% of all workers were earning an income which covered no more than 50% of their basic needs, leaving most graduates still dependent on their parents' support. The labour market situation was considered to have contributed to low income levels. The report criticised that TVET centres often offered a standard set of conventional courses, possibly contributing to market saturation. It was indicated that education providers had aligned their TVET offerings to societal rather than economic demand, negatively impacting the project outcome (ibid).

The findings of the evaluations reflect much of the debate in the literature on individual (economic) well-being effects of TVET participation and success criteria of TVET. Both cross-sectional evaluations have emphasised the importance of needs-based and practice-oriented projects and the integration of local enterprises in order to guarantee employability after TVET participation. Meeting the demands of the labour market appeared to constitute a prerequisite for effective TVET, effective in this case meaning the achievement of a successful labour market transition. The evaluations indicated that good quality had contributed to positive findings on the levels of 'relevance' and 'effectiveness'. Certain quality factors were particularly emphasised reflecting most of the criteria named in the literature: practice-based training, instructional quality, technical infrastructure and entrepreneurship training.

2.3. Hypotheses: Assumed relations between TVET and well-being

Based on the theoretical framework, the thesis poses the following hypotheses:

H1: If a young person takes part in a TVET course, it is likely that his or her material well-being will improve.

H2: If the quality of TVET is good, it is likely that the graduate improves his or her employable skills which in turn enable him or her to find adequate employment.

H3: If a young person takes part in a TVET course, it is likely that his or her non-material well-being will improve.

This study puts the individual into the forefront of analysis; hence, it approaches TVET from the micro-level. The first and third hypotheses assume an effect of TVET on different dimensions of individual well-being, thereby forming the basic frame of exploration. Based on the literature debate and the more recent perception that TVET also impacts on non-material forms of well-being (see Section 2.2.1), this thesis explores material and non-material dimensions of well-being separately in two hypotheses. Non-material well-being refers to the dimensions of well-being previously laid out: physical, social, security, and freedom of choice and action (for definition of well-being, see Section 2.1.2).

Relying on Sections 2.2.2 and 2.2.3, this study integrates an input dimension by proposing a relationship between good-quality TVET, the enhancement of employable skills and adequate employment in the second hypothesis.

The concepts of material and non-material well-being, good-quality TVET and employable skills are based on the conceptualisation (see Sections 2.1.1, 2.1.2 and 2.2.2) and are context-specifically operationalised (see Section 3.5). In the forthcoming operationalisation, the components of the hypotheses are broken down and indicators allocated in order to allow for a structured and elaborate examination of the proposed assumptions.

3. Research design

Following the theoretical framework, this chapter explicates the research design for the empirical study. It first alludes to the selection of the case (see Section 3.1) and the sample (see Section 3.2) under study. What follows is an indication of the method and scope of empirical data collection (see Section 3.3). Section 3.4 lays out the method of empirical data analysis and proceeds with an operationalisation of the theoretical concept (see Section 3.5).

3.1. Case selection: TVET at the *Don Bosco Technical Institute*

In order to explore and gain a thorough understanding of the assumed relationship between TVET participation and individual well-being, this study uses a case study. A case study may explore, describe and explain a new field of research and define points of reference for further studies. The case study of this thesis examines the TVET sector in Ghana, focusing on one registered and accredited private institution – the *Don Bosco Technical Institute* (DBTI) in Ashaiman – which offers formal TVET. Based on the hypotheses set forth (see Section 2.3), the unit of investigation is individuals. The case study explores TVET graduates from the DBTI, meaning those persons who have participated in a TVET course at the DBTI and have gained the 'Don Bosco attendance certificate'.

Although, the main focus of investigation is on TVET graduates, the field of investigation expands to include the labour market perspective. Employer representatives, meaning decision-makers, of enterprises situated in the Greater Accra region are integrated into the case study for data triangulation. Triangulation comprises the combined investigation of a research object from diverse perspectives with the aims of validation, generalisation or the attainment of additional findings. Data triangulation refers to the combination of data from diverse sources (Flick, 2010b, pp. 309-313). This method allows for the drawing of a broader picture of the empirical reality of labour market integration of TVET graduates by adding a second perspective, that of ultimate decision-makers. The case also integrates DBTI personnel to provide background information on the historical development of the institute, course structures and more.

As this study aims at to explore individual well-being of youths from poor socio-economic backgrounds, one reason for selecting the Don Bosco institution was its focus on youth from poor families. Ashaiman is generally known as the largest slum area of Ghana, and the Salesians particularly target children from low socio-economic backgrounds (Harris, 2014, Annex). Even though the number of basic school graduates is high, TVET options are little (*Stiftung Hilfswerk Deutscher Zahnaerzte fuer Lepra- und Notgebiete*, 2013). Each year, between 100 and 120 young individuals graduate from the DBTI and social demand appears to remain high. In this municipality of approximately 340,000 people, the DBTI is the largest and well-known TVET institution (Torresi, 2012).

Traceability (suitability for a tracer study) and availability (continued residence in the area) of graduates and the consent and support of the study by the carrier of the facility were furthermore essential for the choice of this educational institution. Moreover, the *Don Bosco Technical Institute* offers diverse TVET courses, which allowed for research and learning on TVET graduates from different disciplines. Overall, this TVET provider was selected for the case study due to its suitability based on the conditions defined by the research question.

The selected facility in Ashaiman is led by the *Salesians of Don Bosco* who belong to a congregation of the Catholic Church (Don Bosco Mondo, 2015a). Handed over to the Salesians by the arch diocese of Accra, the terrain of today's *Don Bosco Technical Institute* was first and for many years used to teach youth from the largest slum area in Ghana, amongst them street children and school drop-outs, skills for employment. At this early stage, TVET offerings were non-formal and training focused on practical aspects with the aim of self-employment. The location of the centre was selected in order to offer a large number of unemployed poor youths from the nearby industrial area an opportunity to gain skills for employment. With the help of international donors and the order facilities were enlarged in response to the rising demand among youth in the Eastern suburbs of Accra (Harris, 2014, Annex).

Over time, a TVET formalization process was rolled out. The technical subjects were formalised so that students could also take nationally accredited external examinations and receive an acknowledged technical certificate (first 'National

Vocational Training Institute' – NVTI – examinations Grades I and II, later also intermediate). Next to the respective trade-based subjects (so called electives) and practical workshop-based classes, TVET also entailed so called core courses – English language, mathematics, science and social studies. However, these were initially not graded. For many years, students were offered five two-year courses: 'welding fabrication', 'air-conditioning and refrigeration', 'electrical', 'electronics' and 'business/ secretarial'. In 2005, the course 'auto mobile engineering' was introduced and the first two courses were terminated due to a fall in demand among the young people (Harris, 2014, Annex).

Today, the *Don Bosco Technical Institute* offers young people aged 17 to 22 who have at least accomplished the 'Basic Education Certificate Examination' (BECE[10]) theoretical and practical education and training in the following trades: 'electrical installation', 'electronics', 'automobile engineering', 'business/ accounting' and 'business/ secretarial' (Harris, 2014, Annex). In accordance with the national standard, all of these are three-year courses. Since accomplishment of the formalisation process in 2011, all subjects – whether elective[11], practicals or core[12] – have been formally assessed and adapted to the Ghana national qualification framework, meaning that students undertake national examinations and obtain acknowledged certificates. This structural change means that young people who graduated in the year 2011 belong to the first group to take higher-level national examinations with the goal of gaining 'Certificate II' of the 'Technical Examinations Unit' (TEU) of the 'Ghana Education Service' (GES) and 'Certificate II' of the 'National Board for Professional and Technical Examinations' (NABPTEX) or the 'General Business Certificate Examination' (GBCE) for 'business/ secretarial' and business/accounting students respectively (DBTI, 2014). These certificates give access to tertiary education, while at the same time deemed for accessing the labour market (DBTI, 2014).

At the DBTI students take internal and national examinations – the latter granting them nationally acknowledged certification. In the technical courses ('electrical installation', electronics, auto mobile engineering) students can get two national certificates[13], business/ accounting offering one certificate[14] and 'business/ secretarial' offering up to five certificates[15]. In addition to the core and elective subjects and practicals, the syllabi of all TVET courses include 'religious and moral

[10] In Ghana, Primary School lasts for six years, Junior High School for three years and Senior Secondary School for four years. At the end of Junior High School Form 3 (ninth grade), students can take the 'Basic Education Certificate Examination' (BECE). The BECE gives them admission into Secondary Schools and Technical Institutions (West African Examinations Council, 2015).

[11] For 'automobile engineering' the elective subjects are 'engine technology', 'vehicle technology', 'technical drawing' and 'practicals'. For 'electrical installation' work the electives are 'electrical and electronic principles', 'installation technology and regulations', 'technical drawing' and 'practicals'. For 'business/ secretarial' the electives are 'office practice', 'shorthand' and 'typewriting' (DBTI, 2014; Ministry of Education of the Republic of Ghana, 2010).

[12] All courses include the same core subjects: 'English language', 'mathematics', 'science' and 'social studies' (UNESCO International Bureau of Education, 2010, p. 12).

[13] 'Electrical installation', 'electronics', and 'automobile engineering' students can gain 'Certificate II' of the TEU and 'Certificate II' of the NABPTEX.

[14] 'Business/ accounting' students can gain the 'General Business Certificate'.

[15] 'Business/ secretarial' students can get the 'General Business Certificate' and four NVTI certificates: 'typist', 'stenographer', 'stenographer-secretary', 'private secretary'.

education' as a subject, 'entrepreneur training', and 'supervised industrial training/ work experience' to be taken in the industry or in the institute's production unit as compulsory components for all students (DBTI, 2014).

Since recognition as an official TVET institute in 2011, the DBTI has been financially supported by the Ghanaian government, which fully covers the costs for staff and contributes to utility and training. The partnership with the government compels the DBTI to follow the national syllabus of the 'Ministry of Education of the Republic of Ghana', meaning it has to align tuition fees with the standard of national technical institutes. It also means that most students are assigned through a centralized mechanism, with the Salesians only reserving a limited proportion from other application sources. However, since most of the students are from Ashaiman or nearby municipalities, the DBTI can rightly claim to have maintained its pro-poor focus (Harris, 2014, Annex).

3.2. Sample(s) selection

In order to test the hypotheses, empirical data was collected from one main sample and one sub-sample. The main sample constitutes a group of graduates from the DBTI whose inclusion in the sample was determined by their year of graduation and chosen TVET course. It comprises young people who graduated from the DBTI either in the year 2011 or the year 2013. Following the acknowledged standards of the 'European Network for Quality Assurance in Vocational Education and Training' for individual impact assessment in the field of TVET, which calls for an investigation twelve to 36 months after the graduation (Galvão, 2009, p. 26), two time periods within this time frame were selected in order to allow for a comparison of timeframes and gain an insight on possible developments over time. Furthermore, the 2011 graduation year constitutes the first batch of students who undertook the higher national examination, including the core courses, which is relevant for reasons of comparability between the two graduation years.

The selected TVET courses are 'automobile engineering', 'electrical installation', and 'business/ secretarial'. The selection of the first two courses was based on the prospect for personal interviews with employer representatives of the respective industries, namely the automobile and the electrical industry. The 'business/ secretarial' course was selected because it is targeted specifically at female youth. Due to time and financial constraints, this study could not include all five TVET courses.

Setting further conditions, e.g. regarding the acquisition of the national certificate(s), would have shown a palliated reality and would have excluded certain graduates from this sample. For this reason the only condition is the 'Don Bosco attendance certificate', which is issued upon graduation. This methodological approach makes it possible to detect whether well-being outcomes are diverse for graduates with different national certification sets. Above all, sample-membership was determined by the availability of updated contact information by the DBTI and the availability and consent of potential interview partners to take part in this empirical research.

The main sample includes 34 graduates from the *Don Bosco Technical Institute* between 21 and 28 years of age, of whom ten (29%) are female. It includes between five and seven interviewees per TVET course per graduation year. In general, every year around twenty students graduate in each of the courses. The findings of this study thus represent about 25% of the respective population (one course in one graduation year). The sample only represents the views and individual perceptions of a selected group of TVET graduates.

Impact assessments and evaluations of development projects typically use experimental designs to determine whether an intervention or a measure has the intended effect on the target group. These designs establish experimental and control groups which are measured on the same variable in order to judge the effect of a particular intervention on the individual (Diekmann, 2007). However, this thesis is not designed as a scientific impact assessment. Instead, it aims to explore in-depth possible relations by means of examples and indicative data. Furthermore, due to logistical, resource and time constraints, the establishment of a control group was opted against. It would have been a challenge to find a group of young people at the same age and with the same pre-education who had not in any way furthered their education. Causal analysis seems to constitute a general challenge to impact research in education. In relation to this methodological challenge, Tenaglia (2010, slide 32) holds that:

> Methodologically, it is more difficult with TVET to separate skills training itself from other variables. For those who enter TVET already having some degree of educational attainment, it can be difficult to disaggregate the impact that formal education has compared to the impact that the training has had on outcomes (e.g. income).

In addition to the main sample, a sub-sample was established constituting personnel from the companies employing DBTI graduates who are part of the main sample. As indicated, the reason for the establishment of a sub-sample is data triangulation, mostly to validate or add to the perspectives from the main sample. Data triangulation is useful to (at least partly) compensate methodological limitations (i.e. absence of a control group) and to offer a holistic perspective on labour market integration of DBTI graduates (see Flick, 2010b). Due to time constraints and limited availability, this sub-sample comprises employer representatives from three companies that have taken in for attachment and recruited DBTI graduates from two TVET courses under study – ‘electrical installation’ and ‘automobile engineering’. All companies are international enterprises which have their main hub and market abroad. They are players in the automobile, electronic and food industry. The names of these companies are not be named in this thesis upon explicit request by the interview partners. In lieu of available interview partners, the third TVET course under study, ‘business/ secretarial’, is not represented in this sub-sample.

3.3. Method of empirical data collection

Empirical data was gained during a field study in Ghana conducted from October 1st to November 30th, 2014. The data is based on a one-time collection and presents a snapshot. A field study was considered the best method of data collection, as it gives the observer insight into the natural environment of the group under study and allows for direct personal contact with the individuals, which may positively impact the quality of data (Diekmann, 2007). The selected timeframe of two months for data collection was considered appropriate to meet the aims of the empirical investigation. The specific point in time was coordinated with the local contact person and was based on immanent factors, such as school terms (for the availability of the contact person and DBTI personnel), as well as external factors, such as the climate (dry season to guarantee transportation).

The method of data collection is qualitative. The author conducted personal one-on-one interviews with 34 TVET graduates and three employer representatives, which lasted between 15 and 90 minutes depending on time available and the willingness and desire to communicate of the interview partner. Compared to quantitative instruments such as questionnaires, interviews allow direct communication and interaction, interposed questions for clarification, and the possibility to develop new questions. These in turn may generate deeper insights. Furthermore, interviews create qualitative data, which helps not only to show the relationship between two variables but also the rationales and explanations for it. Causal mechanisms between variables and the complexity of a subject can be better and more thoroughly examined by means of personal communication. The conducted interviews constitute the empirical basis and backbone of the study. The author of this thesis is aware of key disadvantages in using interviews for data collection, foremost the proclivity of interviews to subjective influence and bias. However, the method of interviews can nevertheless be considered the most appropriate way for data collection (Diekmann, 2007).

In order to gain in-depth data on complex relationships and to understand the individual's point of view, graduates were assured open dialogue and the possibility of thorough self-expression through narrative interviews. Conceptualised by Schuetze (1983), a narrative interview constitutes an interview form which largely leaves to the interviewee the elaboration on the agreed interview topic while still eliciting delicate topics. The interview consists of three parts: (1) a broad opening question is posed asking the interviewee for the explanation of a process (narrative stimulus) which is followed by a narrative or a monologue of the interviewee, (2) the interviewer demands explanation of points raised if unclear (*immanent* questions), (3) the interviewer asks a set of *exmanent* questions (guided interview) which allow the interviewer to introduce new topics and gain information on relevant non-addressed issues (Kuesters, 2006, pp. 54-64). The interviewer prepared a list of possible exmanent questions for the case that the interviewee did not refer to certain issues relevant for the research question. The list comprised a mix of open and closed semi-standardised questions, demanding for qualitative (e.g. perception of own standing in the family) and quantitative (e.g. amount of income) data.

This interview form is commonly used to display a process over time (Kuesters, 2006), making it useful for this research given its aim of exploring individual well-being over periods of time. Detecting a change in individual well-being requires information on the living situation of the individual before, during and after TVET participation. Narrative interviews enable the interviewer to gain information on different periods in time, including baseline information through retro perspective, which in turn contributes to mitigating methodological limitations and add significance to indicated changes in well-being over time.

Within the main sample, 27 interviews were held within the premises of the *Don Bosco Technical Institute* and seven at the interviewees' workplaces. The in-house interviews were conducted behind closed doors in a face-to-face setup which offered interviewees a calm and safe atmosphere to share their insights. For the workplace interviews, the atmosphere was not as tranquil since some interview were conducted during lunch breaks, hence interruptions by third persons occurred which may have impacted on the quality of data gained.

For the sub-sample and DBTI personnel semi-structured guided interviews were used. These types of interviews give the interview partner the opportunity to elaborate widely when wanted and the interviewer to gain required information. These interviews were also conducted in a one-on-one manner in order to allow for the sharing of non-secure content. After having conducted the interviews in Ghana, interview partners of the sub-sample were contacted by electronic mail for follow-up questions and clarification. Hence, data sources from the sub-sample draw both from personal and electronic interviews.

Upon consent of the interviewees, personal interviews were audio recorded. However, two interviews of the sub-sample were not recorded because permission was not granted. Instead, field notes were taken and reproduced in interview protocols. Although the interviewees' consent to print and reference the personal communications was granted, the interviewer guaranteed anonymity to every speaker, which a few of them explicitly demanded. Subsequently, the interview partners of the main sample are cited as 'graduate 1' (to 'graduate 34'), clustered according to the TVET course. The interviewees of the sub-sample are referred to as 'company 1' (to 'company 3'). An overview of all conducted personal communications can be found in the Annex.

3.4. Method of empirical data analysis

Following the collection of data, all recorded interviews were transcribed by means of the computer software F4. The literature has brought forward different types of transcription, depending foremost on the level of accuracy and exhaustiveness. This study has used a pragmatic form of transcription which followed simple standard orthography – oriented on written language – as data analysis targets at what has been said (content) and not on how something was said which would require more complex transcriptions (see Kowal and O'Connell, 2012). Emotional expressions, intonations or levels of sound were not noted in the

transcripts since they had no significance for analysis. Interviews were fully transcribed.

Data of the main sample was analysed by means of 'qualitative content analysis' following the renowned conception of Mayring (2009). Mayring distinguishes four techniques of 'qualitative content analysis' – 'summarising content analysis', 'inductive content analysis', 'expatiated content analysis', and 'structuring content analysis'[16]. This study used the fourth deductive technique – 'structuring content analysis' – because it permits filtering specific aspects from the data and structuring it according to the underlying research interest. It sets structuring dimensions developed from the theory and breaks them down into individual categories and sub-categories (ibid, pp. 471). Due to this method of data analysis (sub-)categories are not disjoint but were set in such a way that certain text passages were assigned diverse (sub-)categories.

