

Chapter 1. Introduction: TVET Research in Sub-Saharan Africa¹

By 2050, the number of inhabitants of sub-Saharan Africa (SSA) is expected to double to two billion people. Some of the challenges related to population growth include meeting food needs, increased urbanisation without adequate energy and transport infrastructure, and an increased strain on the environment. The average age on the continent is 18 years, and youth unemployment is high (↑Desjardins, 2019; ↑World Bank, 2020). The result of all of this is that many people see migration within Africa, to Europe and beyond, as their easiest option. Therefore, to realise the continent's potential, citizens need to acquire skills that will enable them to engage in gainful employment or embark upon their own enterprises.

1.1. Education and research in SSA

Excellent education and research systems are prerequisites for innovation, social participation, employment and economic growth; the acquisition of professional skills and qualifications enhances an individual's social and economic status. Many African countries have developed functioning higher education systems. Still, they have faced difficulties in promoting mid-level occupations, technical and vocational occupations, as well as the associated technical and vocational education and training (TVET) systems. TVET is a type of education pathway that provides individuals with occupation-specific knowledge, practical skills and attitudes that are independent of the place, content, and the provider of education (see Chapter 4.1 for a more detailed discussion). This lack of support for the transition to the labour market can be called the 'missing middle in post-school education' (↑Lolwana, 2017). Effectively, this missing middle results in a large proportion of young people in SSA being neither in education nor in employment due to a lack of opportunities that correspond to the skills they acquired during their education. Eliminating this shortage of skilled workers in SSA is both the subject of specific Sustainable Development Goals (SDGs) and essential for the achievement of SDGs in general. TVET enables the national economic development and the realisation of the populations' full potentials—potentials that many countries in SSA desperately

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need to address challenges. However, the development of TVET faces multiple challenges, for reasons both political and practical, such as underfunding, a lack of interest from employers, and the stigmatisation of the TVET sector (e.g., †[Lolwana, 2017](#); †[Papier, 2017](#); see also Chapter 7.3).

1.2. Systems approach and theory of change

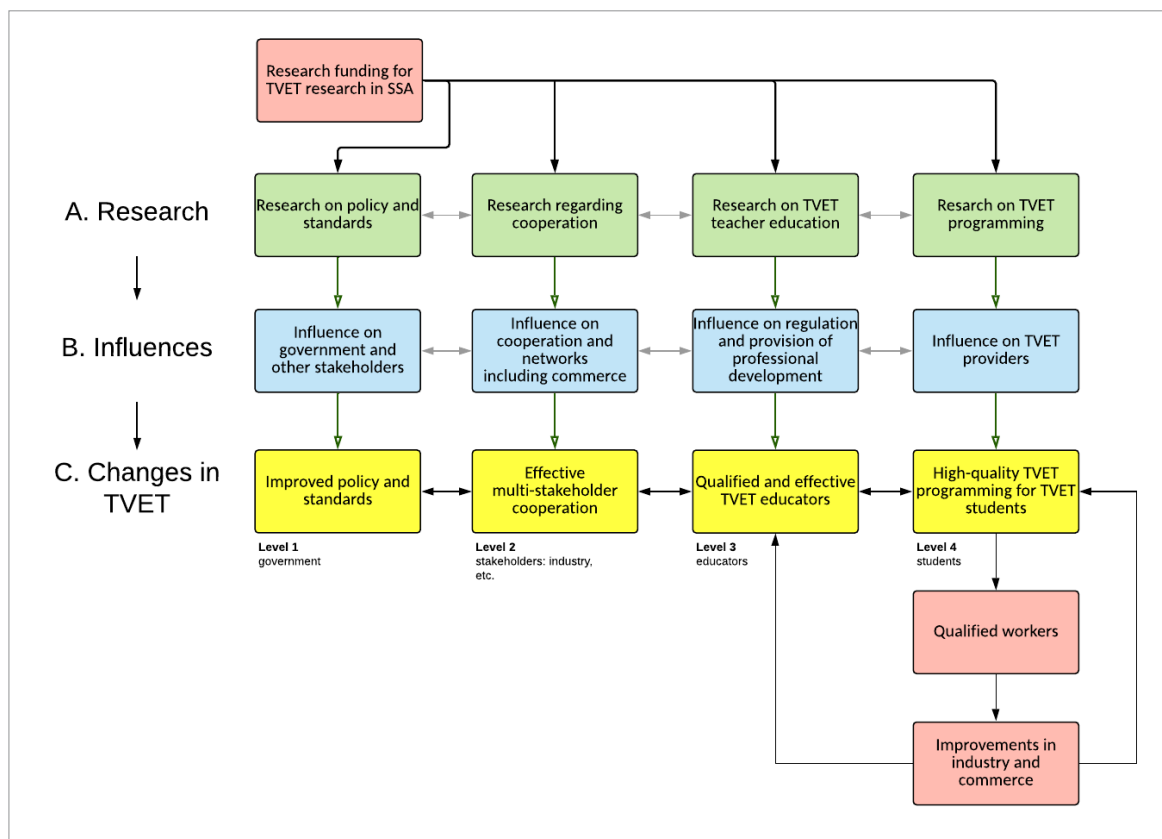
TVET plays a vital role in the realisation of SDGs. Traditional occupations (teachers, nurses, craftsmen, etc.) are essential, as are new occupations, such as logistics for medical care. For example, robotics companies, such as Zipline in Rwanda, require (†[CNBC, 2018](#)) appropriately trained mechanics and logistics professionals.

