Chapter 2. Research Design[1]

This chapter introduces the research design of this report, starting with the research questions. After presenting our methodological approach, we describe our systematic literature search (search terms / keywords, databases, grey literature) together with an overview of the search method (automated and opportunistic; e-mail survey). We then go into a discussion of the systematic review, including the classification and evaluation of the selected research publications (relevance criteria for screening, quality criteria). This chapter concludes with brief comments on the languages used in this project and the ethical considerations. We note that this research design (published first in the German version of this report, ⬆Haßler, et al., 2019), is now also utilised by a new research programme focusing on the use of technology in education in low-income countries.[2] This expanded research design is detailed in ⬆Haßler, et al. (2019), and we refer the reader to that work for further details, including flow charts.

Our analysis focuses on the state of research on technical and vocational education and training in SSA. Throughout the report, we use 'TVET' as a broad category, covering all types of technical and vocational education and training — including apprenticeships, 'dual' approaches, etc. Our search for evidence includes relevant documents dealing with any forms of TVET in SSA in English, French, Portuguese and German.

We analyse both formal scientific publications and 'grey literature' (strategy papers, briefings, project reports, evaluations, etc.). Although we consider all documents related to TVET in SSA (published worldwide), documents by African (co-)authors are given special attention.

The research design presented here details the keywords and databases used in our discovery of relevant literature, including both automated and manual searches that were complemented by a process known as 'snowballing' (see below). Email surveys to experts were also used to identify relevant literature. The list of references obtained was carefully examined and the documents classified as ultra-high, high, medium or low priority according to several criteria that assessed their relevance and quality. All references considered to be ultra-high were coded, analysed and summarised in this report.

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2 ⬆EdTech Hub, Home, *available at* https://edtechhub.org/

The information found in the literature review is further built on through interviews and the structured community review, of which we provide details of the participating organisations.

2.1. Research questions

We divided the research questions into four parts (A, B, C, D) organised broadly by focus scope. We do not reproduce the research questions here, but refer the reader to the appendix of this chapter (Section 2.6.). The four parts for the research questions are:

Part A. About the research, research papers and reports;

Part B. Research findings: Themes, perspectives and current debates;

Part C. Research sector mapping and actor analysis;

Part D. National standards and regulations.

We now describe each part in turn.

2.1.1. Part A. About the research, research papers and reports

The research questions in Part A cover the analysis of TVET research, publications and reports (RQ1, RQ2). These research questions consider how such research can be categorised and mapped according to specific criteria (pertaining to the background of the research, regions where the research takes place, specific focus areas). This includes the examination of academic disciplines and industrial sectors/branches; we further examine the motivations of the researchers to embark on those specific research projects. We consider definitions and interpretations of TVET, e.g. as apprenticeship, 'apprentissage', 'Berufsbildung/Berufsausbildung').

2.1.2. Part B. Themes, perspectives and current debates

The research questions in Part B examine the topics, perspectives and current debates regarding TVET (RQ3). We consider the goals of the research projects and their focus (RQ4, RQ5). Furthermore, we consider the research designs and the quality of the results (RQ6). We examine the findings and conclusions regarding the effects of TVET programmes (RQ9) — as described in the literature and particularly on the participants and wider society (RQ10).

The research questions in Part B also analyse approaches to TVET models (RQ7). They extract the most important findings for the design, development and implementation of TVET models, including the pedagogical or programmatic designs. The practical aspects of TVET programmes are particularly important.

Further, the research questions in Part B also consider the participation and role of business in TVET (RQ8). We examine the willingness of businesses to participate in national dialogues to develop and implement (new) TVET systems. Finally, Part B deals

with relevant infrastructural, technological, socio-cultural, economic and legal factors (RQ11), as well as major inclusion-related challenges (gender issues, disability) in TVET (RQ12).

2.1.3. Part C. Sector-mapping and actor analysis

The research questions in Part C relate to sector-mapping and actor analysis. Different sectors (e.g., companies, government, NGOs) and actors (e.g., researchers, institutions, donors) are considered with regard to their role in TVET policy, in systemic decisions, research, programme delivery and evaluation. We integrate the evidence available across SSA into a high-level overview and proceed to a detailed analysis for selected countries. The research questions are aimed at actors in the research landscape, leading experts, institutions and their capacities (RQ13), the institutional framework in which they operate (RQ15), and specific funding sources for TVET research (RQ17). Part C also deals with the analysis of TVET research networks (RQ14).