The structuring process was vitally refined through the establishment of a 'coding guideline' (Mayring, 2000, p. 6). A 'coding guideline' was established for the analysis of data collected from the main and largest sample, based on the categories set by the hypotheses and the operationalisation of the main concepts (forthcoming Section). As intended, some definitions of the 'coding guideline' were revised in the course of the content analysis and adjusted according to the data which was due to the open interview type that allowed interviewees to bring forward their own definitions of categories. Sub-categories are mostly binary to lower the level of complexity and allow for a straightforward data allocation. Based on the 'coding guideline', the interviews were analysed with the help of the data analysis computer programme MAXQDA.

3.5. Operationalisation

In order to test the hypotheses (see Section 2.3) used concepts have to be made empirically 'detectable'. This part lays down the operationalisation – the allocation of observed facts or situations to a given conceptualisation (Esser *et al*, 2008) – which constitutes the basis for the more detailed 'coding guideline' and empirical analysis. This part is structured along the hypotheses (see Section 2.3). Based on the theoretical framework (see Chapter 2), the main and intermediate variables – TVET participation, enhanced material well-being, enhanced employable skills, adequate employment, and improved non-material well-being – are broken down and indicators assigned for assessment. As this study focuses on one particular societal group, namely young people from low socio-economic backgrounds who completed TVET, the operationalisation is adapted to this particular group.

Since this thesis explores whether (and how) an individual experienced positive changes or an improvement in individual well-being 'dichotomous' or 'indicator' variables – variables with only two categories or levels – are used, e.g. 'enhanced employment situation' or 'non-enhanced employment situation' (Pavetic, 2006).

[16] For details about the four techniques of qualitative content analysis, see Mayring, 2009, pp. 468-474.

If an interview entails contrary statements for one indicator, e.g. certain statements indicate an increased ability to take own decisions while others demonstrate limited ability to take own decisions, the categories are weighted out and if no clear tendency evolves, the indicator is found 'indistinct'. If the majority of indicators are approved, the superordinate variable, e.g. material well-being, or the superordinate dimension, e.g. social-well-being, is considered approved. If the majority of indicators do not apply or are found indistinct, the superordinate variable or dimension is considered non-approved. In an ideal scenario, every interview produces exactly one statement for each indicator in order to generate clear-cut applicability and outcomes. If an individual does not make reference to one indicator, the respective indicator is not be weighed or counted. An increase in overall well-being is detected if the majority of the five well-being dimensions are approved.

For Hypothesis 1 and 3, the independent variable, 'TVET participation', is found if an individual has participated in a TVET course which is signified by the DBTI 'Certificate of Attendance' that is handed to young people at the graduation. As previously indicated, this certificate constitutes the sole condition for interview participation. Adapted to the target group, the dependent variable of Hypothesis 1, 'enhanced material well-being', is assessed by the following four indicators: 'improved employment situation', 'more financial means', 'enhanced ability to save', and 'better housing situation' (see Figure 3-1). 'Food' or 'food security', one initial indicator of material well-being, is not be assessed as it is broadly considered a highly sensitive subject and methodologically difficult to assess. Compensation is provided by assessing the financial situation of the individual which may also give indication about livelihood issues.

An 'enhanced employment situation' is detected either if (1) an individual is employed[17] at the time of the interview and was never employed prior to the TVET graduation, or (2) an individual who was employed prior to the TVET graduation finds himself or herself in a securer employment situation at the time of the interview, meaning that the individual is either employed as a permanent worker or full employee, or has an employment contract for at least one year, or has been working for the same employer or contracting entity for at least one year (including the time of industrial attachment if accomplished at the same work place). The assumption underlying this indicator is that basic education graduates can only find casual employment in the informal economy without job security, which studies have indicated (Baffour-Awuah, 2013). The conceptualisation of a more secure employment is appropriated to the group under study – young first time career starters with TVET qualification –for which reason a very basic or low standard of employment security was used (see Nyerere, 2009). If the individual does not explicitly mention any kind of pre-graduation employment, it is assumed that the individual was never employed before TVET graduation.

[17] An individual is considered employed if engaged in any remunerated work, meaning "any economic activity performed […] that contributes to the economic production of goods and services" (Ghana Statistical Service, 2014, p. 5). Within the concept of employment, one can distinguish 'paid employment' from 'self-employment' (see ILO, 2015).

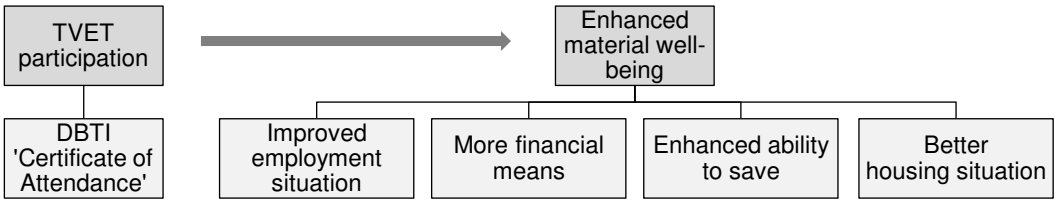
'Increased financial means' is measured by income and detected if (1) an employed individual who was never employed before TVET graduation earns an own income at the time of the interview or (2) an employed individual who was employed before TVET graduation finds herself or herself in a better income situation at the time of the interview, meaning an amount above the Ghanaian daily minimum wage of six 'New Ghanaian Cedi' (GHS)[18]. If the individual does not explicitly mention any pre-graduation employment, it is assumed that the individual was never employed prior to TVET graduation. If the amount of income previously earned is not mentioned and taking into account that the amount of income of a 'Junior High School' leaver is lower than that of post-basic education leavers (Palmer, 2005), it is assumed that an individual earning more than the daily minimum wage (e.g. 120 GHS per month in an five-day working week) is in a better income situation at the time of the interview, compared to the time prior to the completion of TVET. If the individual does not give indication of the number of working days per week, a regular five-day week is assumed. The daily minimum wage (equivalent to 1.80 US Dollars - USD[19]) stands slightly above the international poverty line of 1.25 USD per day.

'Enhanced ability to save' is linked with employment. Based on the previous assumptions and supposing that someone from a low socio-economic background who is not working is not able to save any money, 'enhanced ability to save' is detected if (1) an employed individual who was not employed prior to the TVET graduation saves any money or (2) an employed individual who was employed prior to the TVET graduation saves money on a regular basis, meaning the individual saves part of every income gained. If the individual does not mention any kind of pre-graduation employment, it is assumed that the individual was never employed prior to TVET graduation; hence, the individual is considered to have an enhanced ability to save at the time of data collection.

A 'better housing situation' is detected either if (1) the individual moved into an own or shared apartment after TVET graduation or (2) the individual has more personal space within the family's or relatives' house since TVET graduation, for instance on own room. The timeframes compared are pre-TVET and post-graduation, which takes into account that youth stayed in the DBTI owned hostel during the period of training. This indicator assumes that none of the individuals under study stayed on their own before TVET graduation which is reasonable taking into their socio-economic background. Overall, 'enhanced material well-being' is detected if more indicators are approved than disapproved or indistinct.

[18] Since 1 May 2014, the daily minimum wage in Ghana equals six Ghanaian cedi (WageIndicator Foundation, 2015).
[19] Amount is based on the average exchange rate in the time of the field study (OANDA Corporation, 2015).

Figure 3-1: Hypothesis (1) – TVET and material well-being (see Chalmers et al. 2000)



Own compilation

Hypothesis 2 entails two main variables, 'good TVET quality' and 'adequate employment', and the intermediate variable 'employable skills' (see Figure 3-2). Based on the conceptualisation of TVET quality (see Section 2.2.2), 'good quality TVET' is determined by the following six indicators: 'adequate time for practical work', 'industrial attachment', 'good teachers', 'adequate facilities', 'entrepreneurship training' and 'adequate extra-curricular activities'. Based on the broad criticism that the theoretical component is too high in formal TVET curricular, 'adequate time for practical work' is detected if an individual has spent at least 50% of the time during TVET on practical work. The second indicator, 'industrial attachment', is detected if the individual successfully accomplished an industrial attachment in the respective industry, for instance an 'automobile engineering' graduate completing an attachment at an automobile company.

The indicator 'good teachers' is detected if the individual perceives his or her teachers at the TVET institution (1) to have adequate subject-specific knowledge and expertise, (2) to be committed to their work, (3) to be helpful and approachable to the students and/ or (4) to motivate students. If the individual indicates general contentedness the teachers, the indicator is approved. 'Adequate facilities' are detected if the individual is satisfied with the facilities at the TVET institution which shows in (1) enough machines, tools and equipment for practical work, (2) enough didactical material, such as books, for theory classes and/ or (3) adequate spatial capacities, such as adequately sized class rooms or rooms for self-study. The indicator 'entrepreneurship training' is detected if the individual was offered (free of charge) and took part in entrepreneurship training during TVET. The last quality indicator, 'adequate extra-curricular activities', is detected if the individual was offered and took part in activities organised by the TVET institution that were not part of the curriculum, such as sporting or cultural activities, holding special posts, working groups, and/ or learning how to drive a car. Overall, 'good TVET quality' is detected if more indicators are approved than disapproved or indistinct.

An individual is considered to have 'enhanced employable skills' if more of the following five indicators approve than disapprove or are found indistinct: 'improved basic skills', 'adequate technical skills', 'entrepreneurial skills, 'enhanced personal skills', and 'enriched core work skills'. An ideal case for full employability would designate all five indicators. Since TVET at the DBTI foresees a period of industrial attachment, skills acquisition relates both to the time of institution-based training and the time of the industrial attachment, if accomplished.

Since the TVET institution under study provides English language and mathematics as core courses, young people may further advance their literary and/ or numeracy skills during TVET. Computer literacy, also promoted by the DBTI through computer training, is also be included as a basic skill which seems reasonable in the age of modern technology. In this context, 'improved basic skills' is detected if the individual gained (1) advanced English language skills (reading, writing and/ or speaking), (2) (enhanced) computer literacy and/ or (3) calculation skills during TVET. If an individual failed or successfully passed an exam or a course, it does not count because knowledge and skills may still be accumulated (or not) without passing an exam.

'Technical skills' refer to the acquisition of trade-specific technical know-how and skills and the ability to practically apply these skills, for instance, an 'automobile engineering' graduate being able to repair a broken car or an 'electrical installation' graduate being able to detect an electricity fault or a 'business/ secretarial' graduate being able to type a letter or manage an office since the start of TVET. These 'technical skills' are considered adequate if the individual does not criticise or call into question the acquired skills, for instance, by stating that he or she is unable to practically apply the acquired know-how or by saying that not enough technical competences were gained. Critique implies that the indicator is disapproved. This indicator integrates the acquisition of 'driving skills', as these competences may be relevant for employment in the automobile industry.

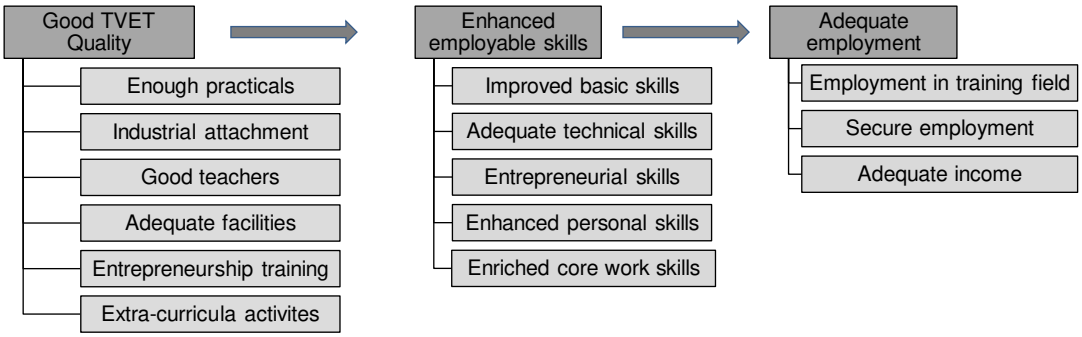
'Entrepreneurial skills' are detected if since the start of TVET the individual gained knowledge (1) on business creation and running, (2) about the situation on the labour market and/ or (3) on customer relations – interaction with and handling of customers. Raised concern or critique concerning the acquisition of entrepreneurial skills implies that the indicator is disapproved. 'Enhanced personal skills' are detected if since the start of TVET the individual has experienced an increase in personal work ethic, meaning (1) a rise in single-mindedness, discipline and enthusiasm and/ or (2) reliability, trustworthiness and honesty. 'Enriched core work skills' are detected if since the start of TVET the individual has (1) learned how to learn, (2) gained better communication skills – listening and communicating effectively and articulating own ideas, (3) gained teamwork and leadership skills – the ability to work in and/ or organise groups, interact with different individuals and convince others of own ideas, and treat individuals with the due respect and/ or (4) gained the ability to solve problems – analysing a situation or problem and independently deciding on the most appropriate solution. Overall, 'enhanced employable skills' are detected if more indicators are approved than disapproved or indistinct.

Adapted to the target group, the following indicators constitute adequate employment in this context: 'employment in the field of training', 'secure employment', and 'adequate income'. The first variable, 'employment in the field of training' is detected if either (1) the individual uses the TVET acquired skills and knowledge at his or her current workplace, (2) an 'automobile engineering' graduate is employed as a mechanic or a technician or engages in the (main) work mainly with motors, engines or machines, (3) an 'electrical installation' graduate is employed

as a technician or an engineer or engages in the (main) work mainly with electricity and electric installations, (4) a 'business/ secretarial' graduate is employed as a secretary or engages in the (main) work mainly with secretarial, receptionist or administrative duties.

In this study, 'secure employment' is detected if the individual is either (1) employed as a permanent worker or full employee, (2) has an employment contract for at least one year or (3) has been working for one employer or contracting entity for at least one year at the time of the interview, including the time of industrial attachment (if accomplished at the same work place). Adapted to the target group and concerning the fact that the graduates' careers have just started, adequate income is detected if higher than the national daily minimum wage (140 GHS in a five-day working week). No indication of the number of working days translates to a five-day week. Overall, 'adequate employment' is detected if more indicators are approved than disapproved or indistinct.

Figure 3-2: Hypothesis (2) – TVET quality, employable skills, and adequate employment



Own compilation

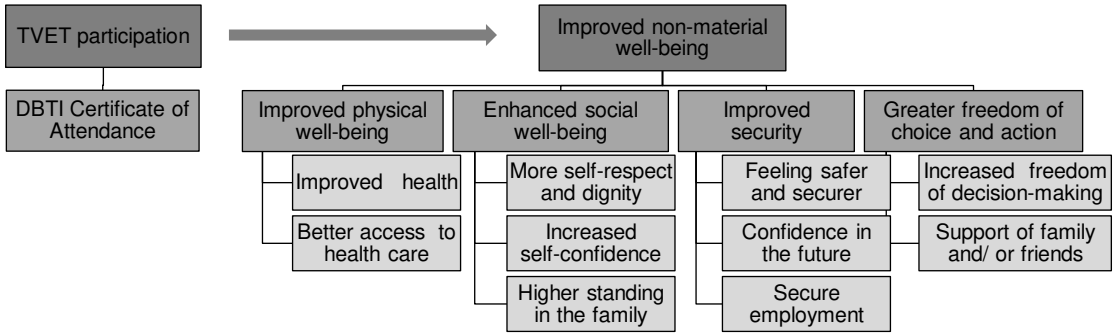
The dependent variable of Hypothesis 3 – enhanced non-material well-being – is divided into four dimensions, namely 'improved physical well-being', 'enhanced social well-being', 'improved security', and 'greater freedom of choice and action' (see Figure 3-3). The first dimension is assessed through the following indicators: 'improved health' and 'better access to health care'. This study does not take account of the sub-dimension 'physical environment', as a proper assessment would have required in-depth data on the living environment which would have surpassed the scope of this research. 'Appearance' was also not assessed for reasons of appropriateness. Taking into account the particular target group under study and referring to the World Youth Report 2003 (UN, 2004, pp. 99), 'improved health' is detected if the individual since the start of TVET has better health, mentally and/ or physically, which includes quitting unhealthy habits or behavioural risks. 'Better access to health care' is detected if (1) the individual has valid health insurance, for instance, being member of the 'National Health Insurance Scheme' (NHIS), which the individual did not have prior to staring TVET and/ or (2) the individual has access to health services at the work place. Overall 'physical well-being' is detected if at least one of the indicators approves while the other is either not detected at all or indistinct.

‘Enhanced social well-being’, is assessed by ‘more self-respect and dignity’, ‘increased self-confidence’ and ‘higher standing in the family’. The first variable is detected if the individual is financially independent which he or she was not prior to TVET graduation and does not feel like causing a burden to anyone, especially their family. The second indicator, ‘increased self-confidence’, is detected if the individual feels more self-confident at the time of the interview, than prior to the TVET course. A ‘higher standing in the family’ is detected if the individual is (1) more recognised and respected in the family which shows in being more listened to, consulted or involved in decision-making, or (2) has gained more responsibility within the family, for instance, in regard to financial contribution-making. Overall, ‘enhanced social well-being’ is detected if more indicators are approved than disapproved or indistinct.

The third dimension ‘improved security’ is assessed by the following indicators which concern individual safety: ‘feeling increasingly safe and secure’, ‘confidence in the future’ and ‘secure employment’. ‘Civil peace’ and a ‘safe and secure environment’ were considered too difficult to properly assess. The first indicator, ‘feeling increasingly safe and secure’, is detected if the individual feels that his or her life has become safer and securer since TVET graduation. It comprises personally assessed safety and security and is useful to detect grounds for perceived (in)security and (lacking) safety. ‘Confidence in the future’ is detected if (1) the individual has a clear vision of his or her future and a plan of how to reach his or her life goals, (2) the individual is convinced of his or her ability to always gain employment in the future, and/ or (3) the individual sees him- or herself in a higher working position in five years’ time. The last indicator, ‘secure employment’, is detected if the individual (1) is a permanent worker or full employee, (2) has an employment contract for at least one year or (3) has been working for the same employer or contracting entity for at least one year at the time of the interview, including the time of industrial attachment (if accomplished at the same company). If the individual is unemployed at the time of the interview, the last indicator is considered disapproved. Overall, ‘improved security’ is detected if more indicators are approved than disapproved or indistinct.

‘Greater freedom of choice and action’, is assessed by the indicators: ‘increased freedom in decision-making and action-taking’ and ‘support of family and/ or friends’. The first indicator is detected if since the start of TVET (1) the individual feels increasingly independent and free to take own decisions and actions, or (2) the individual feels closer to realising his or her goals in life, as opposed to prior TVET. The second indicator, ‘support of family and/ or friends’, is detected if the individual supports his or her family and/ or friends (1) technically with the skills and know-how acquired during TVET and/ or (2) financially or in kind. Overall, ‘greater freedom of choice and action’ is detected if at least one of the indicators is approved, while the other is not disapproved. The variable is approved if more dimensions are approved than disapproved or indistinct.

Figure 3-3: Hypothesis (3) – TVET and non-material well-being (see Chalmers et al. 2000)



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4. Analysis

The analysis is structured as follows: first, collected data from the main sample is described. Graphs are used for illustration. Data description is mostly based on counting frequencies; hence showing statistical findings. What follows is the main body of causal analysis and hypotheses testing. This part of the thesis is mainly, but not exclusively, based on the conducted interviews with TVET graduates (main sample) and employer representatives (sub-sample) for data triangulation. Data detected from the interviews with DBTI personnel are used for background information. It is important to take into account that the findings in Sections 4.1 and 4.2 present a snapshot only, meaning that the findings reflect the individuals' status quo at the given time of the interview.