The following figure is a simplified systems overview of TVET. There are four levels: government, stakeholders (such as industry), TVET educators and TVET students. The figure suggests that research funding furthers research, on the four levels shown: policy, cooperation, teacher education and TVET programming (A., green). The next level shows aspects of the system that are being influenced (B., blue), leading to outcomes at those four levels (C., yellow). Such outcomes include better policies, better cooperation, better support for TVET teachers / educators and better TVET programming for students. The horizontal arrows indicate the interdependence between the levels. For example, the provision of high-quality TVET programming requires the presence of effective TVET educators, the effective cooperation of stakeholders, and high-quality policy and standards.

At the bottom right, the figure indicates the ultimate impact: High-quality TVET programming leads to more qualified workers (as empowered citizens). They, in turn, contribute to (e.g.) industry and commerce. A better functioning commercial sector feeds back into the availability of TVET educators and better TVET programming.

Figure 1.1 is a simplified illustration of the influence of research on the TVET system at four levels, namely: policy and policy standards, cooperation, teacher education and TVET programming (A., green). The research results can influence the design of various aspects at these levels (examples in B., blue) and lead to changes in TVET (C., yellow). These can be: better policies, better cooperation, better support for TVET teachers / educators and better TVET programming for students. The horizontal arrows indicate the interdependence between the levels. For example, the provision of high-quality TVET programming requires the presence of effective TVET educators, the effective cooperation of stakeholders and high-quality policy and standards. At the bottom right, the figure indicates the ultimate impact: High-quality TVET programming leads to more qualified workers (as empowered citizens). In turn, they contribute to (e.g.) innovations in industry and trade. A highly developed economic sector then requires ongoing development of TVET teachers and vocational training programmes. To this end, corresponding vocational training standards and cooperation with industry must be further developed.

Figure 1.1. A simple schematic of the impact of TVET research on the TVET system.



Our Theory of Change (†Weiss, 1995; also †Stein & Valters, 2012; †White, 2018) implies that the systematic review of the status of TVET research in SSA, combined with the use of policy recommendations, will influence the system as illustrated in Figure 1.1.

1.3. The German Federal Government and TVET in SSA

SSA is an important focus of interest for the German Federal Government. In 2017 it adopted the key paper, 'Economic Development in Africa—Challenges and Options' (†Bundeskanzleramt, 2017), containing 16 measures designed to strengthen economic relations with Africa and promote sustainable development with an emphasis on the education and training of professionals. As part of its G20 presidency in 2017, it has committed to new partnerships in SSA, encouraging the integration of TVET components into infrastructure projects, using the latter as a means to promote TVET.