The geographical analysis (RQ16) aims to identify regions and countries to which research projects refer. We consider evidence clusters as well as the lack of research findings for certain countries, certain forms of TVET and certain occupations.

2.1.4. Part D. National standards and regulations

The research questions in Part D examine national standards and regulations. They focus on countries that have national standards for TVET and training. We determine to whom such standards apply and how they are monitored (RQ18). Furthermore, we consider the different actors in TVET policy and in decision-making bodies in education (RQ19). We look at the impact of policy on the provision and evaluation of TVET programmes (RQ20) and on national standards of inclusion (RQ21).

2.2. Overall research design

We note that the overall research design for our analysis is sequential, with a mixed-methods approach (⇡Creswell, 2013). A limited focus on one type of data alone is becoming increasingly inadequate in international development fields. Our methodology includes both qualitative and quantitative approaches, e.g., in the analysis of the publications (quantitative evaluation of the dataset of publications) as well as interviews and focus groups (qualitative, usually not part of a literature search). The results of the various methods are integrated within the analysis (⇡Creswell, 2013).

Our review is conducted by a team of researchers with the intention of informing others — including policymakers and practitioners. We look at published research literature (officially published in journals, books, dissertations, conference proceedings, etc.) as well as grey literature (working papers, policy papers, project reports, reviews, conference papers, etc.). Through stakeholder consultation, we continue to have access to unpublished grey literature (e.g., internal project reports and project plans). Other documents, such as notes, e-mails, files and texts of all kinds were also used to interpret the research results, as ⇡Strauss & Corbin (1997) recommend. We employ a systematic

literature review in accordance with the general features of systematic literature review (e.g., ⭫Waddington, et al., 2018, and ⭫Kitchenham & Charters, 2007).

We also used semi-structured interviews and online focus group discussions to complete our insights. This expands the literature research (i.e., the 'state of research according to the literature') to the actual state of research. The procedures adopted in each of these cases are described in Sections 2.4. and 2.4.3. respectively, with further details being available in Appendix 2.

The sequential design was implemented in consecutive phases (with parallel components) and culminated in a final synthesis of the results. The research phases carried out are shown in the following figure.

Figure 2.1. Overview of the phases in our research design. An expanded version focusing on the community involvement is available in Appendix 2.

Overview of the phases in our research design

• **Phase 1: Literature research (Section 2.3.)**
    • **Activity 1a. Literature discovery and analysis** (Section 2.3.1.)
    • **Activity 1b. Literature scoping (Online survey 1)** (Section 2.3.2.)
    • **Activity 1c. Literature analysis and synthesis** (Section 2.3.3.)
 • **Phase 2: Interviews, surveys, review, focus groups (Section 2.4.)**
    • **Activity 2a. Interviews** (Section 2.4.1.)
    • **Activity 2b. Online survey 2** (Section 2.4.2.)
    • **Activity 2c. Structured community review** (Section 2.4.3.)
    • **Activity 2d. Focus groups** (Section 2.4.4.)

2.3. Phase 1: Literature review

This first Phase consists of three main activities: Literature search and analysis (Section 2.3.1.) Literature scoping (Online survey 1; Section 2.3.2.) and literature analysis (Section 2.3.3.).

2.3.1. Activity 1a: Literature discovery and analysis

This section has three parts: a systematic literature search, opportunistic literature search, and analysis of the discovered literature. Searching for literature that is not available digitally across sub-Saharan Africa is outside the scope of a report of this nature. Hence, we note that the literature review described here includes only internet-available resources. We recognise that these methods result in some degree of bias, as they do not take into account literature that can have an important value locally. However, it is the internet that enables this kind of review work. Moreover, if access to a publication could not be obtained, we would be unable to make it available to the

TVET research community via the Zotero[3] folder. One of the aims of this report is to be a gateway to the available literature on which we hope researchers in sub-Saharan Africa can build.

Our approach uses extensive research through online databases with various search terms (see below). Our overall inclusion strategy considers PICO ('population, intervention, comparator and outcome'; ⇡Higgins & Green, 2011; ⇡Waddington, et al., 2012), specifically focusing on:

1. Population: Sub-Saharan Africa;
2. Intervention: any kind of TVET;
3. Comparator: open (e.g., no comparator or control group, etc., depending on the study);
4. Outcome: insights on TVET research.