4.1. Description of collected data

In the following part, the empirical data is described in order to gain a general overview on data quality and frequencies, which serves as an important preliminary for the analysis. After presenting a description of the background of the main sample, this part describes empirical data in quantitative terms, first unfolding the frequencies of the indicators for the dependent variable of the first hypothesis, 'material well-being'. Section 4.1.3 describes the findings for the sub-categories of the independent variable, 'TVET quality', followed by those of the intermediate variable, 'employable skills', and the dependent variable, 'adequate employment', for the second hypothesis. There follows data description of the dependent variable, 'non-material well-being', of the third hypothesis. Figures (4-1 to 4-9) serve to better illustrate the findings.

4.1.1. Background of interviewed TVET graduates

This analysis includes 34 interviews conducted with former trainees from the *Don Bosco Technical Institute* in Ashaiman, Ghana. From the cohort who graduated in the year 2011, seven young people took the 'automobile engineering' course, five of them participated in the 'electrical installation' course and five graduated

from the 'business/ secretarial' course. From the cohort who graduated in the year 2013, six adolescents took the 'automobile engineering' course, six participated in 'electrical installation' and five underwent the 'business/ secretarial' course. 74% were male, while 26% were female, all between twenty and thirty years of age (average age of 24).

Graduates seemed to come from low socio-economic backgrounds. Their families were typically large and often broken, with household income being provided by different family members. Parents in many cases were petty trader, shop owners, or unemployed. Many explained that throughout their youth there had been phases of inadequate food supply. They described waiting for entire days, hungrily, for their parents in the hope that upon returning from work, their parents would bring food. This hope had not always been fulfilled. During TVET, many young people stayed with their relatives or with the new family of one of their parents. Many were not provided with food or money to buy lunch at the DBTI. One youth explained that a teacher once gave him money to buy food as a result of his bad appearance (Graduate 15, 2014). Some youth had to walk long distances to school due to a lack of money for public transport.

Six adolescents indicated that they were working prior to starting TVET in order to raise money for the school fees, which their parents were unable to pay for. Others had to wait one or two years after their basic education before being able to start TVET due to a lack of parental financial resources. Several adolescents were working during TVET, and one of them had to drop out of school for a few months to work and gain money for the school fees before being able to return and resume the training. Some young people indicated that they were granted scholarships from the DBTI in order to be able to finish their training.

The majority of interviewed individuals came from Ashaiman, which consists mostly of slums, or the municipalities surrounding it. Seven of them were from other regions in Ghana, such as the Ashanti, the Volta or the Western regions. They came to the Greater Accra region to gain education and training and they stayed with their relatives. At the time of the interview, all save one individual were living in and around Ashaiman. The sample appears to be largely illustrative of the type of youth who typically participate in TVET at the *Don Bosco Technical Institute*, and whom the training programme targets. The DBTI principal, Harris (2014), explained: "[O]ur founder is Saint John Bosco. And Saint John Bosco aims at young people, but young people who are poor. […] [T]he slum is here - Ashaiman, a huge slum, so that we are able to cater for those young people who are there". He added:

> [I]n the second or third term we have difficulties collecting school fees from them because of their low economic background. They are also coming from really complex social situations actually. […] Even you find that after school, when we give them long vacation, they want to stay here. They want to remain here because that environment is conducive for them. They go home, there is this poor living, the social and economic situation is difficult. But that is what Don Bosco is for - to try to help them - that is what we are for (ibid.).

4.1.2. Material well-being

Of all 34 interviewed TVET graduates, five (15%) were not working at the time of the interview, while 29 (85%) were engaged in work. Six were either self-employed gaining contracts or subcontracts for work or casual workers while the majority of the remaining 24 workers were contract-based workers in companies. 2011 graduates of all three TVET courses were engaged in work at the time of the interview. Out of the 2013 cohort, while all of the five 'business/ secretarial' graduates were employed, four out of six 'electrical installation' graduates and only half of all 'automobile engineering' graduates were working. Two 'automobile engineering' graduates were unemployed and one was still engaged in his industrial attachment at the time of the interview. Of those two non-working 'electrical installation' graduates, one was continuing tertiary education.

18 of the 29 working individuals did not indicate any type of employment before their graduation from the DBTI for which reason their employment situation at the time of the interview can be considered enhanced. Eleven individuals stated that they had already worked before their graduation. Most of them had been working before they started TVET, while six indicated that they were working during TVET. Nine among the eleven pre-graduation workers indicated that they pursued casual or temporary and mostly informal works before completing their training at the *Don Bosco Technical Institute*. Only one of these eight did not find himself in a better employment situation at the time of the interview, as he was still involved in casual work, while the others found themselves in more secure employment positions. Of the two pre-graduation workers who were previously employed in local companies, one stood in a better employment position, while the other was again involved in casual employment and had experienced no improvement in his employment situation. In total and following the conceptualisation, data gives indication that 27 of 34 individuals (79%) – all interviewed 'business/ secretarial' graduates, all 2011 'automobile engineering' graduates and two of six from the respective 2013 cohort, and eight of eleven 'electrical installation' graduates – found themselves in a better employment situation at the time of the interview as opposed to prior to their graduation from the DBTI.

All 29 working adolescents earned their own income at the time of the interview. As regards the financial situation of the interviewees, income of all those who were engaged in work at the time of the interview ranged widely from a few irregularly paid Ghanaian Cedi (GHS) to a monthly, regularly paid salary reaching up to 1,000 GHS (equivalent to 300 USD[20]). The average monthly income of those working was 410 GHS (123 USD). However, a discrepancy in average monthly incomes was detected between the three trades, as 'automobile engineering' graduates earned much more on average (637 GHS or 191 USD per month) than 'electrical installation' graduates (452 GHS or 136 USD per month) and more than double of what 'business/ secretarial' graduates received (233 GHS or 70 USD per month). Incomes were higher for 2011 graduates of the TVET courses 'auto

[20] The amount equals the average currency exchange rate between 1 October and 30 November 2014, the period of data collection (OANDA Corporation, 2015).

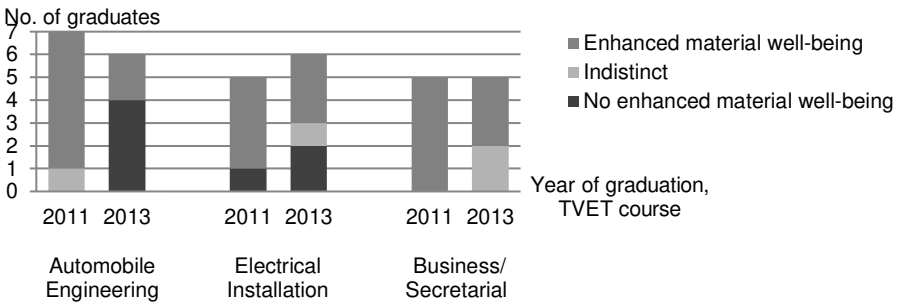
mobile engineering' and 'business/ secretarial' than for 2013 graduates. All those who worked before TVET earned more than the daily minimum wage of six GHS (1.80 USD), except for one graduate whose statement was unclear in this regard. Therefore, 28 workers seemed to have found themselves in a better income situation compared to the time before TVET graduation. The remaining five non-working graduates could not be said to have attained a better income situation, as they did not earn their own income.

22 working graduates made a statement concerning their ability to save. 86% indicated that they were saving money, while three stated that they were not able to save at all. 13 of those youths saving money (68%) gave no indication of pre-graduation employment or of amounts of pre-TVET savings, meaning that they were considered to have attained a better saving situation at the time of the interview. Five of the six who worked before starting TVET indicated that they were saving money on a regular basis. This implies that 53% of all individuals were in a better position to save than before. Nine individuals did not seem to have an enhanced ability to save today, with five among them unemployed.

23 interviewees indicated no change of their housing situation since their TVET graduation. Eleven graduates were in a better housing situation at the time of the interview. They had either moved into an own or shared apartment, or had gained more personal space within the family's or relatives' home.

The majority of individuals (68%) were found to have had an increased material well-being as opposed to prior to their graduation from the DBTI. Seven interviewees (three 'business/ secretarial' graduates, three 'electrical installation' graduates and one 'automobile engineering' graduate) indicated absolute approval, meaning that all four indicators – enhanced employment situation, better income situation, enhanced ability to save, better housing situation – were approved. Seven interviews indicated an unchanged (or worse) status of material well-being and four were considered indistinct (see Figure 4-1).

Figure 4-1: Changes in material well-being of TVET graduates



Own compilation

4.1.3. Quality of education and training at the DBTI

The quality of TVET was determined by a variety of indicators. Only nine of those 27 interviewees who made relevant statements – eight 'business/ secretarial'

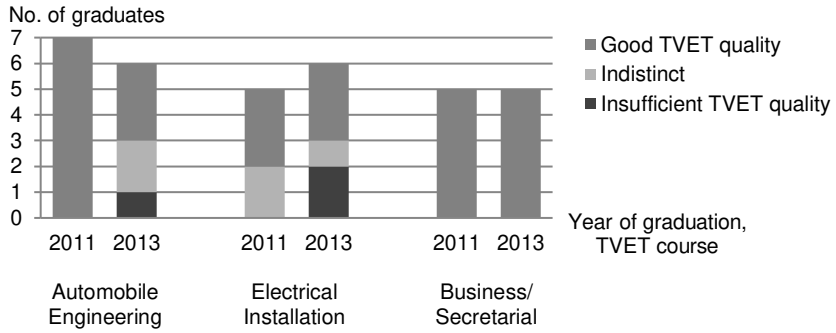
graduates and one 'electrical installation' graduate – indicated that the practical component made up at least 50% of their education and training at the DBTI. Hence, it seems that the practical content was highest in the 'business/ secretarial' course. 18 individuals reported that they spent less than half of their total hours during TVET for practicals. 27 graduates successfully accomplished an industrial attachment in the respective industries. Seven individuals never started an attachment and two individuals did not complete the industrial attachment which they had started.

A remarkable majority of 29 individuals made favourable statements concerning their teachers at the *Don Bosco Technical Institute*. These centred mostly on the teachers' motivation, commitment, helpfulness and approachability. Five graduates raised criticisms of their teachers, including inadequate time for questions or overriding pressure on performance. Twelve graduates (35%) attested to good facilities, while 22 individuals (65%) were at least partly discontented and added critical statements. These often related to an inadequate quantity of tools, equipment and machines for practical applications.

19 individuals made statements concerning extra-curricular activities, out of which 13 made positive references, praising the variety of activities, emphasising sports, cultural and educational offers, or the awarding of special posts, such as that of class prefect. Three interviewees indicated complete discontent with the extra-curricular activities, while three others were indistinct. 59% explicitly indicated their participation in entrepreneurship training at the DBTI.

Taking into account all six indicators for assessing the quality of TVET, 76% attested to a good overall quality of education and training. Five interviewees indicated signs of both good and poor quality, hence they were considered indistinct. Three individuals testified to insufficient quality. Overall, findings show that individuals who graduated in the year 2011 appeared more content with the quality of TVET than their 2013 peers (see Figure 4-2).

Figure 4-2: Quality of TVET at the DBTI



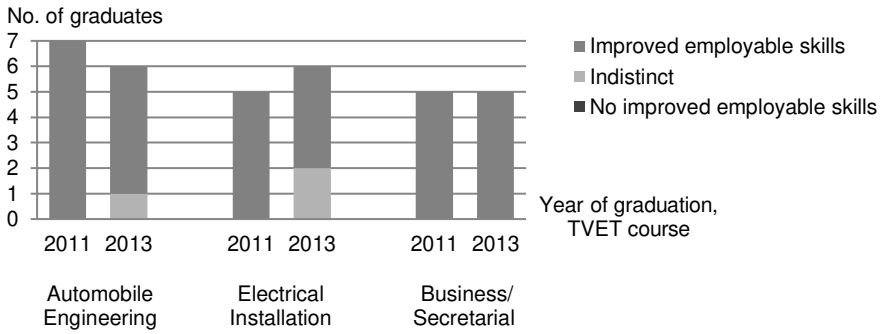
Own compilation

4.1.4. Employable skills

Seven individuals stated that their TVET participation had led to an increase in basic skills, mostly in terms of language skills or computer literacy. 74% have gained adequate trade-related technical knowledge and skills. Among them all ten interviewed 'business/ secretarial' graduates, 45% 'electrical installation' graduates and 77% 'automobile engineering' graduates. In total, 21% indicated not to have gained adequate skills, either due to a lack of opportunities for practical application or a general lack of practical skills achievement during TVET. 18 youths (53%) emphasised the acquisition of entrepreneurial skills.

Out of the 24 interviewees who made a statement concerning their professional or personal competencies, 23 (96%) showed an increase in personal skills while one individual indicated an indistinct result regarding his work ethic. All of the 32 interviewees who made a statement regarding their core work skills indicated a rise. In total, 31 adolescents were found to have improved their employable skills throughout the period of training and/ or industrial attachment. Three interviews showed indistinct results, while one interview clearly showed no enhancement of employable skills (see Figure 4-3).

Figure 4-3: Changes in the employable skills set of TVET graduates



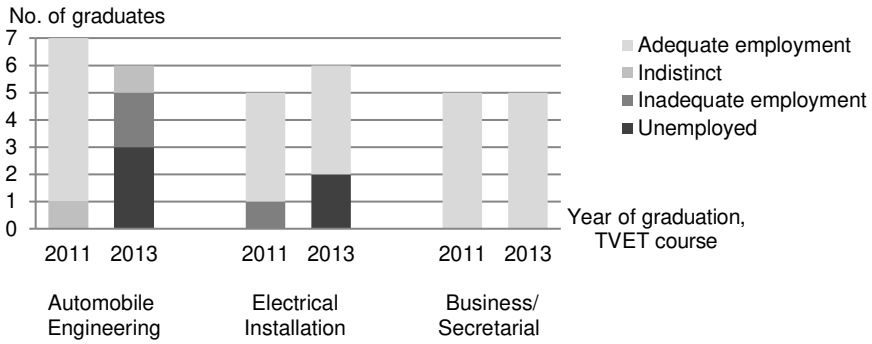
Own compilation

4.1.5. Adequacy of employment

Following the operationalisation, 24 out of the 29 working interviewees were employed in their respective occupational fields at the time of the interview, while five were not engaged in their field of technical expertise. Out of all working 2011 graduates, one 'business/ secretarial' and one 'automobile engineering' graduate were not working in their respective TVET field. Out of all working 2013 graduates, two 'automobile engineering' graduates were working in divergent fields. 23 working adolescents made a statement with regard to their status of employment security. While one 2011 graduate stood in a secure employment position at the time of the interview, 15 graduates had considerably secure employment. Seven individuals were in insecure employment positions, mostly due to being engaged in informal and casual work. 93% earned more than the daily minimum wage of six GHS. Two adolescents, both working in the informal sector, generated an income which was below this threshold. In total, 24 interviewees were found to

have had adequate employment at the time of the interview, among them all interviewed 'business/ secretarial' graduates, eight of eleven (73%) 'electrical installation' graduates and six of thirteen (46%) 'automobile engineering' graduates. Three individuals were in inadequate working situations and two were indistinct at the time of the interview (see Figure 4-4).

Figure 4-4: Adequacy of employment of TVET graduates

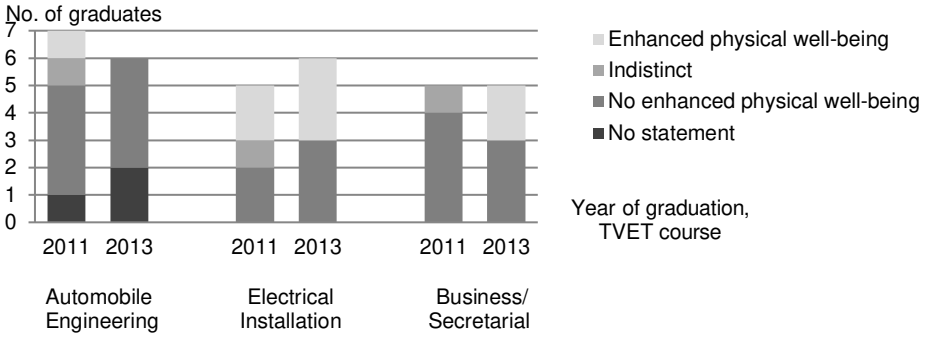


Own compilation

4.1.6. Non-material well-being

The first dimension of non-material well-being is 'physical well-being'. Out of those 20 individuals who made a statement regarding their health situation, only five (25%) indicated a better health situation since they started TVET. The majority of young people stated that the situation of their health had not changed, while five of them indicated that their health had deteriorated. Only nine of the 26 individuals (35%) who made a statement concerning their access to health services were found to have attained better access to health care at the time of the interview. These individuals either had a valid health insurance which they did not have prior to starting TVET or had benefited from health services provided at their workplace. The remaining 18 individuals conveyed that they had either already had valid health insurance beforehand or that their health insurance had expired and had not been renewed since TVET graduation. In total, eight of 34 graduates were considered to have had improved their physical well-being at the time of the interview, while 19 individuals (56%) were considered to have attained an unchanged (or worse) status of bodily well-being. Four interviewees did not indicate a tendency and three individuals did not make any relevant statement during the interview (see Figure 4-5).

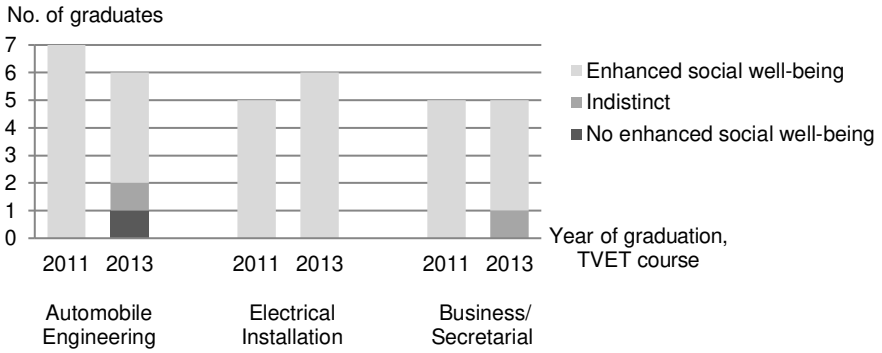
Figure 4-5: Changes in physical well-being of TVET graduates



Own compilation

As regards the second dimension, i.e. 'social well-being', half of all individuals revealed that they had gained more self-respect and dignity since TVET graduation because they were no longer financially dependent on their family or relatives and felt an increased independence. Only seven indicated that they were still dependent on external support for their living. Increased self-confidence was clearly detected in 28 interviews (82 % of the entire sample). 22 interviews disclosed a higher standing in the family since TVET graduation, defined as gaining more recognition and/ or respect from family members, or feeling more listened to and involved in decision-making, or having gained more responsibility within the family. Only one individual indicated that his standing in the family had remained unchanged. In total, 31 individuals (91% of the entire sample) were considered to have had an enhanced social well-being at the time of the interview, compared to pre-TVET times (see Figure 4-6).