TVET in the Federal Republic of Germany itself is characterised by low youth unemployment, in part due to the success of its TVET system, known as the 'dual system' (German: 'duales System'). Work-based learning accounts for a high percentage of this system. Table 1.2. describes the five core elements of the German system, which aid the interaction between state TVET institutions and company-based training.

Table 1.2. TVET in the Federal Republic of Germany

The five core elements of TVET in the German dual education system (see also †Schwarz, et al., 2016, in English; and †Schwarz, et al., 2016, in German; p. 12.):

1. Cooperation between government and the economic sector (business, trade unions and employers' organisations);
2. Learning as part of the work process;
3. Acceptance of national standards;
4. Qualified TVET staff;
5. Institutional research and advisory services.

Key to the sustainability of the German dual TVET system is the TVET research undertaken by the Federal Institute for Vocational Education (BIBB) and a broad network of research institutes and universities. This research is the basis for evidence-based policy decisions and is increasingly valued in international TVET cooperation.

The vision for TVET is to offer young people an opportunity for self-determination and to support democratic attitudes and values that contribute to the good of the community. It also ensures that a country has qualified professionals, essential for a prosperous economy.

The German Federal Ministry of Education and Research² (Bundesministerium für Bildung und Forschung, BMBF) seeks to support the partner countries in modernising their TVET systems. This was set out in 2013 and renewed in 2019 in the 'Federal Government Strategy Paper: TVET co-operation from a single source'³. In 2013, the German Office for International Cooperation in TVET (†BIBB)⁴ was set up at the Federal Institute for Vocational Education and Training (BIBB). On behalf of the German Federal Ministry of Education and Research, GOVET supports TVET cooperation worldwide, serves as a one-stop-shop for information exchange; moreover, GOVET is the secretariat of the 'Round Table for International TVET Cooperation'⁵.

There are, of course, existing co-operations already, such as partnerships with TVET institutions and company-based training in several countries in SSA (†BMBF, editorial office), including Ghana and South Africa. In South Africa, the Federal Institute for Vocational Education and Training has been engaged in bilateral cooperation with the Department of Higher Education and Training (DHET) since 2013. The primary goal is

2 †BMBF-Interntredaktion, Home, available at <https://www.bmbf.de/>

3 †Strategiepapier der Bundesregierung zur internationalen Berufsbildungszusammenarbeit, 2013; †Strategiepapier der Bundesregierung zur internationalen Berufsbildungszusammenarbeit, 2019

4 †GOVET - Zentralstelle der Bundesregierung für internationale Berufsbildungskoooperation, Home, available at <https://www.bibb.de/govet/de/index.php>

5 †GOVET, Tasks and Objectives, available at <https://www.bibb.de/govet/en/2352.php>

to make TVET in South Africa more practical, in line with the German dual model. There are also international cooperations, including cooperation between GOVET and COTVET (Ghana).

The German Federal Ministry commissioned GOVET to build on such work by commissioning this report. In this report, we seek to offer insights into future directions for TVET in SSA, with a focus not only on research insights but also on research operationalisation (evidence-based decision making). The overall objective of this study is to provide a systematic review of the state of research on TVET in SSA. The findings presented here are based on an analysis of the research literature and consultations with relevant stakeholders through interviews and focus groups, and a structured community review of the literature findings. The aim is to contribute to a better understanding of TVET research in the region, intending to improve it, further develop TVET education and, ultimately, achieving TVET-associated development outcomes. We note that throughout the report, we use the abbreviation TVET as a broad category referring to any type of technical (and vocational) education and training (TVET/VET), vocational training, apprenticeships, etc. (cf. Chapter 6).