Our detailed data extraction approach follows guidelines from the EPPI Centre's 'Extracting data and quality assessing primary studies in educational research' (⇡2003, updated 2017). Our keywording strategy also follows the ⇡EPPI Centre guidelines (2001, updated 2017).

Keywords

This refers to the inclusion of key search terms, including variations that are also used in alternative languages. From the general research mission (TVET in SSA) as well as the specific research questions, search terms were developed to identify relevant publications. Table 2.2. (below) shows the search terms — including variations — that were used in all four languages. We note that our search covered significant publications concerned with TVET modalities in the following languages: English, German, French and Portuguese. These were selected because they are the languages in which the majority of the research is published, with the exception of German, which was included because of the location of BIBB who commissioned the research. As will be discussed later, in the end, only very few non-English sources were relevant and, for this reason, Arabic was not included in the search.

We analysed both formal scientific publications and grey literature, including policy papers, project reports, peer-reviewed journal papers, books, etc. While we considered all documents regarding TVET in SSA (published worldwide), we were mindful to ensure a voice for African authors and researchers situated in Africa.

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3 Zotero is an open source reference management software. that allowed us to store the documents reviewed and make them available to our readers. ⇡Open Development & Education, Zotero Library, *available at* https://www.zotero.org/groups/2317526/oden_tvetr-ssa/library

Table 2.2. Search terms

Key term	Variations
Technical and vocational education and training (TVET) (terms, T)	**English**: TVET; vocational education and training; vocational training; vocational education; technical education; technical-vocational education/TVE; occupational education/OE; professional and vocational education / PVE; career and technical education/CTE; workforce education; workplace education/WE; school-based TVET; dual TVET; informal-based TVET; technical and vocational education and training; TVET; informal training; firm-based training; apprenticeship; apprenticeship training; apprentice; apprentices; trainee; studentship; training at work
	German: Berufsbildung; Berufsausbildung; berufliche Bildung; technische Bildung; technisch-berufliche Bildung; professionelle und berufliche Bildung; Karriere und technische Bildung; Arbeitsplatz-Bildung; schulische Berufsbildung; duale Berufsbildung; Weiterbildung; Ausbildung; Lehrling; Lehrlingsausbildung; Auszubildende; Auszubildender; Studentenschaft; Ausbildung am Arbeitsplatz; informelle Ausbildung
	Similarly for **French** and **Portuguese**
Professions (P), **Education-related terms** (Q)	**English**: teachers, nurses, car mechanics, etc.
	German: LehrerIn, Krankenschwestern/-pfleger, AutomechanikerIn/KFZ-MechatronikerIn, etc.
	Similarly for **French** and **Portuguese**
Regions in Sub-Saharan Africa (areas, A) **Countries** (C)	**English**: Africa; Sub-Saharan Africa; East/West/Southern Africa; developing contex(s)t; developing country/-ies; developing nation(s); less developed country/-ies; lesser developed country/-ies; low-income country/-ies; middle-income country/-ies; LMIC(s); Global South Countries (49): Angola, Benin, Botswana, Burkina Faso, …
	German: Afrika; Subsahara-Afrika; Ost-/West-/Südliches Afrika; Entwicklungskontext(e); Entwicklungsland/-länder; Entwicklungsnation(en); weniger entwickeltes Land; Land/Länder niedrigen Einkommens; Land/Länder mittleren Einkommens; LMIC(s); Globaler Süden Individuelle Länder (49): Angola, Benin, Botsuana, Burkina Faso, …
	Similarly for **French** and **Portuguese**
Databases	Google Scholar, DOAJ, JOLIS, ERIC, ESSA, Web of Science, Science Direct, Scopus, ProQuest, 3ie, BMBF.[4]

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4 ⇡BMBF-Internetredaktion (no date), *available at* https://www.bmbf.de/publikationen/

Literature discovery using automated approaches

We developed our own, in-house algorithms in order to automate the search process and provide comprehensive search results. Table 2.2 illustrates the need for these algorithms. The first term ('TVET') has about 40 variations in German, plus specific associated professions. With variations across four languages, this results in more than 160 terms. The third term ('Sub-Saharan Africa') has 27 variations, plus 49 countries in Sub-Saharan Africa (76) in four languages. This means that more than 10,000 combinations per database need to be applied. For 11 databases that means more than 100,000 queries. Our in-house algorithm does this search completely automatically. Duplicates are largely automatically eliminated.