Figure 4-6: Changes in social well-being of TVET graduates

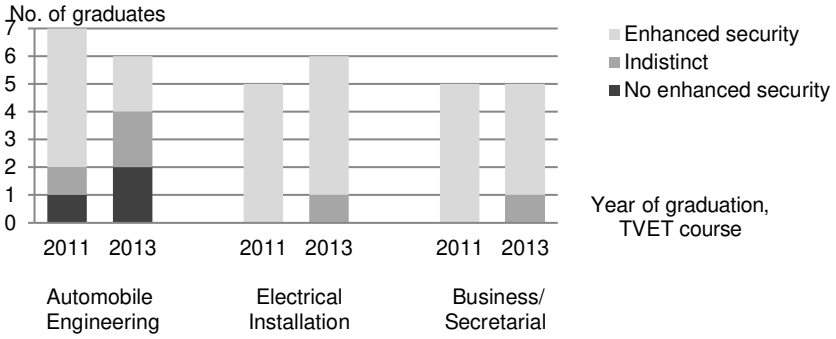


Own compilation

Regarding 'security', the third dimension**,** 21 of 29 interviewees (72%) stated that their lives felt safer and securer since they graduated from the *Don Bosco Technical Institute*. Six young people held that their feeling of safety and security had not changed, while two made contradictory statements and were considered indefinite. Many were convinced that in five years' time they would have reached higher working positions. Of the 29 working individuals, only one 'business/ secretarial' graduate had attained secure employment as a permanent employee. 16 graduates from all courses had attained considerably secure employment based on an employment contract for at least one year or at least one year of continuous

employment by a single employer. Based on the criteria mentioned above, seven youths were considered to be in insecure employment situations. The six remaining workers did not make any statement concerning their formal working conditions. In total, 26 individuals were found to have attained an improved security at the time of the interview. Five interviews were indistinct and only three interviewees were regarded to have had an unchanged (or worse) status of security at the time of the interview (see Figure 4-7).

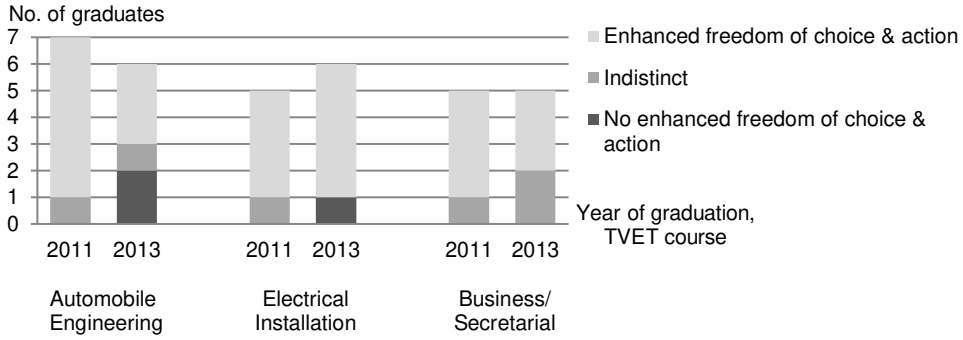
Figure 4-7: Changes in security of TVET graduates



Own compilation

Concerning the last dimension of non-material well-being, i.e. 'freedom of choice and action', the answers with regard to the first indicator – 'increased ability to take own decisions' – were not clear-cut in many cases. Only 14 interviewees (41%) clearly stated that they had attained this. 15 interviewees (44%) showed traces of an enhanced decision-making ability, while on the other side indicating constraints to actually acting out on decisions made. Five individuals were entirely pessimistic regarding their ability to make their own decisions at present. To these, constraints outweighed their actual abilities. Considering the second indicator, 24 of the 25 individuals who made a relevant statement indicated that they helped their friends and/ or their families either financially and/ or with technical skills. In total, at the time of the interview, 25 interviewees (74%) were considered to have attained a greater decision-making ability since their graduation from the DBTI. However, it must be taken into account that this dimension was only detected on two indicators, and that only ten interviewees showed approval for both indicators (see Figure 4-8).

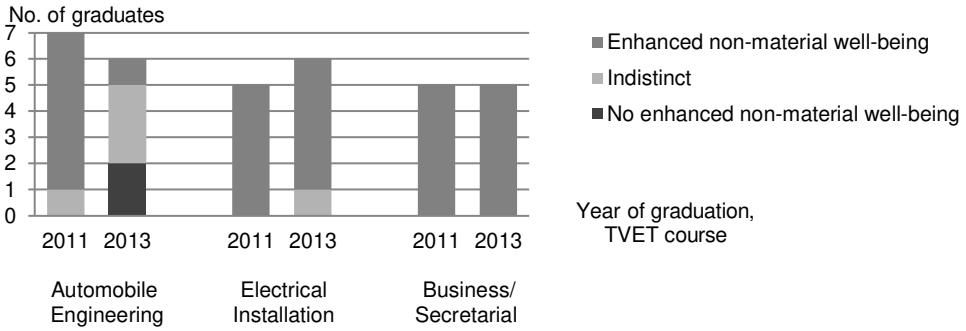
Figure 4-8: *Changes in the freedom of choice and action of TVET graduates*



Own compilation

Out of the entire sample, 27 individuals (79%) showed indication of an increased non-material well-being, as compared to the time before starting TVET. Only five interviewees – four 'electrical installation' and one 'business/ secretarial' graduate(s) – indicated approval of all four indicators. Five (15%) were considered indistinct and four (12%) did not experience an overall improvement of non-material well-being (see Figure 4-9).

Figure 4-9: *Changes in non-material well-being of TVET graduates*



Own compilation

4.2. Hypotheses-based analysis of data

The first part will study the relation between TVET participation and material well-being, while the second part will explore the relation between TVET quality, enhanced employable skills and adequate employment, and the final part will focus on the effects of taking part in TVET on non-material well-being.

4.2.1. Relation between TVET participation and material well-being

According to the DBTI director, the overall aim of the *Don Bosco Technical Institute* is "to train young people for the world of work […] so that when they leave from here, either they will establish their own businesses or they will be able to be employed in the industry" (Harris, 2014). Looking at the findings of this empirical investigation, it seems that this goal has been largely reached for the sample under study given that 29 of 34 individuals (85%) were employed at the time of the interview. One 2013 graduate was finalising his attachment while another one was furthering his education at a Polytechnic. Three young people (9%) were unemployed. This finding seems to suggest that those participating in one of the TVET courses under study are likely to gain employment.

Taking into account the pre-graduation working situation of the individuals, 27 young people can be considered to have attained enhanced employment situations at the time of the interview as opposed to prior to their graduation from the DBTI. The majority of young people were working in the formal private sector of the economy. 15 of the 18 workers (83%) whose first-ever employment had come following their TVET graduation were employed as contract workers. Whether any of them were registered as self-employed by the respective company (e.g. for tax reasons) is unclear. Three individuals were self-employed or casual workers, relying on short-term contracts or sub-contracts, or helping out their parents

who owned a shop. For them, work seemed to be mostly informal in nature. An 'electrical installation' graduate held:

> Sometimes a friend of mine will get the opportunity to have a job like installation – how to install rooms and these things – and I go and assist the fellow. Moreover, too, I am having a friend who I completed with, that is [name 2]. He did the attachment at [name of company 34], so sometimes they are recalling him for some sub-contracts. So sometimes we have the opportunity to go there to get some work to do one or two things to get ourselves busy. And that is what I am depending on for now (Graduate 4, 2014).

Eight workers were engaged in casual or informal work before they completed TVET, whereas they were on a one-year contract or had been working for one employer for more than one year. On these grounds, they were held to stand in enhanced employment positions. This finding proves the underlying assumption that individuals with no higher educational attainment than the BECE (basic education) usually find casual and informal work only – if at all. Moreover, this finding indicated a trend towards a formalisation of employment after TVET graduation, illustrated by the example of an 'automobile engineering' graduate:

> Before that time [at the DBTI], after 2003, I wanted to continue school but resources and the finance was not there for one to push. So, I had to go to stores to sell for people. There is this communication network business, like a phone centre, like a phone booth, so like I am the vendor to someone who comes to me to make a call […]. Verbally, I told myself: when I finish the practical training, I would love to go and do it at [name of company 3] Ghana. So, I had the opportunity to go there, go there for attachment. […] And they decided to give us a one year contract (Graduate 22, 2014).

Interestingly, 67% who had already worked during TVET were now engaged in their respective technical field. Namely, two 'automobile engineering' students worked in automobile roadside garages, while one 'electrical installation' student had started working for a contractor and another one was engaged in a field-related technical job initiated by his teacher (Graduate 2, 2014; Graduate 5, 2014; Graduate 22, 2014; Graduate 25, 2014). Since all of them had begun their respective TVET-related employment after the first or second year of TVET, one can assume that the skills gained at the DBTI granted them access to work. Hence, this finding can also be interpreted as a sign of TVET's quality.

Data shows that 27 individuals found themselves in a better employment situation at the time of the interview, compared to the time before their graduation from the DBTI. Acknowledging that a causal relation between TVET participation and a better employment situation cannot be drawn with certainty due to a variety of third variables, a look at the process of labour market transition of these 27 workers and challenges faced by those unemployed allows for a more precise analysis of the relation between variables.

The interviews have portended certain recurring trajectories to employment. One such path is through industrial attachment. Though not compulsory for graduation, it constitutes an integral and formal component of the curricula. Strikingly, out of all 26 youths who completed an industrial attachment, 25 were employed. Of these, 15 were recruited after the accomplishment of the attachment and had held employment ever since. This finding clearly suggests a successful labour market transition based on industrial attachment. During the attachment, individuals had had the possibility to demonstrate their competences and skills, thereby convincing their superior(s) to maintain them. An 'automobile engineering' graduate held: "[I]f I should do an attachment with a reputable company for at least six months, if the employer likes me he will like to employ me to work for him maybe entirely or maybe for a year more" (Graduate 29, 2014). This trajectory seemed to apply to many graduates under study. One 'business/ secretarial' graduate who was recruited as secretary after the completion of her attachment indicated: "My manager employed me because he said everything I did was excellent" (Graduate 13, 2014). It is reasonable to assume that the young woman performed well during her attachment as a result of the competencies gained during TVET. Many adolescents appear to consider an internship an opportunity for future employment, which leads them to perform well and demonstrate to the fullest extent their working quality and skills.

Many companies appear to have a particular attachment scheme for TVET students, usually with six-month tenure. The preconditions seem to be participation in the respective course of TVET and the performance during the personal interview (Company 1, 2014; Company 3, 2014). Looking at the number of DBTI graduates who completed an attachment in medium- to large-sized companies, it seems that on the one hand the TVET courses under study are in demand by the local industry, and on the other hand that graduates from the DBTI were able to demonstrate their qualification during the interviews. In a personal communication, one representative from a local company employing DBTI graduates (Company 1, 2014) stated that the TVET courses 'electrical installation' and 'automobile engineering' are of great interest to his company, which was why he could look back on a long list of DBTI attachment students. Of the sample, one 2011 'electrical installation' graduate was selected by the respective company for a six-month attachment and was afterwards employed in the factory as a machine operator on a one-year contract (Graduate 1, 2014), while one 2013 'automobile engineering' graduate accomplished a twelve-months attachment there and had found employment with another company at the time of the interview (Graduate 34, 2014). The latter reported that the work experience gained had greatly facilitated his later employment.

The positive attitude of the Factory HR Manager of this company towards graduates from the DBTI was echoed by another employer representative (Company 3, 2014). An 'automobile engineering' graduate confirmed the good reputation of the DBTI which according to him increased the likelihood of being invited for a personal interview: "[W]hen I send my certificate to a company like [name of company 8] and they watch my certificate 'Aha, you did automobile in Don Bosco.

Okay, the school is supposed to be a good school. Why do not I speak with you and let us try you and see'" (Graduate 33, 2014).

It seems that the training institution plays an active role in the process of gaining attachment and also in the process of gaining employment after the attachment. Usually, the school issues attachment letters stating the student's competences and achievements which the students may take to companies to apply for attachment. However, a few individuals reported that, in addition, personnel from the DBTI pro-actively supported them in gaining an attachment position. Two young women were working as secretaries at the DBTI at the time of the interview, one in the school-owned automobile workshop and the other in the driving school. Both indicated that they were recommended by the school administrator or the head of department respectively to gain attachment places, which had developed into employment after the completion of attachment (Graduate 21, 2014; Graduate 12, 2014). It seems that young people often need an advocate or a guardian or an elder person who speaks for them in order to attain an attachment place or an employment position. This could also be the reason why many interviewees emphasised the importance of personal connections in finding a place for attachment. One individual was supported by a Salesian priest:

> [W]hen I completed it was very hard. […] I was very tiny like I told you. And no company would see me and give me a job because I was not strong, I was very, very fragile. And thanks again to the Salesians, [name 4] who helped me. One company, he took me there directly, and he told them 'this is my boy, help him to do attachment here' and I was able to get it. That is where I am working time to time and I make my daily bread. If nobody has sent me there, I would not have got that opportunity (Graduate 1, 2014).

Just like these individuals were appreciative of the help they gained, others showed their frustration concerning the limited support of their educational institution, which some claimed to be the reason why they did not get an attachment place. One 'electrical installation' graduate explained that "they [the DBTI] have the list of students, so they will call you that they have a company who needs two or more students to train. But my year, most of my colleagues, we were waiting but we never had some calls" (Graduate 2, 2014). Another graduate recommended a more pro-active role for the DBTI, namely that "the school should have a number of companies which you can go for attachment, that is where the schools have their length with. […] They should link with some companies which will help the students to go and do their attachment there" (Graduate 33, 2014). Not all TVET graduates were able to complete an attachment. Some young men alluded to the challenges of gaining one, mostly because companies take students with higher certificates only. Other individuals referred to the financial difficulty of completing the internship, as students either receive no money at all or a small allowance which challenged some students to pay for transport and food. One person reported that he had to quit the internship prematurely due to limited finances:

> And the attachment, they did not give us any money. We just worked for them, just that they are training us to know more about the work. […] I decided that if I go there, I will not get anything to eat and then you cannot depend on your family, he is giving you accommodation to sleep and he cannot buy you food. That is why I did not go there again (Graduate 7, 2014).

Although, findings clearly attributed a significant role to the completion of an attachment, it is important to note that an internship does not constitute a panacea for employment. Two 'automobile engineering' graduates who graduated in the year 2013 and completed their attachment at well-known automobile companies were unemployed at the time of the interview (Graduate 31, 2014; Graduate 32, 2014). Apparently, the sending institution is intended to maintain contact with the supervisor in the company and the DBTI students during the period of attachment, and communicate information on the performance of the intern and the level of satisfaction of the intern between the supervisor and the trainee. This procedural approach was confirmed by the DBTI industrial liaison officer (Andaliga, 2014). Improper implementation of this procedure could hinder graduates in gaining employment, as was experienced by one graduate (Graduate 24, 2014). This again shows the link between TVET and employment and emphasises the necessity of the educational institution to act as an advocate for its students, for example by providing recommendation letters (Andaliga, 2014).

It was stated that many graduates had called for improved cooperation between the DBTI and local industry with the goals of guaranteeing the availability of attachments and enabling access to employment (see Graduate 33, 2014). One international automobile company whose Tema branch manager was interviewed for this study could look back on a long relationship with the DBTI, as the company had absorbed a number of 'automobile engineering' graduates for attachment and as contract workers. However, at the time of the interview, no formal cooperation between the DBTI and the company had been struck. A practical example for such cooperation might have been found in the Philippines, for instance, where the Salesians have initiated a joint venture with international automobile company *Porsche* and the Porsche importer *PGA Cars*. In this instance, Porsche has built and equipped a training facility at the *Don Bosco Technical Institute*. After the completion of a theoretical and practical training course, the top students every six months can pursue advanced qualification at the 'Porsche Training and Recruitment Centre Asia'. In this way, trainees are guaranteed employment (Don Bosco Mondo, 2015b). In Ashaiman, no similar scheme was in place at the time of the study.

Many interviewees referred to personal connections as a door opener for attachment and employment. Two 'automobile engineering' 2011 graduates referred to the personal relationships they had with people employed at their respective companies: "From there then I had a good friend who introduced me to the director of [name of company 15]. […] My friend introduced me to the man and the man took me" (Graduate 26, 2014). The other young man stated:

> The supervisor in the company now, she is my friend and we attend the same church. So I talked to her about job opportunities, if there is one in their company. And I was there when she wrote to me 'there is a job vacancy. [...] Bring an application.' […] I did so and the boss called me and interviewed me and by God's grace I was employed (Graduate 24, 2014).

The majority of those who were unemployed at the time of the interview felt that the lack of personal networks constituted one great obstacle to finding employment. A non-working 'electrical installation' graduate explained:

> [S]ince then [TVET graduation] I have not been able to work in any of the companies because here in Ghana it depends on the person that you know in a company before you can work over there. We apply but they do not call us because you do not know anyone in the company. That is a big problem that we have in Ghana nowadays (Graduate 9, 2014).

One working graduate raised attention to the problem of nepotism explicitly by saying: "I applied to so many companies but they are not calling me and things. If you go, they say [...] they have family members, so they have to fill in their family members" (Graduate 14, 2014). As she had not found employment in her field of expertise, the young woman worked as a pump attendant at a filling station. It stood to reason that this job may have been within her reach even without training at the DBTI, though she explained that she applied for the job with her national certificates gained during TVET (ibid).

Likewise, it remains unclear whether those graduates who were working in their field of training, were employed in an industry related to their discipline of choice, or were using the skills gained during TVET in the workplace would have found their jobs without participating in the TVET course. Surely, these individuals would have lacked technical expertise, skills and know-how gained during TVET, and these appeared to be expected of them in their industries. A 2011 'automobile engineering' graduate working for an international automobile manufacturer was certain to have gained his job as a consequence of TVET: "[B]ecause of the training Don Bosco is giving to the children or is giving to the students, I think that is what qualifies me to be here today" (Graduate 27, 2014). "[B]eing a student here has really a good effect on me and has improved me to now work fully as someone on the field, yes, someone who is employed to work", one youth stated (Graduate 6, 2014). A working 'business/ secretarial' graduate was certain that "[w]ithout this training […] [she] would still be in the house" (Graduate 12, 2014). However, although individuals pointed out direct interrelations between their TVET participation and their employment situation, given the lack of a control group, no robust causal relation can be proven.

An interesting finding is that all interviewed 'business/ secretarial' graduates were employed at the time of the interview. This fact suggests a particularly successful labour market absorption for students of the 'business/ secretarial' course. Many of them felt well-prepared for the labour market through their education and training at the DBTI (see Graduate 19, 2014). It seems that the labour market

transition was more difficult for graduates from the 'automobile engineering' course. Only half of the 2013 cohort were employed at the time of the interview, most of them casually and not in the trade learned. This finding suggests a malfunctioning labour market transition for this group. Concerning job opportunities in the automobile industry, one 'automobile engineering' graduate referred to the necessity of higher certification and the abundance of labour as difficulties to gaining access to the automobile industry:

> Job opportunities… for now it is difficult […] [b]ecause some people are out there with degrees and all that and they do not even get the jobs to do. And the truth is: the industry is also not big enough to accommodate the number of people out there who want a job. So, that is the challenge, the biggest challenge (Graduate 22, 2014).

This suggests a (temporary) saturation of the labour market in this sector, a development which could also derive from cyclical changes in the economy. This could in turn result in a recruitment freeze in the respective industry.

In line with this argumentation, an employer representative from an international automobile company in Tema alluded to the economic situation of his company:

> [R]ecently things have not been very good in terms of– if I should say – vehicle sales, for instance. […] The purchasing power generally in most companies and productions is going down. […] We know some of the mines have dismissed some of their staff. At the moment I will not say there is too much opportunity [for employment] (Company 3, 2014).

More recent economic challenges faced by the automobile industry could be one reason why one 2013 graduate who applied for attachment at that company did not succeed (Graduate 32, 2014), while at the same company four 2011 graduates completed an attachment and became contract workers thereafter.