1.4. Purpose and aim of this study

This report – commissioned by BMBF / GOVET in July 2018 and completed in January 2020 – sought to undertake a systematic review of the state of research on TVET in SSA, as well as to shed light on possible avenues for future TVET research in SSA and its operationalisation. However, because of national and regional differences in education systems and TVET systems in SSA, a general and comprehensive problem analysis cannot possibly do justice to the complexity of the local conditions. Indeed, while there is already a variety of studies and project reports available at national and international levels, these are scattered across many institutions located within varied regions; they differ in terms of research issues, empirical scope, and methodology. Because of this complexity, the present study was designed to develop robust hypotheses and — to the extent possible — to do so with the utmost transparency. In this way, other researchers can evaluate our conclusions and build on them as new research becomes available. The emphasis of our work — based on an inevitably limited evidence base — is on usability and expansion in the context of future research.

1.4.1. Systematic review of the state of research on TVET in SSA

Our study places particular emphasis on developing a systematic overview of the current international state of research into TVET in SSA. The term ‘TVET’ in the sense of our report is broad and includes ‘dual TVET’, ‘apprenticeship’, ‘technical education’, ‘vocational education’, etc. This systematic review aims to clarify what institutional research capacities exist in the area of TVET research in SSA, in which institutional frameworks they operate, and to what extent they can influence the development of TVET systems. It is essential to ask whether, and to what extent, data collection tools and TVET policy planning exist at the national and regional levels. Consideration should also be given to which (international/regional/national) TVET research networks

already exist in Africa and to what extent African research institutions and personalities are involved in them.

We note that while we operate across languages, specialised terms even within English do not necessarily reconcile across contexts. Such terms (even when used in the same language) reflect country-specific nuances that vary according to the particular implementation of TVET in that context. Even more so, when terms are translated, the meaning needs to be carefully examined, rather than making assumptions about a specific context in SSA and much less so drawing on European ideas of TVET. Finally, we note that the purpose of this research is to determine the current institutional framework and the international state of research in TVET in SSA. Our systematic literature review searched for documents published between the year 2000 and mid-2019.

1.4.2. Engagement with the community of TVET researchers and practitioners in SSA

However, just searching the literature is not enough. There is much unpublished knowledge that researchers and practitioners hold. Further, given our research questions (see Chapter 2), we will see that it is not possible to answer all questions through a literature review alone. In order to develop an adequate overall picture, further approaches are required. These include interviews, and we used this method alongside a structured community review, across our community of research participants. The term 'community' used here refers to both TVET researchers and TVET trainers. The first stage of our community data collection process was the interviews, which followed an initial email survey. The second stage was the structured community review, which similarly followed another email survey.

1.5. Focus on TVET research in SSA

Countries outside SSA dominate the discourse on TVET and TVET research, primarily focussing on European and Southeast Asian countries. This observation contrasts with the stated ambitions of many education systems in SSA⁶ which have recognised the need to improve their TVET. At present, TVET research in SSA is not systematic or large scale. For example, there is a systematic overview of TVET research authored by [†Tripney & Hombrados \(2013\)](#) in which only one study from SSA met the inclusion criteria. The study by Hicks and colleagues focused on the labour market returns of providing young people in Kenya with vouchers for TVET ([†Hicks, et al., 2011](#)).

While results from TVET research appear limited overall, it would be a grave mistake simply to dismiss all TVET research from SSA at the outset. There are existing studies that do provide valuable insights and the basis for additional work and TVET developments. We must assume that a significant amount of research is not readily available because it is not available online (Chapter 3.5.3). However, given the overall literature

⁶ Author's (B.H.) personal discussion with Ministers and State Secretaries at the Conference of Education Ministers (Commonwealth Secretariat, Fiji, February 2018).

available — even if there is a lack of high-quality and empirical research — we can nevertheless draw conclusions about the state of research on TVET in SSA. In our research questions (Chapter 2.1), we, therefore, focus on the state of research while also mapping out the messages on TVET in SSA that are currently available.

We close this introductory **Chapter 1** with a preview of the following chapters. **Chapter 2** presents the research design (methodological approach) of this report, including the research questions. It details our approach to systematic literature reviews (including search terms / keywords, databases, grey literature) with an overview of the search methods employed (automated, opportunistic; email survey). Also included is the systematic review methodology, classification and coding (screening; relevance criteria, quality criteria) of the research publications. We close Chapter 2 with comments on the project languages and ethical issues.