Looking at the formal achievements made by graduates in the course of TVET, it seems that the attainment of nationally acknowledged certificates did not have much impact on the employment outcome. Of those three graduates who had not gained any external certificate, two were working at the time of the interview while one remained unemployed. Two graduates who had achieved all available external certificates found themselves currently unemployed.

Nonetheless, certification seems to be a necessary precondition for access to tertiary education, which was the reason why some graduates had gone back to school to re-sit failed exams in order to attain the respective certificate (see Graduate 15, 2014; Graduate 22, 2014). Furthermore, full certification from the DBTI may enable technical students to gain entry-level employment, one example of which may be as a machine operator in a large international company (Graduate 1, 2014). For 'automobile engineering' and 'electrical installation' students, the certificate from the 'Technical Exams Unit', seems to constitute the decisive certificate for entering the world of work, equivalent to the 'COTVET' certificates for 'business/ secretarial' students. In summary, the findings of this research indicate a high likelihood of an enhanced employment situation following the completion

of a TVET course at the *Don Bosco Technical Institute*, particularly for 'business/ secretarial' graduates.

An enhanced employment situation usually goes hand in hand with increased financial means for the working individual, assuming pay is good. Data shows that the vast majority of graduates had more money available to them at the time of the interview than prior to the completion of TVET. It is safe to say that those 18 workers whose first-ever employment had come following their graduation from the DBTI certainly found themselves in an improved financial situation at the time of the interview. They were employed in their first ever jobs at the time of the interview and earned their very first own incomes. Two graduates even postulated that they had become the main income providers or bread winners in their families after the completion of TVET, and had gained the ability to support them (Graduate 24, 2014; Graduate 20, 2014). Graduates from the DBTI come from low socio-economic backgrounds, and accordingly it seems that a job and a small income can be sufficient to change their entire family's socioeconomic circumstances by a considerable margin.

The majority of those who worked and earned an own income prior to their graduation from the DBTI were earning more than the Ghanaian daily minimum wage of six GHS in their post-graduation work. Accordingly, they too now found themselves in a better financial situation at the time of the interview. Taking into account the types of jobs attainable to them before the completion of TVET, it is likely that they have more capital today. Only one contributing family worker earned less than the daily minimum wage (Graduate 29, 2014). One casual worker indicated strong variations in the amount of revenue:

> [I]t varies, the type of work we do and type of money you earn. When you go to somebody's house and you use his cutters to weed, you weed around and things, they give you something - somebody will give you ten cedis. Somebody will give five cedis. Those you really want to help some will give you twenty cedis to support yourself (Graduate 30, 2014).

A number of the self-employed individuals and some of those employed were actually underemployed, as they were only working a few days per month. The consequence of this was a limit in their earning potential, consigning them to an income inadequate to cover living costs. One male graduate who had graduated from the 'electrical installation' course in 2011 and had worked prior to starting TVET had been carrying out short-term contract-based installation works for the four years preceding the interview, was now working approximately once a week, and was earning around 100 GHS (30 USD) per month. This placed his income above the minimum wage, but he considered the amount insufficient to live on. For this reason, at the time of the interview, he was still living with his parents, who also supported him financially (Graduate 4, 2014).

Six individuals who had worked prior to the completion of their TVET programme explicitly indicated that they now had greater financial means than they had had prior to the completion of TVET. A working 'automobile engineering' graduate

stated: “As a worker now I must say I earn higher than in the time when I was not a student or not in Don Bosco” (Graduate 6, 2014). One ‘electrical installation’ graduate who was working for a contractor he had already worked with during TVET enumerated his personal progression in income: He had initially earned 120 GHS (36 USD) per month working with the contractor during vacations while at TVET, earned 180 GHS (54 USD) immediately following graduation, and was now earning approximately 500 GHS (150 USD) per month at the time of the interview (Graduate 2, 2014). Although one might assume that such an increase in income would be based primarily on the individual’s accrual of relevant skills and know-how, or perhaps on his improved performance made possible by these, it is possible that the amount of working days per month may have increased during the time discussed.

It is not always possible to link an individual’s current income level directly to their education at the DBTI. In some cases, the individuals interviewed had advanced their education further which would additionally increase their earning potential. However, the attainment of further education in itself indicates an increased prior level of income, as was the case for four ‘automobile engineering’ graduates who started working in the same company at the same time but earned different incomes (Graduate 27, 2014; Graduate 22, 2014; Graduate 25, 2014; Graduate 28, 2014). Still, a rise in income appears not necessarily to be wholly dependent on further certification. It is possible that the length of stay in a company may also impact the development of an individual’s earnings (see Graduate 14, 2014). The largest income differences were visible between occupations. ‘Business/ secretarial’ graduates earned much less than their ‘automobile engineering’ or ‘electrical installation’ peers, which indicated fundamental differences in compensation levels between these respective economic sectors. Perhaps it is not surprising that private-sector employers in the automobile and the electric/energy industries would pay higher wages to their workers than would be available in the service sector.

Irrespective of the amount of income earned, saving money seemed to have had a high priority for all TVET graduates. 18 of the 22 working graduates (82%) who commented on their ability to save stated that they were saving, usually on a regular basis. Savings generated in the time before the completion of TVET or during the studies were short-term and irregular, meaning that whenever money was gained, it was mostly spent straight away on food, transport, school fees, didactical material or equipment for TVET. The motivations for saving, namely survival and education, seemed to have endured over time. However, the act of saving itself seems to have become more structured and regular after graduation, as indicated by some working graduates.

The majority of individuals tried to save most of their money while keeping living costs at the lowest level possible. There seems to be the rule of reciprocal support in many low-income families, meaning that after someone has completed one level of education (e.g. TVET), that person is supposed to work and gain money to enable the other siblings’ education before the person can gain further education. Nonetheless, eleven individuals – coming from all three TVET courses –

who graduated in 2011 had managed to at least begin further education at the time of their interviews, and of these seven had already accomplished at least one higher certificate such as the Technician Part I certificate. In contrast, of the 2013 cohort, only two individuals were continuing their education at the time of the interview. The opportunity to study and work at the same time constitutes the only possibility for many young people to gain further education – a possibility which depends on the flexibility of the employer and the educational institution, as well as each individual's financial means.

It is important to note that not all individuals have the ability to save money today. Five interviewees who did not make a statement in this regard are unemployed today. In assessing the socio-economic situation of their families, it is plausible to assume that they have no income to save. Several interviewees, among them those earning the least while having to support their families, either stated that they only managed to save occasionally or that they could not save at all. "After I have given everyone there is nothing left for me because here is the case – I need to provide this, I need to give this, I need to – so at the end of the day I do not have anything for myself" (Graduate 26, 2014).

The desire held by some individuals to have their own apartment, which may be associated with increased freedom and independence, seems to be of secondary importance to the majority of interviewed TVET graduates. A working 'business/ secretarial' graduate stated: "Because of financial problems I am still at home, just trying to work so I can get more money to further up my education" (Graduate 13, 2014). At the time of the interview, 23 of 34 graduates (68%) indicated that they were living with their parents or relatives, and thus in the same housing situation as prior to their graduation from the *Don Bosco Technical Institute*. Some, however, had experienced a positive change regardless:

> Actually, when I was coming to this school, I was staying with my parents. We are five in the family, two share a bedroom. […] And after the school I got my own job […]. [I]t is since I am the only person taking care of the family five, now by the grace of God everyone is in his or her own room (Graduate 24, 2014).

Changes in the housing situation are difficult to be traced back directly to the education and training at the DBTI. However, they are related to an increased income, which results from an improved employment situation. It is important to note that not all of those who moved into own or shared apartments were living more comfortably than beforehand. Some had been motivated to move to be closer to work. As a number of employment opportunities were located in the industrial area, some had moved to very poor neighbourhoods, such as the slum area of Tema New Town, where they now occupied small single-room apartments and had no private sanitary facilities (see Graduate 23, 2014).

Taking into account all four indicators, the majority of individuals (68%) seemed to have attained an enhanced material well-being. Following the argumentation, it seems that the education and training at the DBTI had at minimum contributed to improving the material standard of the individuals who were part of the sample.

The indicative data at hand approves the first hypothesis, namely the likelihood of an enhanced material well-being after taking part in a TVET course. The indicators 'enhanced employment situation' and 'enhanced income situation' were most frequently approved.

4.2.2. Links between TVET quality, employable skills and adequate employment

Hypothesis 2 assumes a relation between TVET quality, the skills which the individual gained during TVET and the effect these have on gaining adequate employment. Following the aggregation rules as set out in the operationalisation, 26 individuals were found to rate the institution under study as providing education and training of good quality on the whole, and 25 of these (96%) indicated an overall enhancement of employable skills gained throughout TVET, including during their time of industrial attachment. 21 of these 25 (84%) had adequate employment at the time of the interview. This finding suggests a broad approval of Hypothesis 2. However, in order to understand the interrelationships between these variables, this part takes stock of the indicative data relating to the various indicators.

The assumption underlying the quality criterion of a practical component in a TVET programme equalling at least 50% is that the higher the amount of practical training, the more technical skills can be obtained. Graduates indicated that the amount of practical training was below 50% in the 'electrical installation' and the 'automobile engineering' courses, while it ranged above 50% only in the 'business/ secretarial' course. In the latter, the amount of practical work was indicated to lie between 60% and 80%. Whereas one young woman stated that she would have preferred more time for theory, seven 'business/ secretarial' graduates showed contentment and appreciation for having spent much time on practical work. One 2013 'business/ secretarial' graduate held:

> The practicals, we have more experience over there. When we go to practicals they ask you to open power point, excel, a lot of things over there. We learned more things about practical. So any time you see we have practical, we are all happy because we are going to learn more things (Graduate 14, 2014).

It seems that more practical time was indeed often associated with gaining more practical input and skills, which graduates considered an important precondition for employment in their field. "Practical skills – I can say 80% because, you know, you as a secretary you need to type" (Graduate 15, 2014). All sampled 'business/ secretarial' graduates indicated that the practical training at the DBTI adequately built or enhanced their technical skills, first and foremost their typing. "I can type, I can laminate, and all kinds of office, petty, petty things at the office, because I learned office", a male secretary stated (Graduate 16, 2014). Several young women mentioned the achievement of computer skills in the course of the computer training which they considered a prerequisite for employment despite it not being part of the practicals, albeit still practical work (see Graduate 19, 2014).

Conversely to these findings, one might assume that the 'electrical installation' and 'automobile engineering' graduates who indicated that the time for practicals was below 50%, and particularly those individuals who stated that they would have preferred more practical work during TVET, would have considered themselves to have gained inadequate technical skills. However, this assumption did not prove true in its entirety. 63% who commented on their technical skills acquisition indicated that they had gained adequate technical competences in TVET. One 'automobile engineering' graduate held: "Even when I am home and maybe someone's vehicle breaks down I can try to help […] and do it and it will work perfectly. But before I did not have these skills" (Graduate 29, 2014). This finding suggests either that the underlying assumption of a necessity of 50% practicals to enhance or gain adequate technical skills may be void, or that other factors, such as the industrial attachment, may have contributed to the acquisition of adequate technical skills. Still, the majority of 'electrical installation' graduates indicated that they had gained inadequate technical skills during TVET which they, however, did not link to a limited amount of practical work.

All graduates considered industrial attachment an important and useful component of the training, as they held it to provide a direct path to employment (see Section 4.2.1) as well as a source of enhancing their technical expertise. Some individuals even considered it as compensation for the theory-based education dominating the training. Hence, it was necessary to gain the required technical skills or to learn to practically apply the theory taught at the DBTI (Graduate 22, 2014; Graduate 28, 2014). A young man explained the reasoning behind entering into an industrial attachment:

> I would like to go to a reputable company because they do more practicals than theory. But here in the school we do more theory than practicals. But at the company level we do a lot more practicals than theory. So when I get to a company I will be able to learn more about practical things (Graduate 29, 2014).

An 'electrical installation' graduate who did not complete an attachment claimed: "[N]ot having done the attachment, I have seen that for the practical side I miss a lot" (Graduate 10, 2014).

Many graduates indicated that they further developed their technical expertise in the course of the attachment. "So the reason why I was happy or grateful being on attachment there is because they have really imparted knowledge and wisdom about electricals into me over there", an 'electrical installation' graduate stated (Graduate 6, 2014). Another emphasised that he learned how to practically apply the theory during the attachment:

> [T]hat place is very good for me because I learned a lot. It helped me to climb poles. […] [I]f right now you get light out for only this house I can ratify the fault. I can climb the pole and then check where the fault is (Graduate 7, 2014).

One 'automobile engineering' graduate reported that he learned the proper practical application of his acquired knowledge, as well as information about new

technologies, exclusively during the attachment (Graduate 22, 2014). Four of six individuals (67%) who did not complete an attachment indicated that they had gained inadequate technical skills, which most related to a lack of competence in practical implementation. Findings emphasised the role of the attachment fin acquiring relevant technical skills. In addition, some young people indicated that they had enhanced their core and entrepreneurial skills during the attachment: “I learned a lot out of there: how to make a good use of yourself, how to set up something for yourself, how to solve problems and how to take care of a customer when a customer comes in” (Graduate 26, 2014).

Acquisition of core working and personal skills was often related to the teachers. These were lauded by 29 of their former students, mostly for being friendly, available, helpful and understanding, but also for having motivated and encouraged them to study hard and be disciplined. “When I came to Don Bosco, what I passed through was the discipline that they give to us in the school”, one ‘business/ secretarial’ graduate stated (Graduate 16, 2014). Another one stated: “Our teachers, they are very good in terms of how to mobilise us to go to our practical work because for that you always have to be alert in the work. So they are very strict on us when it comes to practical work” (Graduate 4, 2014).

Learning how to learn constitutes another competence which one graduate explicitly attributed to his teachers. He stated: “When I came to Don Bosco, actually, I found it difficult to learn because I completed JHS in 2004 and I stayed in the house for four years before I came to Don Bosco. […] But through prayers and the teachers I was able to learn” (Graduate 7, 2014). ‘Business/ secretarial’ graduates emphasised that their teachers provided them with key behavioural skills such as knowledge on how to properly communicate with a superior, how to work in teams and how to treat people with the due respect (Graduate 13, 2014; Graduate 18, 2014; Graduate 20, 2014).

Apart from the development of core work and personal skills, many interviewees constructed a direct relationship between their teachers and enhanced basic and technical skills. One ‘business/ secretarial’ graduate explained that he learned proper typing only with the help of his practical teacher, who had motivated him and gave advice for improvements until his skills were sophisticated (Graduate 16, 2014). Another young person attributed her good language and communication skills to her demanding English teacher at the DBTI, who had motivated her to learn the language accurately (Graduate 15, 2014). Proficient language skills, in turn, appear to have given many individuals the confidence and ability to expand communication skills and to speak freely before an audience (Graduate 30, 2014) or approach others directly (Graduate 1, 2014).

Most negative statements with regard to the teachers were given by the 2013 ‘automobile engineering’ cohort and directed at one particular teacher responsible for practical work.

> The time for our practical aspect was very bad because – the time I came – it is hard for us to get a practical teacher to take us through the practical aspect. […] [S]econd

> year, the teacher who came to take us through the practical was not so into practical. He was into theory more than the practical. […] [W]hen you go to the field, the thing he said: 'Now do it!' It was very difficult. That was the weak point of my course at my time (Graduate 33, 2014).

Interestingly, many individuals from this cohort also indicated that they did not gain adequate technical skills during TVET. Nonetheless, it is possible that an insufficient acquisition of skills is not necessarily attributable directly to incompetent teachers. Another finding is that save for one, every critique of teachers was raised from individuals who graduated in 2013. This could be related to the fact that after 2011, teachers were selected and paid by the government, which reduced accountability and control vis-à-vis the school rectorate and the Salesian principles of teaching (Harris, 2014). Nonetheless, the grand majority of sampled graduates declared themselves pleased with the teachers.

This alleged contentedness was not repeated in the broad views of the institute's facilities. Satisfaction of those twelve who approved of the facilities seemed to come with a realisation and appreciation that the DBTI is better equipped in terms of tools and machines than many other technical institutes in Ghana, thus enabling a good level of exposure (Graduate 22, 2014; Graduate 16, 2014). A few individuals argued that the tools provided enabled them to properly learn and apply their technical know-how (Graduate 2, 2014). "[M]y machine [typewriter] I got in school was very good, so I provided good typing", one young woman indicated (Graduate 20, 2014). An 'automobile engineering' graduate indicated: "We have everything that is conducive for learning. So when I came here everything was in place" (Graduate 29, 2014).

Eleven of twelve individuals who showed contentedness vis-à-vis the facilities were found to have gained adequate technical skills, which may imply that the facilities are adequate for the required skills acquisition. The least criticism, particularly in regard to practical work, was raised by the 'business/ secretarial' graduates. This could result from the fact that the school provided them with the machines for typing. A number of 'automobile engineering' and 'electrical installation' graduates raised criticisms concerning the technical configuration for the practicals, as this affected their possibilities to gain hands-on experience. One graduate stated: "Sometimes when it is time for practicals, there is no material so we go back to the class again. And sometimes we go to practicals we will sit there until the time is off" (Graduate 11, 2014). This statement could explain why some graduates felt themselves to have not gained enough technical skills. Many 'automobile engineering' graduates reported that they were unable to afford the tools that they were supposed to buy. On the one hand, this strengthened teamwork among the students, who learned to share tools and experiences. However, and more pressingly, the primary effect of this state was that the students were hindered in learning the appropriate usage of certain tools (Graduate 23, 2014). Interestingly, the school does possess its own furnished automobile workshop. This, however, is designated for commercial use only, meaning students can only

observe here while gaining their own practical experience in a classroom with limited tools and machines (Graduate 22, 2014).

In a personal communication, one employer representative emphasised the importance for technical institutes to be properly equipped in order for students to gain a sufficient level of practical knowledge for work in the industry. “[W]hen you study and you have the practical things close to you, you get to really understand the reason behind even the structure and the function”, he held (Company 3, 2014). One ‘automobile engineering’ graduate explained that when he first entered the industry, he was overwhelmed by machines and tools he had never seen or come into contact with during TVET, and stated that he found himself unable to operate them (Graduate 22, 2014). Half of those 14 interviewees who raised criticisms concerning the facilities for practicals, such as space or tools, considered themselves to have inadequate technical skills.

Another feature of good-quality TVET concerns the offer of entrepreneurship training and the participation of graduates in it. 20 interviewees explicitly referred to their participation in entrepreneurship training during TVET, which most considered useful. 13 of those 17 (76%) who claimed to have gained entrepreneurial skills during TVET explicitly mentioned entrepreneurship training as the source of their skills acquisition. “We learned how to manage companies and how to work with companies”, one young man stated (Graduate 32, 2014). Knowledge transferred seems to have related both to self-employment and employment, though a focus was allegedly put on self-employment. “It really enlightened me to have the business mind”, an electrical engineering graduate held (Graduate 5, 2014). One graduate claimed:

> It is also about how – maybe you are employed in a company – how to behave yourself as a worker, as an employee or something like that, how to cooperate with the people over there. And let us say you also get a small business or something that you want to start on your own. As a manager or as the employer you need to control yourself and also learn how to behave when you are doing service with a customer or you are giving out to the customers (Graduate 6, 2014).