Chapter 3 offers an overview of the quality and relevance of the publications found on TVET. After a broad and systematic search, around 300 of over 2,000 publications were classified as relevant to our research questions and therefore examined in more detail. About 5% of these were classified as particularly high-quality research and about 20% as high quality.

The 300 publications come from different categories; around half of these are publications from peer-reviewed journals (primary research and literature research). Other categories include edited books, dissertations and (project) reports. The chapter closes with an analysis of the choice of topics and examples of the diverse range of topics found.

Chapter 4 deals with the conception and practice of TVET. This chapter aims to create a common framework that unites different dimensions of TVET. The large number of TVET systems means that an analysis of their characteristics is complicated. The lack of a clear, comprehensive reference framework for TVET in SSA is particularly problematic from a research perspective. These dimensions are taken up again in various later chapters and discussed further.

Chapter 5 examines the various stakeholders in TVET research and their networks, e.g., the institutions that are involved in TVET and TVET research (e.g., faculties at universities as well as non-university and non-state colleges). We consider the motivations provided by TVET researchers as well as the countries or regions to which the publications on TVET research refer.

Chapter 6 deals with topics, perspectives and current debates of TVET research in SSA. The most important topics are selected from the earlier thematic analysis and discussed in detail. One of the issues is the definition and conceptualisation of TVET itself, providing additional context to Chapter 4. Starting from our own position (Chapter 4), we now look at additional perspectives, taking into account the opinions of TVET researchers, as well as the opinions of TVET students and TVET teachers.

Chapter 7 carries out a systematic review of the studies on TVET in SSA, i.e., it examines reliable statements made about TVET in relevant research publications. In Chapter 7,

our subject of research is no longer the character of the research literature itself, but the content of the studies themselves.

Chapter 8 examines models for the design, development and delivery of TVET. For example, educational programme designs are examined with particular attention to practical components.

Chapter 9 looks at gender issues in TVET in SSA, as well as inclusion challenges and strategies. Publications from selected countries in SSA enable us to analyse governmental policies relating to the right of inclusion.

Chapter 10 looks at key state actors in TVET (state authorities and key policies) for four countries: Botswana, Ghana, Kenya and Nigeria. These countries reflect a diverse variety of TVET system structures.

Chapter 11 examines the importance of non-governmental actors in TVET from a range of countries where information was available, including Ethiopia, Botswana, Ghana, Kenya, Nigeria, Uganda and Tanzania.

Chapter 12 looks at national standards, guidelines and quality frameworks in TVET in SSA. We examine the role that politics, trade unions and other interest groups play in TVET.

Chapter 13 focuses on the challenges that arise when implementing guidelines and political decisions. We raise issues regarding the differences, opportunities and risks associated with the possible development of formal and informal TVET.

Chapter 14 focuses on how institutional framework conditions can be influenced to increase research capacity and performance. It also explores what the research interests and motivations of TVET researchers are in SSA, alongside the current and emerging TVET topics in the region.

In **Chapter 15**, we focus on networks for research into TVET. The chapter explores the networks and networking opportunities that are present across and beyond SSA and considers how those could be strengthened. Insights on the topic are presented from the experts who participated in our focus group discussions.

In **Chapter 16**, we offer a summary and—based on this—direct our attention to possible future developments regarding TVET and TVET research.

A number of appendices present additional information, such as an annotated bibliography, the full bibliography for the report, the methodology for the interviews and structured community review, the results of the structured community review (including focus group; i.e. the critique of an earlier version of this report), recommendations for thematic priorities in research, and the TVETSSA-R-Framework, as well as an expanded causal loops diagram.

1.6. Note for the reader

We note that this report is an extended and updated version of a German version of this report ([↑Haßler, et al., 2019](#)). Further details about the different stages of the report are available in Appendices 2 and 3.

1.7. Chapter bibliography

This bibliography can be accessed from the [entry for this document in our evidence library](#).

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