In identifying additional sources of core skills acquisition or enhancement, several graduates alluded to extra-curricular activities offered at the DBTI as a basis for attaining competencies. A number of them held that being part of an educational or cultural group or sports team had sharpened their sense of togetherness and teamwork, furthered their self-respect, and given them pride by allowing them to represent the DBTI in interscholastic competition (Graduate 5, 2014). Some alluded to communication and leadership skills: “I am a very shy person but I had the opportunity to go a little ahead of that shyness to be able to lead an assembly of people of about 400 to 500” (Graduate 22, 2014). Others referred to personal skills, foremost a sense of responsibility, reliability and trustworthiness (e.g. Graduate 16, 2014).

Six individuals raised criticisms about extra-curricular activities. In most cases, these concerned the high frequency and the compulsory nature of activities,

which they saw as interfering with their learning (Graduate 28, 2014). A young man held: “Those activities are too much, more than the academics. Sometimes we lack some of the things unless you study on your own” (Graduate 8, 2014). A possible impact of these doings could be a lack of knowledge and skills which these individuals however did not indicate. Whereas the religious character of education was usually interpreted positively, a 2013 ‘electrical installation’ graduate alluded to the discriminatory practise of awarding posts according to religious affiliation, claiming that “you need to be a Catholic for them to give you the position” (Graduate 11, 2014). One could expect limited self-confidence or anger as a result; instead, the youth presented himself as self-confident. All in all, the data collected suggested widespread contentedness with the extra-curricular activities offered at the DBTI, and served to highlight links between activities and an enhancement of employable skills.

The findings of the first part of this analysis pinpointed relations between good TVET quality and the improvement of employable skills. The following paragraphs explore the possible link between these skills and the form or quality of employment reached. Seven individuals emphasised that their TVET participation had led to an increase in basic skills, mostly in terms of English language skills and computer literacy. One ‘business/ secretarial’ graduate constructed a relation between her tenacious English language teacher, the gained language skills, the confidence and fun in speaking English which she gained thereupon and the job which she was offered due to being a talkative English speaker. At the time of the interview, she was working as a secretary in a church and gaining adequate income – especially taking into account her limited number of working days (Graduate 15, 2014).

Computer literacy was laid out as a prerequisite for employment in the field of administration, as reported by ‘business/ secretarial’ graduates. Only one of seven individuals (14%) who indicated an increase in basic skills did not have adequate employment at the time of the interview, and this individual ascribed their state not to limited basic skills, but rather to not having received his certificate (Graduate 30, 2014). In fact, a number of graduates complained about not yet having received their final external certificate(s), and stated that they needed these for job applications (Graduate 4, 2014; Graduate 8, 2014).

80% who indicated having gained adequate trade-related technical skills found themselves in adequate employment. Several graduates who had adequate employment at the time of the interview seemed convinced that their technical qualification acted as a door opener for employment in the respective branch:

> [W]hat qualified me to get that place, was because of the technical knowledge, because they wanted technical people because we have an understanding of the technicality of everything. […] [A]t first it was like anyone could learn, but now they said no; they are not able to control accidents… They wanted people with technical background (Graduate 23, 2014).

One ‘automobile engineering’ graduate explained how the driving skills which he gained at the DBTI-owned driving school constituted a precondition for gaining his job as a driver:

> “[T]he school gave me the opportunity to do my driving license. So at the moment that is what I am using, the driving license. […] My living status has developed widely because if I was not in hold of the driving license, one I would not be working” (Graduate 24, 2014).

Certainly employers, contracting entities or customers expect graduates with a technical background to have certain technical skills or a particular level of field-specific expertise when they offer them attachment or a job. The factory human resource manager of a large international company in Tema confirmed that his company looked for persons with a technical background, stating that these are said to possess the basic technical skills necessary for work in the factory. Both interns and workers are expected to bring with them relevant technical skills (Company 1, 2014). These statements emphasise the importance of technical skills for gaining access to adequate employment. In a personal communication, another employer representative attached great importance to a high level of practical content in TVET, which would allow young people to gain adequate technical skills required in the industry: “[W]e would advise that institutions should look at not only the theoretical side but should do want to give them [the students] a little bit more of the practical just to help in their understanding and to let them easily fit into the industry” (Company 3, 2014).

A young woman who was working as a secretary in the laboratory of a hospital at the time of the interview explained: “[W]hen I came I said I did business secretarial and they said they know from business secretarial it is all about typing. And what I am doing is typing” (Graduate 19, 2014). This quote suggests that the DBTI imparts to the individual practical skills which are indeed required for employment in a particular occupation, and that graduates are able to apply these skills. One male secretary reported that he was asked to practically demonstrate his typing skills during the job interview for his current employment, which confirms that these particular skills form a precondition for field-specific employment. In fact, after the successful demonstration of his technical competencies, he got the job. At the time of the interview, he had adequate employment and had been working as the secretary in a basic school for three years, providing him with an adequate income (Graduate 16, 2014).

It appears that technical skills are necessary not only to gain access to the labour market, but also to remain in it. In the end, performance during attachment or on the job is a valid indicator of whether the skills gained during TVET are indeed adequate. If the individual shows, in addition, the ability and willingness to advance his or her skills set even further, it may positively impact on the employer’s choice to maintain him or her as an employee. Most of the individuals surveyed must have met the technical expectations of their employers during the attachment, as 15 DBTI graduates were recruited following their attachment. As the attachment is conducted in the TVET-related industry, the likelihood of adequate

employment following attachment is high. The fact that many individuals had been working in the same job for more than one or two years suggests that the graduates' technical skills – which often served as an intake criterion – had proved satisfactory during that time. A good performance in a TVET-related job would probably not be possible without adequate technical skills.

A closer look at the selected TVET courses reveals more specific information. The quotas for adequate technical skills acquisition and adequate employment are highest among 'business/ secretarial' graduates. 90% of all 'business/ secretarial' graduates were employed in their field of expertise. All of them were using the TVET acquired technical skills, primarily typing, regularly at their workplace. They were working as (assistant) secretaries or desk officers, mostly in small- to large-scale companies in the formal economy at the time of the interview. One young woman who was working as a desk officer in a construction company claimed a relation between her TVET acquired competences and work: "I learned secretarial in school. Everything I am doing here [at the company], I learned it in school" (Graduate 20, 2014). This quote suggests a link between TVET quality, adequate technical skills and adequate employment. Most 'business/ secretarial' graduates attested to the DBTI's good-quality TVET, particularly in regard to the technical part of the training.

Looking at data from graduates of the 'electrical installation' and 'automobile engineering' courses, findings are not clear-cut. However, after the completion of their attachment, four young men who graduated from the 'automobile engineering' course in the year 2011 became contract workers in the company where they completed the attachment. Most of them indicated that the TVET at the DBTI had prepared them well for the world of work and that they had gained adequate technical skills, upon which they were able to improve in the course of the attachment. One of them considered the practical component during TVET too little, but he still indicated that he had gained adequate technical skills during his time at the DBTI, to which he attributed both his having attained his current job and his ability to perform well in it:

> Yeah, it is true that we were being employed. Don Bosco has really helped us a lot, giving us the skills. We never thought we would reach such a stage like this. […] But through Don Bosco we came out with a lot of successful things that we are impacted with. And the company is very appreciative with what we are doing and they are happy (Graduate 27, 2014).

The young man went on to say: "[W]e go a little bit extra because of what we have learned". Apart from showing his engagement, this statement implies that the technical skills gained from the DBTI permitted him to go beyond what was expected of him (ibid.). Notwithstanding the graduates' personal preferences, one could postulate based on this that the percentage of practical content in the 'automobile engineering' course may not actually have been too low after all.

In a personal communication, the Tema brand manager of the company confirmed the good technical performance of all four DBTI graduates working at his company, stating:

> [W]e have a number of your [DBTI] students working here with us and they have been able to –if I should say – defend what they went to study at your end and they have proven to be willing to also improve on whatever they came in with" (Company 3, 2014).

In a follow-up communication, human resources staff indicated that the DBTI graduates were "well equipped with adequate practical training" (Company 3, 2015). From an economic perspective, it makes sense for a company to maintain well-trained and technically inclined individuals. Accordingly, it is likely that the young men's technical skills positively impacted the decision to recruit them.

In line with this, another employer representative (Company 2, 2014) confirmed the adequacy of technical skills of 'electrical installation' DBTI graduates. Overall, it appeared that the sampled graduates were meeting the technical expectations held of them (see Company 1, 2014; Company 2, 2014; Company 3, 2014), even in those instances where they themselves did not regard them as adequate. It is possible that employers and graduates have diverging views on adequate competencies, or that the young people strive for more sophisticated and better paid jobs which require advanced skills. One graduate explained the reason for his discontent as follows:

> Being a technical student you have to know what you are doing. Practically you have to handle it and feel it and know what you are doing. You cannot just do theory and go to the field and find yourself doing a lot of things. […] It is not like that. You have to do a lot of practicals (Graduate 31, 2014).

For jobs which the graduates gained, it appears adequate to have basic technical skills, albeit in combination with a strong willingness to gain more overall and company-specific technical skills (Company 1, 2015; Company 3, 2014).

The vast majority of adequately employed individuals were working in the formal sector of the economy at the time of the interview. Only a small number of the self-employed persons found themselves in adequate employment, with most suffering from job or income insecurity. Due to the highly fluctuating nature of business, one young man explained that he had had to start selling cement alongside his electrical works in order to gain a sufficient and more stable income (Graduate 3, 2014). In evaluating the role of technical sophistication, it seems obvious that adequate technical skills form one precondition for successful self-employment in the TVET-related field: This means that leaving aside third variables, someone who is more technically inclined is more likely to win many contracts and earn an adequate income. Those engaged in the field of their training indicated that they had gained the technical skills necessary to carry out their jobs during TVET (Graduate 2, 2014; Graduate 3, 2014; Graduate 4, 2014). Most of

those self-employed indicated that they would have liked formal employment, but found themselves lacking the requisite certification.

Looking at the type and quality of employment, one young man emphasised that the certificate from the DBTI is insufficient to attain a desirable job: "[S]ending that certificate would really help you in getting a work but you really come in low-average work" (Graduate 30, 2014). Most 'electrical installation' and 'automobile engineering' graduates indeed worked as machine operators instead of technicians, engineers or electricians at the time of the interview. Graduates from both courses argued that most jobs in their branches require 'Advanced Technician' certificates or a HND, which is broadly equated with being technically inclined (Graduate 6, 2014; Graduate 23, 2014). It appears that many companies indeed take in only people with tertiary education (see Company 3, 2014). One employer representative explained that his company expects the DBTI contract workers to gain a higher certificate, namely 'Part II' of the 'Advanced Technician' certificates, in order to become full workers. This was the reason why all workers surveyed at this company endeavoured to further their education, and why some had already reached a higher educational level at the time of the interview (see Graduate 27, 2014).

Higher certification seems to go hand in hand with higher remuneration, which becomes obvious when looking at the income differences among the four 'automobile engineering' graduates working at the same company. The individual who had already reached the third stage of the 'Advanced Technician' training earned more than twice the amount of another individual who had not continued his education (see Graduate 22, 2014; Graduate 27, 2014).

One interesting finding concerns the 2013 'automobile engineering' cohort. Nobody among them had adequate employment at the time of the interview. Five of these six young men stated that the practical content during TVET was inadequately low, and only two of the four in this group who completed an industrial attachment stated that they could use the internship to compensate for their lack of technical skills (Graduate 32, 2014; Graduate 34, 2014). One 'automobile engineering' graduate who complained about the limited practical content during TVET and who felt that he had not gained adequate technical skills had been doing by-day work in the areas of gardening and construction, gaining an irregular income at the time of the interview (Graduate 30, 2014). Based on these observations, one could assume a relation between inadequate practical content, inadequate technical skills and inadequate employment. However, when asked to personally assess the reasons for their unsatisfactory economic situation, this group referred to systemic challenges such as corruption, inadequate finance or a missing or inadequate certificate rather than attributing their lot to a low quality of TVET (ibid). All in all, the findings show various solid interconnections between adequate technical skills and adequate employment.

Concerning the role of entrepreneurial skills, it seems obvious that being "equipped on how to handle customers, how to go about business and not to lose

in business" constitute important prerequisites to being a successful entrepreneur (Graduate 24, 2014). One young entrepreneur stated:

> [B]efore you can go into someone's home to work for that person your appearance has to be good and gentle. So many people are scared of strangers and of thieves and other stuffs. So you need to go there with some gentleness and calmness, respect and all that so that when you work for them, they will give you another job (Graduate 2, 2014).

With regard to customer relations, personal and core work skills seemed to play an imperative role for gaining and keeping an adequate employment position. Having taken along to his attachment place the discipline, eagerness and know-how on human relations gained during TVET, one graduate explained how these competencies contributed to his successful recruitment:

> [During the attachment,] I worked with the technicians on the line. So when the technicians are not around and there is a need for trouble shooting, I do it myself. So they realise: now, this guy is quite good […]. So after, they just recommended me that they will give me a contract. […] Before you can be recommended, you need to create a relationship with your boss, somebody who can, maybe, help you. […] I had the opportunity and they gave me the contract (Graduate 1, 2014).

One secretary explained how he was able to establish a good reputation at work and a good relationship with his superior by means of the work ethic and leadership skills gained during TVET:

> [W]hat I passed through was the discipline that they give to us in the school. So what I am now, my boss respects me a lot and he trusts me. He does everything... when he is going out or he is traveling he can leave the school for me to handle the school for one week, one month. He does not care because he knows that when he goes he has left somebody there that can take care of the office and of the school for him (Graduate 16, 2014).

It seems that DBTI graduates are well-known on the labour market for having gained these personal and core skills during TVET, and are thus well-appreciated and demanded by employers. Referring to his process of labour market transition, one young man working with three DBTI colleagues for an international automobile company stated: "[T]hey [the HR personnel] look at us that we were coming from a Catholic background, so we are good. And when we came into we proved to them that we are good. We did not give any lawless attitude like let us say absenteeism, laziness […]" (Graduate 28, 2014). In a personal communication, the graduates' superior affirmed the significance of a good work ethic for gaining employment: "It is not too much of the skill that you come on board with. It is much of how willing you are to learn. […] You need willingness to improve on human resource" (Company 3, 2014). The HR personnel of the same company attested that the 'automobile engineering' graduates from the DBTI possessed these personal skills, describing them as "diligent, submissive, enthusiastic and ready to learn" (Company 3, 2015).

A ‘business/ secretarial’ graduate indicated that the manners which the teachers conveyed contributed to the process of gaining employment after the attachment. Alluding to the assumed reason for being selected for the job, she stated: “[B]ecause she [her superior] saw how I am. She knows me. I am a typist. I do not disturb her. I speak to her politely. So, that is why she employed me” (Graduate 18, 2014). A number of graduates spoke about their personal development, from having been a stubborn or reserved youth to having become an open-minded communicative person capable of learning “how to talk to people, how to live with people, how to hear and understand people”, a change they attributed to TVET (Graduate 1, 2014).

All in all, the findings suggest that many of those vouching for a good quality of education and training at the DBTI gained adequate employable skills in the course of TVET, and that these skills qualified them to gain and maintain adequate employment. Interviews clearly indicated causal mechanisms between the three variables. However, still seven of the individuals who indicated improved employable skills did not have adequate employment. Following the graduates’ statements on this discrepancy, it can be partly attributed to systemic challenges, foremost the level of certification attained.

However, objectively speaking there appears to be a much more stringent division between certification from tertiary education and TVET certification than between different levels of TVET certification. One ‘business/ secretarial’ graduate claimed: “[I]f you send the certificate from Don Bosco now for some work, it is difficult now, too. Now they are taking Polytechnic, university, those people with the distinct certificate. This one did not get you any place you want” (Graduate 14, 2014). Data shows that two of three individuals without external certification had adequate employment and were working in the field of their training in the time of the interview, while three young men who carried all possibly attainable national TVET certificates were inadequately or not at all employed. Referring to the quality of employment, one young man added: “Because my qualification was not higher so I worked at the production instead of working at the maintenance” (Graduate 8, 2014).

4.2.3. Influence of TVET participation on non-material well-being

This part analyses Hypothesis 3 – the assumed relation between TVET participation and non-material well-being. The first dimension, ‘improved physical well-being’, was examined through health and access to health care. As only half of all interviewees made a statement concerning their health situation, it has only very limited significance. Five individuals reported that their health had deteriorated since their graduation which they traced back to the beginning of their current employment. One graduate who was working in the factory of an automobile company stated: “As we are working we are being exposed to a whole lot of things, you know. Our health... maybe the dust, the carbon, the […] chemicals around… You are in the industry, so we are being exposed to a whole lot” (Graduate 27, 2014). While ‘electrical installation’ and ‘automobile engineering’

graduates reported bodily problems, 'business/ secretarial' graduates who held administrative jobs alluded to psychological challenges in the form of enhanced stress (Graduates 12 and 16, 2014). These complaints relate to the quality of employment, and therefore not directly to TVET.

Five individuals of all TVET courses indicated an enhanced health status, which they directly linked to the time of training. More specifically, four individuals referred to the care and support of the Salesian community which helped them to increase their health, both mentally and physically. One instance mentioned saw an individual benefit from counselling to quit using drugs (Graduate 23, 2014). Many individuals mentioned the impact of sports on their health: "They increased my health in terms of sports because in the hostel most of the time we were doing exercise like playing football" (Graduate 5, 2014). In addition, living in the school-based hostel and doing cleaning exercises seemed to have raised awareness of the importance of hygiene and cleanliness (Graduate 4, 2014), which may have had a positive impact on efforts to prevent sickness.

Data indicates that 14 of 26 individuals (54%) did not have valid health insurance or access to health care service through their employer at the time of the interview. Seven adolescents indicated that their national health insurance had expired after their graduation and was invalid. Most had not renewed it in years. None of those self-employed had valid health insurance. The reasons named among those 14 individuals referred either to the yearly membership costs of health insurance (Graduate 4, 2014) or the belief that health insurance is only for sick people (Graduate 28, 2014). As many indicated to be able to somehow cover the costs for a treatment in the case of sickness – a possibility which goes hand in hand with an enhanced income situation – health insurance did not seem to constitute a priority for most individuals. In total, nine graduates were found to have better access to health care than at the prior time considered. Four individuals became insured for the first time after TVET graduation. Their employers insured them under the 'Health Insurance Scheme' which means monthly payroll deductions as a contribution to the 'Social Security and National Insurance Trust' (SSNIT) (Adinkrah, 2014).

Five individuals reported access to health care services through their work. One former 'automobile engineering' student explained: "My company now provides me with a clearance in case of health. We have got a clinic that I could easily be attended to" (Graduate 23, 2014). It appears that a better access to health care may result from formal employment, particularly in large companies. In total, only eight individuals were considered to have attained improved physical well-being, while 19 young people indicated that their status had remained unchanged or even worsened. The data collected indicates that positive changes in this regard mainly relate to changes in an individual's employment and income situation, and hence not directly to TVET participation.

The second dimension, 'enhanced social well-being', assesses whether the individual's state of 'self-respect and dignity', 'self-confidence', and his or her 'standing in the family' improved in the course of TVET. 17 of 24 individuals who made

a relevant statement indicated that their sense of self-respect and dignity had increased since their graduation from the DBTI. All of them were engaged in work and linked their gains in self-respect and dignity to employment. “I do not really depend on, let us say, what mum will give me or what dad will give me. I earn my own money”, one young man held (Graduate 28, 2014). Many indicated their financial independence and their ability to provide for themselves: “At first, I always asked my parents but now I am working. I do not actually ask them anymore” (Graduate 34, 2014). A self-employed individual linked his ability to provide for himself and his family to his time of training: “That is how I feed my family and myself. The institution has really changed me because I was serious with what I came to do and because of that I am able to get something out” (Graduate 2, 2014). Those six individuals who showed no increase in self-respect and dignity were either unemployed (Graduate 32, 2014; Graduate 9, 2014), earned very little income (Graduate 15, 2014; Graduate 18, 2014), lived off their savings (Graduate 10, 2014) or were contributing family workers (Graduate 29, 2014). The findings displayed above emphasise the role attributed to employment for social well-being.

Following collected data, 28 of 32 individuals (88%) indicated a heightened sense of self-confidence since the beginning of TVET. There seemed to be a growing conviction among the graduates that the DBTI had equipped them with a set of skills which would allow them to succeed in life. Irrespective of the fact that he was working in his parents’ shop, which was unrelated to his training and earned him little and irregular income, a fundamental belief in his technical abilities appeared to have given another graduate hope and confidence:

> [T]hose who work at the roadside, they do not have a qualification like I do. […] They did not go to the class to study. They just opened their shop and decided to employ people who are not - let us say - well-equipped with the automobile field” (Graduate 29, 2014).

Growing self-confidence often went hand in hand with pride in having achieved something in life and formed the basis for further aspirations: “I have the confidence, I have the hope because I have something done, something I can boost off. I am a technician. I am working and I am proud. I am proud of myself” (Graduate 31, 2014). One graduate who had been helped to rehabilitate from his drug addiction stated that “the exposure here just made me realise: look, I can be, I can do, I can reach whichever height. That is the most valuable thing I learned” (Graduate 23, 2014). Many graduates stated that they had gained more self-confidence through participation in extra-curricular activities, for instance by gaining a special position in the school. One young woman emphasised: “The cultural troupe and being the girls' prefect has given me some confidence to be able to speak in public. When I came to Don Bosco I was not able to speak before other people” (Graduate 20, 2014). Some graduates referred to the accomplished attachment for their rise in assertiveness (Graduate 18, 2014), while others related an increased self-confidence to employment (see Graduate 34, 2014). Overall,

findings clearly suggest that TVET participation had a positive effect on the sense of self-confidence among graduates.

The rise in confidence seemed to have developed in line with a higher standing in the family, at least for 21 of the 22 individuals who commented on this topic. Many reported that the accomplishment of a TVET course and the acquisition of skills and knowledge resulted in their being more recognised and respected in their family. One working 'automobile engineering' graduate explained:

> [A]fter the training […] I used my technical know-how to rule the family. As I have been through some training, I am lifting in the family, even though I am not the first-born, though. But I have been recognised because of the training I went through and how I handle issues also (Graduate 24, 2014).

It seems that higher education on the one hand leads to an increase in recognition, acknowledgment and trust while on the other hand causing enhanced responsibility, either in the form of having to help out in technical household work, e.g. detecting and solving electricity faults (Graduate 9, 2014), or gaining a job, earning money and contributing financially (Graduate 11, 2014). As indicated previously, many first time workers claimed to have a higher standing in the family once they began contributing; those whose families lived in the villages were particularly expected to share their income (Graduate 16, 2014). All in all, only one graduate stated that his standing in the family had not changed over time. Of the entire sample, 91% were considered to have reached an enhanced level of social well-being since the beginning of TVET. Most individuals clearly linked these improvements with their TVET participation, thereby establishing a direct link between the education and a change in social well-being.

For the third dimension of non-material well-being, 'increased security', 21 of 28 individuals (75%) stated that they felt safer and securer since their TVET graduation. Many individuals referred to a better income situation. "It [his life] has secured in a sense that you have a secure job, you know by the end of the month you get something for yourself", a 'business/ secretarial' graduate claimed (Graduate 12, 2014). Formal qualification in the sense of certification seemed to also elicit a sense of safety (Graduate 14, 2014; Graduate 28, 2014). Other persons attributed an enhanced feeling of safety and security to having acquired the skills and knowledge necessary for employment (see Graduate 18, 2014; Graduate 30, 2014). A former 'electrical installation' student related his feeling of increased security to his positive behavioural changes which, in his mind, came about with the education at the DBTI (Graduate 3, 2014).

Six individuals claimed not to feel safer and securer since their graduation. They related this status to the state of their finances, meaning enduring dependence on the family (Graduate 34, 2014) or responsibility for providing for the family (Graduate 26, 2014). Two individuals were unclear in their opinion, stating on the one hand an increased sense of security due to having a job while on the other hand expressing that their income earned was insufficient (Graduate 22, 2014). A perceived insufficient level of certification seemed to cause a common ground

for persistent insecurity, and form the basis for the wish for further education (Graduate 23, 2014). Nonetheless, the vast majority of individuals seemed to feel safer and securer compared to pre-graduation times, which they related to the time of training either directly or indirectly by referring to their improved employment and income situation.

There did not seem to be a persistent sense of insecurity with regard to the future, as many of those who felt unsafe and insecure had a clear vision for their future and a strategic plan in mind of how to reach it. When asked about his presumed whereabouts in five years' time, one unemployed graduate stated: "I see myself having my own building and having own cars. I am employed working with a big company. I am having a lot of income" (Graduate 32, 2014). The majority of graduates indicated that they had a strong belief in themselves and their competences. A technician working at an international automobile company stated: "Five years - I see myself to be a branch manager in another company, you know because by then I would gain a lot of certificates that are higher than what I am having now" (Graduate 27, 2014). Many graduates intended to use the DBTI certification to gain access to tertiary education in order to win a better job in the future. One young woman looked confidently into the future: "[I]f I move from Don Bosco now I will never go hungry because I have something to stand on" (Graduate 21, 2014).

Many individuals who made reference to their future saw themselves working in different positions and in different companies. Even the young woman who was in permanent employment strived for better work (Graduate 12, 2014). However, only very few individuals indicated that they planned to change their profession (see Graduate 28, 2014). Interestingly, only three graduates referred to having a family of their own in five years' time, whereas the remaining interviewees mentioned work and finances only. This can be seen as a sign of the young people's ambition regarding their careers.

Concerning the current employment situation of the working interviewees, only one 'business/ secretarial' graduate found herself in a secure employment position, being a permanent worker. However, a few 2011 graduates had already worked for one employer or contract entity for more than two or three years, for which reason it is likely that they were permanent workers as well (Graduate 14, 2014; Graduate 16, 2014). 16 individuals indicated that they held considerably secure employment positions, meaning that they either had a working contract for one year or had already been working for the same employer or contracting entity for at least one year. Hence, 17 of 28 working individuals were found to have been in (considerably) employment situations at the time of the interview.

Some former DBTI students had been offered access to companies, but only on fixed employment contracts of no more than one year duration and mostly in low-skilled positions, such as machine operators (see Graduate 1, 2014). Two graduates indicated that their contracts had recently been renewed for another year (Graduate 1, 2014; Graduate 16, 2014). Some workers alluded to the difficulty of

even gaining a one-year contract, which required tough negotiations with the HR departments of the respective companies and was only issued subsequent to excellent performance during attachment (see Graduate 28, 2014).

Most frequently, employment appeared to build on long-lasting periods of attachment: “After the six months [of attachment], they promised to pick us for the job and they gave a probation – another three months – making it nine months, almost to a year before we were picked” (Graduate 25, 2014). Frustrated, some graduates outlined that while they considered themselves more technically inclined than their University or Polytechnic counterparts, they still by comparison enjoyed less employment security, less recognition and received less remuneration. Nevertheless, it appeared to be standard operating procedure in companies in the industries surveyed to employ TVET graduates on one or two one-year contracts before making them permanent workers (Company 1, 2014).

Those one-year contract-based workers nevertheless found themselves in securer employment situations than their four self-employed peers who commented on this topic. An ‘electrical installation’ graduate clearly demonstrated the employment insecurity in his life: “It [work] is something that comes and goes. It is not very stable. So it will be about, maybe after this work, maybe four or five months before another one will come” (Graduate 3, 2014). Self-employment is known to come along with employment insecurity, unless having a long-term relationship with a contractor who appreciates one’s work and keeps one busy with contracts (see Graduate 2, 2014). All in all, 26 individuals were found to have improved security in life since their graduation from the DBTI. Although, most individuals related this change to employment, some have established more direct links with their participation in TVET.

The last dimension of ‘non-material well-being’ concerns the question of whether graduates enjoyed ‘more freedom to make own decisions and take actions’. One graduate stated that he only learned to make his own decisions during TVET: “When I came to Don Bosco, [I] learn[ed] to take decisions on [my] own, be hard-working, have discipline” (Graduate 10, 2014). As already indicated, one young man claimed that participation in school activities and the caring help of the Salesians helped him to quit unhealthy habits, which in turn empowered him to take back control of his life (Graduate 23, 2014). One youth explained:

> I applied for Kumasi Poly[technic] to do my HND, not knowing my uncle was not all that happy. He wanted me to help him for some number of years before going but he could not tell me. So now, I pay for the school fees. I have done everything. I am going myself (Graduate 10, 2014).

Furthermore, it looks as if in many households, parents give their children more freedom of decision-making with the accomplishment of education, as they equate this with enhanced maturity:

> [T]he time before the training, my mum decided for me because she is the one taking care of me, so she decided for me. But after the training she got to know that yes,

> the son is now matured and can decide for himself. […] Now I am more independent than before the training (Graduate 24, 2014).

The sense of freedom over decision-making appears to have strengthened among the majority of young persons with the start of financial independence. One working 'automobile engineering' graduate held: "I am now employed. I do not ask my parents for anything. And I am now free. I can do whatever I want. I can choose to go anyplace. But first, I could not do that. But now through the training I got employment and now I am free" (Graduate 34, 2014). "After the training and the work I am doing, I am free and I take decisions on my own", another graduate claimed (Graduate 5, 2014).

Even though 31 interviews indicated an enhanced freedom of choice, many interviews also contained statements alluding to constraints in acting out the plans or decisions made, and for this reason the indicator was rated as indistinct. While many individuals seemed to feel that they had more options through the training, they were still hampered to take their desired action, for instance pursuing tertiary education, and attributed this mostly to a lack of financial resources (e.g. Graduate 13, 2014) or the preponderance of moral responsibilities vis-à-vis their families (Graduate 20, 2014). A 'business/ secretarial' graduate who had been working at a filling station since graduation explained:

> So whenever I was doing this car this is not my nature. I just want to go to school. That is my plan for this thing. But because there is no money... I even wrote my dad. There is no money. So I have to manage it small, small. If I get the money, then I should further my education. So that place now, it is not for me, it is not my heart to work over here. I will be seeing my colleagues, they are in school, they are learning different, different things. When I see them I feel bad (Graduate 14, 2014).

A few young people expressed the wish to be self-employed, but also stated that they lacked the financial means to afford the necessary tools and machines or to rent a place of business (see Graduate 22, 2014). The DBTI had in the past offered graduates micro-credits to start into entrepreneurship. However, because the repayment rate was considered too low to keep the system going, it was eventually abolished (Harris, 2014). None of the graduates under study had benefited from such credit system.

Many graduates seemed trapped in vicious circles and unable to take action. One worker explained: "[W]hat I want to buy I can buy it. But in general, because of the situation at home refrains me from doing that" (Graduate 11, 2014). While some individuals reported to have gained more decision-making power from their parents since graduation, one young man reported to be still bound by his parents' decisions due to his living in the family home (Graduate 29, 2014). In five interviews, constraints faced were considered to clearly outweigh the individuals' actual abilities.

The feeling of responsibility towards their family appeared strong among the TVET graduates. The majority of working graduates supported their families with

money: “With the income that I get it is difficult to support my family with it. But I cannot spend the little I get all by myself. So I need to stretch my hand to help my little brothers and my mum, too” (Graduate 2, 2014). One ‘business/ secretarial’ graduate, while only earning 90 USD per month, chose to invest the little she had into buying her mother a stove to prepare food for selling, thereby contributing to the family’s income security. By also supporting her brother, she figured that “if everybody is working, then they will not depend on me again”, which implies that she held hope of being able to spend her money on her own education in the future (Graduate 20, 2014). Some graduates seemed to put their personal progress second: “When I support my family, I will be left with what I use for transport and food. So I find it very difficult to save” (Graduate 8, 2014). The oldest child in the family appears to have a particularly high moral obligation (Graduate 26, 2014) and some have become the main income providers in their family (Graduates 2 and 24, 2014).

All in all, the findings indicate that 74% had a greater decision-making ability following TVET graduation. Only two 2013 ‘automobile engineering’ graduates were found not to have greater freedom of choice and action at present, which could be attributed to their employment and income situations. One young man worked casually in a TVET-unrelated area and felt deprived of his abilities to do what he really wanted to, while the other was unwillingly unemployed and lacked finance to gain further education (Graduates 30 and 32, 2014).

Summing up and weighing out the various dimensions, the data collected has detected an improved overall non-material well-being in 27 of 34 interviews (79%). All in all, it seems evidence that employment often served as an important intermediate variable to an increased non-material well-being.

5. Conclusion

Having analysed the empirical data, the following chapter concludes this thesis by summing-up, interpreting and deducting implications of its main findings. The first section presents the key empirical findings, structured according to the hypotheses, and answer the underlying research question. What follows is an interpretation and reflection of the findings against the backdrop of the theoretical model and methodology used in this thesis. The next section classifies the findings in an evaluation framework. The final section concludes this thesis with a reflection on TVET cooperation and an outlook.

5.1. Key empirical findings

Empirical data has indicated tendencies in regard to the hypotheses underlying this study. Concerning Hypothesis 1, the results of the data analysis have suggested a high likelihood of an increase in material well-being after TVET participation, as was presumed by this hypothesis. The analysis has revealed that the majority of sampled individuals (68%) experienced an enhanced overall material

well-being since their graduation from the *Don Bosco Technical Institute*. An improved employment situation since TVET graduation, which was found for 79% of all interviewed individuals, was broadly identified as the most significant individual outcome of TVET. The majority of young people gained their first ever employment after graduation, an achievement which they largely attributed to their TVET participation. This finding suggests that TVET at the DBTI broadly facilitated and paved the way for successful labour market integration. Of the entire sample, only 15% of 2013 graduates were not absorbed by the labour market. They related this mainly to systemic challenges, primarily the (low) level of certification, or a lack of personal networks. It appears that industrial attachment had been a key trajectory to employment for the majority of workers as many of them were working in the company of attachment.

In large part due to an improvement in their employment situation, an increased income situation could be observed among the workers, which in turn seemed to have positively impacted their ability to save. The housing situation appeared to have changed only for very few individuals. Enhanced capital appeared to follow one objective – saving – with a clear aim of affording advanced education thought to permit access to higher job positions and a better income in the future. Although income was generally low among the majority of graduates (gross average: 123 USD per month, 'business/ secretarial' graduates: 70 USD per month), individuals seemed to follow the premise 'save most and spend least', which was reflected in their method of money spending.

Concerning Hypothesis 2, the results from data analysis also indicated a high likelihood of improved employable skills for individuals who were satisfied with the quality of their TVET course. Many of those who improved their employability during TVET indeed found and managed to maintain adequate employment. Data collected shows broad approval of these two interrelated links. However, it must be taken into account that direct links between all three variables (good-quality TVET leading to enhanced employability leading to adequate employment) were only indicated in a limited number of interviews. The link between employable skills and adequate employment appears highly affected by third variables, mostly relating to the dynamics of the labour market.

Although graduates from all courses attested to a good quality of TVET, only 'business/ secretarial' and 'electrical installation' graduates seemed to have been absorbed by their respective industries of choice. It is possible that unemployment and an inability to find adequate employment may make young TVET graduates question the quality of competences gained. Graduates from the 'business/ secretarial' course most frequently confirmed this bipartite relation. It appears that a combination of a high percentage of practical content, motivating and available teachers and available machines contributed to the sophistication of technical competences, primarily typing skills, which appear vital for gaining and keeping an adequately remunerated job as (assistant) secretary or desk officer. Most 'business/ secretarial' graduates felt well-prepared by their training for the world of work, and all of them managed to fit into the labour market. Moreover, all save

one young woman were working in the field of training at the time of the interview. This finding suggests that the 'business/ secretarial' course provides needs-based trained professionals for the labour market.

Interestingly, many 'electrical installation' and 'automobile engineering' graduates seemed to have higher demands on the level of technical skills gained throughout TVET than their respective industries. The sampled employer representatives stated that they required basic technical skills from TVET graduates. If DBTI graduates did not have these skills, it would be questionable why they managed to gain and maintain employment in local companies. The 2013 'automobile engineering' cohort clearly indicated no approval of the third hypothesis. This could be attributed mostly to a prevalent discontent with the quality of TVET, a feeling of inadequate technical skills acquisition, and a broadly failed labour market transition. Nevertheless, the majority of individuals had adequate employment at the time of the interview. Most youths worked in the private sector of the formal economy, some in global corporations in and around the Tema 'Heavy Industrial Area'. However, the majority worked in low-skilled and low-paid positions that permitted only a marginal improvement of material well-being. Higher positions and income and employment security appeared to require higher qualification, as was confirmed by the employer representatives.

Another interesting finding concerns the analyses of quality of TVET. Apart from the quality indicators examined, many students indicated that the *Don Bosco Technical Institute* has particular characteristics which make the institution positively stand out among public and private TVET institutions. This broad perception appeared related to the trusteeship of the institution and the presence of the Salesians of Don Bosco – through their way of teaching, being approachable to and approaching students and their mentality and methodology of leading the institution, the Salesians seemed to have had a positive impact on the development process of these youths. In the interviews, many individuals indicated that the Salesians supported them in paving their way through life by emphasising human relations, teaching moral behaviour and developing work ethic in individuals. Individuals interviewed indicated that graduates from the DBTI are broadly known and recognised in the local industrial community for their personal and core skills, in addition from their technical skills, an appraisal which employer representatives confirmed. Good teachers, an adequate range of extra-curricular activities and entrepreneurship training seemed to have made a major contribution to the development of these skills.

Hypothesis 3 was broadly approved, as the findings of the data analysis indicated a high likelihood of improved non-material well-being after TVET participation (79% of all graduates). However, the findings varied among the different dimensions. In regard to physical well-being, the majority of individuals indicated no change in health since having started TVET. An improvement in health status was experienced only by a few individuals who indicated that the sports, hygiene awareness work and counselling and moral support of the Salesians at the DBTI increased their overall health. The same number of graduates reported a negative change in their health situation, both physically and psychologically since

having started working. Better access to health care was experienced only by working individuals, as some gained access to health services at their workplace or were insured by their employer. Most individuals had invalid national health insurance. It seems that there was no conscious and fully developed perception of health and health care among the majority of graduates.

Broad positive developments after TVET graduation were experienced in the dimensions of social well-being and security. It appears that the competences gained during TVET, foremost technical skills, triggered an enhanced self-confidence and a higher standing in the family among the graduates. In many families, higher levels of education appear to be equated with enhanced maturity which in turn means higher expectations and more responsibility. The majority of interviewed individuals also indicated enhanced security. Having gained education and training, they appeared to face their future with confidence. Most graduates presented themselves content with their choice of trade and confident that they would find adequate employment (or a better job) in their field of training in the future. Graduates appeared on track to self-realisation, with TVET having paved their way to employment and a better livelihood.

The majority of adolescents indicated feeling an increasing sense of independence and more freedom of choice in life since having completed TVET. Individuals indicated having more opportunities and decision-making ability thanks to their TVET qualifications. The majority stated that they had gained the ability to support their family and friends either financially or with their technical skills gained during TVET. This in turn may enhance their standing in the community and their social development. Although the majority of individuals seemed to feel more freedom since having attended TVET, many individuals were hampered in taking action and making use of their range of opportunities – e.g. gaining higher education – due to financial constraints and an increased (financial) responsibility vis-à-vis their families. It seems that TVET participation broadened these individuals' minds and increased their opportunities and freedoms, yet their socio-economic context still held them back from self-realisation.

All in all, findings from the empirical analysis suggest broad approval of the three hypotheses. It appears that the majority of TVET graduates had indeed experienced an enhanced material and non-material well-being since their graduation from the DBTI, and that this could either indirectly – through their employment – or directly be attributed to their TVET participation. The most evidence for a direct relationship between TVET participation and individual well-being was delivered for the following indicators: better employment situation, more self-confidence, higher standing in the family, confidence in the future.

Based on the above findings and taking into account that they reflect indicative data, the underlying research question (*To what extent and how does participation in TVET positively impact on the well-being of young people from low socio-economic backgrounds?)* is answered as follows: Through the transfer of a set of skills – primarily technical skills, personal skills, and core work skills – TVET at

the *Don Bosco Technical Institute* may contribute to an overall improvement of well-being of young people from low socio-economic backgrounds. TVET participation has a positive influence on both material and non-material dimensions of human life, although not all dimensions may be affected by the same intensity. At the same time, all dimensions of human well-being appear to be intertwined. While some effects may be directly related to TVET participation, the majority of may be attributed to a better employment situation and increased income and may therefore indirectly relate to education and training.

The motive behind and most valued outcome of TVET from the perspective of the individual participants is employment and economic empowerment. Through TVET young people may gain or enhance their employable skills. This increases their chance to find and take up employment, often facilitated through the accomplishment of an industrial attachment. By gaining adequate technical competences, relevant work experience and personal skills (work ethic) graduates are equipped to find employment in their respective sector. Complementary core work skills (communication and team work) and entrepreneurial skills (customer relations) may enhance their chance of keeping employment.

For young people from low socio-economic backgrounds, being able to take up employment and gain own income, even if low-payed, may impact on their entire living situation. During TVET they may struggle to satisfy their basic needs or to pay their school fees and after TVET they may be able to take up employment, earn an own income and support their family. With the completion of TVET and the start of financial contribution, individuals may gain a higher standing in the family. They may also get a different self-perception through education and training, develop pride for having achieved something valuable in life. Entering TVET with low expectations, individuals leave TVET with a set of options, enhanced self-confidence and confidence in the future.

5.2. Theoretical and methodological reflections

This part interprets the key findings with regard to the theoretical framework and methodological approach used. The findings from the empirical investigation confirm the basic suppositions of prevailing human capital theory on the individual level, namely that TVET participation would lead to an increase of employability which in turn enhances the possibility of gaining employment and improving livelihoods. The empirical findings concerning the employment and income situation of TVET graduates suggest that the assumptions of human capital theory in regard to TVET apply to the sample, although higher earnings do not benefit all individuals in the same way. Human capital theory would also fail to explain non-material effects which emerged as a direct result from TVET.

Compared to human capital theory, the ‘Capability approach’ attributes an intrinsic role to skills-acquisition, hence offering an explanation for the rise of diverse effects arising directly from TVET participation. The empirical research conducted confirmed the underlying assumptions of the ‘Capability approach’ and more recent literature holding that TVET may lead to an increase in the capability set of

graduates, taking into account the variety of employable skills gained during TVET. Many graduates indicated that TVET has functioned as a door opener and paved the way for many positive developments in material and non-material well-being dimensions. Findings show that TVET acts as a capability in itself by giving individuals formal access to advanced education, as well as a means to develop or enhance capabilities, such as literacy or technical skills. Empiric observation shows that these capabilities enabled a number of individuals to realise *functionings*, such as having paid work and being safe. It was also shown that the sense of freedom and independence was touched.

Even though the approach of this study lays a focus on the micro-level and cannot reflect on broader social and economic levels, in personal communications many TVET graduates referred to the meso-level when it came to explaining challenges of gaining access to the labour market. Interestingly, many young people alluded to corruption and nepotism as challenges in gaining employment. Personal networks or support from a personal advocate were named as pivotal prerequisites for successful labour market integration.

Having evaluated empirical findings in the light of the theoretical model, the methodological approach followed in this thesis also requires reflection. The selected research design offers an exemplification of *perceived* relations between TVET participation and individual well-being, based on individual viewpoints. Findings of the empirical field study display a snapshot and are indicative of the group under study, namely (1) 34 young people who have participated either in the 'automobile engineering', 'electrical installation', or 'business/ secretarial' TVET courses at the *Don Bosco Technical Institute* and who graduated either in the year 2011 or in the year 2013, and (2) three employer representatives of three companies located in Tema, Ghana, at which some of them had accomplished an industrial attachment or gained employment.

Both samples are small and not representative for the entire TVET sector in Ghana. The main sample is not representative for the entire population of TVET graduates in Ghana (or the entire population of DBTI graduates, or the entire group of graduates of the respective TVET courses). The sub-sample is not representative for the entire labour market in Ghana (or the entire group of employer representatives of companies which employed TVET graduates, or the entire group of employer representatives of companies which employed DBTI graduates). Furthermore, the field study did not include a control group, and thus an impact of TVET participation on individual well-being (correlation) cannot be robustly ascribed even though some individuals explicitly indicated a relation between their TVET participation and changes in their personal well-being. Attribution gaps remain, taking into account also the variety of third variables which may have impacted upon the findings.

Additional methodological limitations evolve from the operationalisation, which is based on a number of assumptions that may be subjective and debatable. One instance of this is the assumption that a practical component can be considered

adequate if amounting to a minimum of 50% of institution-based time. One additional methodological flaw in the operationalisation concerns the fact that certain indicators, namely food, appearance, and physical environment, were not operationalised due to a perceived complex assessment that led to some dimensions of well-being not being assessed in their entirety. Moreover, the selection of quantitative indicators for measurability proved insufficient to understand the complexity of topics.

One more general challenge encompassed in the selected methodological approach concerns the comparison of timeframes, meaning the gathering of information on different life stages, specifically pre- and post-TVET well-being status. Gaining relevant data on a variety of topics on both points in time proved a challenge during the interview conduct. The narrative interview which was used to gain the required flashback/ retro perspective data proved time-consuming and allowed the interviewer less influence on the content.

5.3. Within a broader framework of analysis

Empirical analysis has shown that the main motives behind TVET participation are employment and increased earnings. Most projects and programmes in TVET cooperation target employability and employment, which is the reason why they are mostly assessed according to how well they achieve these goals. This thesis did not strive to undertake an evaluation of DBTI-offered technical and vocational education and training. However, apart from the methodological limitations (no control group), it certainly comprises elements of an evaluation. Like the TVET synthesis report of Bread for the World, this study explored micro-level effects of TVET participation. A focus on TVET recipients and the overall methodological approach followed in this thesis allowed for the gaining of valuable in-depth information on assumed relations between TVET and different dimensions of human well-being, which may certainly constitute a useful contribution to a broader assessment on the value of TVET.

By examining the acquisition of employable skills in the course of TVET, this study explored the DAC principle of ‘Effectiveness’. The ‘Effectiveness’ of DBTI-provided education and training would probably be rated as ‘good’ after taking into account the number of graduates who have gained adequate employable skills and the quality of TVET. Certainly, impact measurement underlies the attribution gap and requires a rigorous evaluation approach that integrates quasi-experimental designs (control groups); however, a survey of labour market transitions of sampled graduates in the empirical study also provided indicative information on effects on the individual impact-level.

An evaluation would provide data on higher aggregated impacts and examine the remaining DAC criteria for evaluations, namely ‘Relevance’, ‘Efficiency’ and ‘Sustainability’, which would be interesting for the case under study in order to be able to assess the education and training at the DBTI in its entirety. One particularly interesting criterion for this study is ‘Relevance’, as it concerns the question of whether TVET graduates received adequate needs-based training in order to be

absorbed by the labour market. On a higher aggregated level, 'Relevance' looks at whether the measures' objectives are geared towards an overall development goal. Looking at the labour market transition rate of sampled DBTI graduates, one could suggest that on the micro-level the TVET courses 'business/ secretarial' and 'electrical installation' are relevant because all but one 'business/ secretarial' graduates are working in the field of their training. Furthermore, many employments developed from industrial attachment and have been held ever since, which can be interpreted as a sign of correspondence between acquired competences and the need of employing companies.

Based on the empirical data, the third course, 'automobile engineering', appears less relevant and needs-based. Of the 2013 cohort, those three (out of six) persons who do work are not working in the field of their training. This finding suggests an extension of empirical research in order to validate or refute these findings. If the challenge of labour market transition has indeed been experienced among the majority of graduates over the past years, then the institution would have to seriously consider modifying or abolishing this TVET course. However, these decisions should be based on large-scale qualitative and quantitative empirical research and take into account trends and dynamics of the labour market and sector employment flows. Another question is what benefits and livelihood particular economic sectors in which people are trained can provide. A look at market trends and booming economic sectors could open up new training sectors. It is, however, questionable whether an institution that is bound to national regulations such as the *Don Bosco Technical Institute* – foremost in the setting of curricula – in return for government financial support is flexible enough to adapt to the changing needs of a labour market, although it has reacted to market dynamics in the past. Furthermore, one may question the involvement of the government in this regard, and ask whether the Ghanaian government is not responsible for matching the economy with equipped skilled workers.

One systemic challenge of all technical students, particularly 'automobile engineering' graduates, seems to be the *level* of formal qualification gained from TVET which could be eased through partnerships with tertiary education institutions to facilitate the gradual transition into higher education for those interested. In any event, institutions should constantly stay informed about the situation on the labour market, maintaining direct contact with the respective sectors of training on the labour market in order to assure needs-based education and training. For this reason, thorough evaluations are of great importance to any TVET provider. Links with the industry appear highly important for relevant TVET in order to increase opportunities for successful and smooth labour market transitions which can be facilitated through industrial attachment.

Relevance' also allows a deeper look into the quality of employment and the actual use of acquired skills. The majority of working graduates expressed their satisfaction about being employed but indicated general caveats with regard to their working position, feeling that they could not use the full range of acquired skills at their workplace while earning at a low level. It appears that for most individuals

post-graduation employment was only considered a temporary stage to acquire capital for advanced education. One could ask whether TVET has failed to reach its objective of employability if the majority of young people feel obliged to further their education in order to gain a decent job or whether this development simply reflects workplace and wage structures. Graduates complained about the low income that they were paid; however, taking into account their socio-economic background and the fact that some of them are the main income providers in their family today, it seems that the opportunities which arose with TVET participation have contributed to poverty reduction on the level of the individual (and the family).

5.4. Reflections on TVET cooperation and outlook

Examinations and assessments of TVET – be they in the form of qualitative small-scale and micro-level analyses or in the form of quantitative, large-scale and multi-perspective evaluations – are crucial for stakeholders in development cooperation and stakeholders worldwide who invest in technical and vocational education and training. Without assessment, there can be no learning process, and this is crucial for further development. As a form of education, TVET has been on the rise in many countries worldwide and taking into account the large numbers of basic education leavers and the broad assumption that TVET can reduce youth unemployment, it is likely to prevail in this position. Some governments in the global South, amongst them the Ghanaian, understand TVET as a means of effective poverty reduction and have integrated the promotion of TVET into their national policy for poverty reduction (e.g. Ghana's 'Vision 2020'). This in turn encourages donors increasingly bound to results-oriented cooperation and apprises them of the need to invest into this education sector.

As a small contribution to the learning process in international TVET cooperation, the following key suggestions regarding post-basic education formal TVET provision can be drawn from this thesis:

(1) A combination of a high percentage of practical training, the accomplishment of industrial attachment, qualified and motivated teachers and properly equipped training facilities contribute to the gaining of adequate technical skills which are relevant for gaining employment in the respective field of training, thereby allowing for economic empowerment. An industrial attachment may compensate inadequately limited practical training by offering practical work experience. It may furthermore contribute to the gaining of additional skills, such as technical expertise or customer relations and it may pave the way to employment based on good performance and a good track record with employers. Geographical proximity to relevant industrial areas seems important in order to ensure that students do not quit the internship due to financial problems, as most attachments are either unpaid or remunerated with small allowances only.
(2) In order to ensure high effectiveness, TVET provision should be based on the needs of the labour market. This requires tracer studies and contact maintenance with former students in order to place TVET courses under constant

review and scrutiny. Consistent exchanges and cooperation with the private sector, as well as studies of the national economy (rising industries or innovative new branches requiring particular professional labour) and labour market are prerequisites to the provision of beneficial TVET. Needs-based TVET acquisition also requires the flexibility to make alterations to TVET course offerings in the event that they prove inadequate. Cooperation with the private sector may enable students to find attachments or employment with more ease. Industry links may culminate in partnerships which may allow for better furnishing of TVET programmes with company-provided equipment and tools. TVET institutions can organise job fairs and career days which may further enhance employment chances and give youth a realistic view on the job market and required job profiles.

(3) It is advisable to incorporate the acquisition of personal and key working skills, particularly communication skills and work ethic, into the methodology and philosophy of TVET programmes. In this regard, entrepreneurship training or awarding of positions within the school appear to contribute. Acquired social skills not only help youth gain adequate employment but also to gain a better social standing in their communities.

(4) If a TVET provider aims at catering for a particular social group, the TVET system should be adapted to that target group. In the case of youth from poor families, for instance, the institution should make sure that youth are able to complete their training without interruptions due to financial distress (e.g. payment of school fees). Scholarships and part-time or short courses which allow individuals to work next to their studies may constitute viable options to counter these challenges.

(5) It appears that quite a number of graduates endeavour to set up their own businesses. They are, however, confronted with a lack of assets for realisation. TVET institutions could provide them with basic tools or integrate small micro-finance units which upon advice and consultancy could lend financial support to enable youth entrepreneurship.

Certainly, the empirical research and analysis has raised various questions which should be addressed in further research. Further research should be conducted on TVET provided by the DBTI in order to detect whether the courses are demand-oriented, which they would be required to be in order to satisfy the DBTI's objective of employability. It would be advisable to conduct a broader empirical study examining the labour market transition processes of a larger sample of graduates from all offered TVET courses and from various graduation years. The empirical study could serve as a qualitative pre-study which could be furthered in the course of a quantitative research design entailing a larger sample and a control group to make robust suggestions. Furthermore, one could repeat the empirical field study with the same main sample in five or ten years' time, which may give an indication of the role of TVET in the long-term.

Another possible research area would be to use a comparative design and compare the labour market transition rates of the institution under study to that of another formal TVET providing institution in Ghana which offers the same

courses. Such comparison could point at ‘Do’s and Don’ts’ in a particular sector. A cross-sectional research of formal TVET in Ghana entailing empirical data from all state and private formal TVET providers in Ghana as regards the offer of TVET courses, costs and up-to-date labour market transition analyses (in the respective fields of training) would be of great use to a variety of stakeholders, primarily graduates and industry. Integrating non-formal and informal TVET offers into the research could also provide an interesting field of exploration, as one could test the broad assumptions that people who undergo non-formal and informal are more likely to work in the informal sector of the economy than people who complete school-based formal TVET.

The empirical analysis focused on one TVET providing institution in Ghana. It would certainly be interesting to extend this research beyond the national level to include other West African countries, such as Nigeria whose government has also elevated TVET prominently on its development agenda, and to conduct a regional cross-sectional study. Such an undertaking may create synergies and reciprocal learning, for instance when exploring in how far TVET has contributed to the successful rise of the IT industry in Rwanda under Paul Kagame.

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Annex: Overview of personal communications

Main sample: DBTI graduates (interviews; transcribed)[21]

Graduate	Course	Place of interview	Date
Graduate 1	Electrical installation	DBTI, Ashaiman, Ghana	07/11/2014
Graduate 2	Electrical installation	DBTI, Ashaiman, Ghana	13/10/2014
Graduate 3	Electrical installation	DBTI, Ashaiman, Ghana	14/10/2014
Graduate 4	Electrical installation	DBTI, Ashaiman, Ghana	28/10/2014
Graduate 5	Electrical installation	DBTI, Ashaiman, Ghana	17/10/2014
Graduate 6	Electrical installation	DBTI, Ashaiman, Ghana	11/11/2014
Graduate 7	Electrical installation	DBTI, Ashaiman, Ghana	07/11/2014
Graduate 8	Electrical installation	DBTI, Ashaiman, Ghana	09/10/2014
Graduate 9	Electrical installation	DBTI, Ashaiman, Ghana	10/11/2014
Graduate 10	Electrical installation	DBTI, Ashaiman, Ghana	10/11/2014
Graduate 11	Electrical installation	DBTI, Ashaiman, Ghana	10/10/2014
Graduate 12	Business/ Secretarial	DBTI, Ashaiman, Ghana	23/10/2014
Graduate 13	Business/ Secretarial	DBTI, Ashaiman, Ghana	20/11/2014
Graduate 14	Business/ Secretarial	Company 32, Ashaiman, Ghana	18/11/2014
Graduate 15	Business/ Secretarial	DBTI, Ashaiman, Ghana	28/10/2014
Graduate 16	Business/ Secretarial	DBTI, Ashaiman, Ghana	16/10/2014
Graduate 17	Business/ Secretarial	DBTI, Ashaiman, Ghana	11/10/2014
Graduate 18	Business/ Secretarial	DBTI, Ashaiman, Ghana	19/11/2014
Graduate 19	Business/ Secretarial	Company 21, Ashaiman, Ghana	20/11/2014
Graduate 20	Business/ Secretarial	Company 22, Ashaiman, Ghana	13/11/2014
Graduate 21	Business/ Secretarial	DBTI, Ashaiman, Ghana	08/10/2014
Graduate 22	Automobile engineering	DBTI, Ashaiman, Ghana	30/10/2014
Graduate 23	Automobile engineering	DBTI, Ashaiman, Ghana	21/10/2014
Graduate 24	Automobile engineering	DBTI, Ashaiman, Ghana	22/10/2014
Graduate 25	Automobile engineering	Company 3, Tema, Ghana	24/10/2014
Graduate 26	Automobile engineering	DBTI, Ashaiman, Ghana	16/10/2014
Graduate 27	Automobile engineering	Company 3, Tema, Ghana	24/10/2014
Graduate 28	Automobile engineering	Company 3, Tema, Ghana	24/10/2014
Graduate 29	Automobile engineering	DBTI, Ashaiman, Ghana	09/10/2014
Graduate 30	Automobile engineering	DBTI, Ashaiman, Ghana	10/11/2014
Graduate 31	Automobile engineering	DBTI, Ashaiman, Ghana	10/10/2014
Graduate 32	Automobile engineering	DBTI, Ashaiman, Ghana	09/10/2014
Graduate 33	Automobile engineering	DBTI, Ashaiman, Ghana	17/10/2014
Graduate 34	Automobile engineering	DBTI, Ashaiman, Ghana	09/10/2014

Sub-sample: Employer representatives (interviews, transcribed, electronic communication)[22]

Company	Form of communication	Place of interview	Date
Company 1	Personal interview, electronic communication	Company 1, Tema, Ghana	12/11/2014
Company 2	Personal interview	Company 2, Tema, Ghana	14/11/2014
Company 3	Personal interview, electronic communication	Company 3, Tema, Ghana	24/10/2014

[21] Transcripts or protocols of interviews may be requested from the author.

[22] Transcripts or protocols of interviews and electronic communication may be requested from the author.

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