This differs from existing approaches that either utilise

1. a complex query (for an example, see, e.g., ⇡Kenya: Tripney & Hombrados, 2013);
2. a small part of the search space intuitively; or
3. a combination of (1) and (2) , e.g., a complex query in ProQuest with intuitive search in Google Scholar.

Approach (1) has certain advantages, including the fact that only one (albeit complex) request has to be made and results can be achieved very quickly (for example, 100 queries are possible to complete in only one hour). By comparison, 10,000 (automatic) requests must be made in our process, which may take several days. But approach (1) also has disadvantages that do not occur in our approach. For example, approach (1) is limited to portals that allow complex queries. Our approach, on the other hand, uses flexible requests that can run across a large number of portals. For each portal—depending on the characteristics of the portal—enquiries can be made either simple or complex. In particular, our approach works well where no API is available (i.e., where metadata needs to be read directly from web pages). Furthermore, approach (1) gives no indication of which combinations of expressions lead to which search results. It is therefore impossible to discover special combinations that provide a small number of important results (e.g., Malawi + TVET + electrician). Our approach can dynamically reuse metadata (such as other references in the sense of snowballing). However, these differences do not mean that one or the other approach is better: depending on the circumstances, it may be advantageous to use the more productive approach or to vary the complexity of the requests in our approach (and therefore compromise on speed and detail).

Databases

In line with the usual practice of systematic literature research, our search was carried out across several literature search platforms. Any single platform search is inadequate because *'no database contains the complete set of published materials'* (⇡Xiao & Watson, 2017:11). Our search covers Google Scholar, Web of Science, ProQuest, ERIC, the common libraries of the World Bank and IMF database (⇡International Monetary Fund & World Bank; JOLIS) and the database of 3IE for impact evaluation.

In order to ensure the adequate representation of publications by African research-ers and institutions from SSA, we also consulted the 'Mapping Education Research in Sub-Saharan Africa' database[5]. Since policy-relevant research in educational research (including TVET) is not easy to find, this project has put together a dedicated database in order to increase the visibility and impact of African educational research. It current-ly contains about 3,000 selected entries with contributions by African researchers and researchers based in Africa.

Grey literature

Our literature review also includes the discovery of grey literature, the *"diverse and heterogeneous material that is not subject to the traditional academic peer review process"* (⇡Adams, et al., 2017:433). This is particularly beneficial in relation to the study of TVET: our knowledge of this sector shows that many important activities are not recorded in journals. Blogs, presentations, informal publications and other communications play an important role. The literature search of the grey literature follows the same meth-odology as for the scientific literature but uses conventional search engines (Google search / 'Google Custom Search Engine'). As with formal literature, the identified grey literature must meet the basic criteria. In this way, the grey literature then *"supplements and complements"* the formal literature (⇡ibid:448).

Opportunistic literature search

Our systematic search is supported by an opportunistic literature search and by the snowball sampling. The opportunistic literature search is, therefore, subjective and includes already known or proposed papers. The search involves "*reviewing and tracking references in previously identified papers"* (⇡Waddington, et al., 2012:363). Our snow-balling is bidirectional: on the one hand, references are traced in previously identified papers, and on the other hand, papers are being sought that cite already identified papers (⇡Xiao & Watson, 2017).

Systematic review, classification and commentary

The search method just presented leads to a large number of search results. The search engines of different databases have different levels of accuracy, and it is therefore quite possible that irrelevant publications also appear in the search results. Identified papers and documents are checked for duplications and included on the 'long list' according to a number of basic criteria. These include:

1. The paper / document included the search term TVET (or variations, see above).
2. The paper / document was related to a country or region in SSA.
3. The paper / document was published after the year 2000.

'Paper includes' means that a search term appears either in the title, abstract or under the keywords of the paper (but not if the search term appears only in the text of the publication itself, as this is not indexed).

Screening and relevance criteria

Following the initial assembly of the 'long list', we undertook a deeper analysis of the retrieved references. All documents on the 'long list' were reviewed and coded based on their quality and relevance (low, medium, high, ultra-high). This review was carried out by two researchers working independently. The references were then re-evaluated to ensure consistency between different reviewers (↕Kitchenham & Charters, 2007; inter-coder agreement: ↕Jimenez, et al., 2018).

We classify the relevance using upper-case letters U / H / M / L as follows:

> **U ('ultra-high')**: clearly satisfactory and selected for coding;
>
> **H ('high')**: clearly satisfactory;
>
> **M ('medium')**: unclear/contentious;
>
> **L ('low')**: clearly unsatisfactory.

Documents from the 'long list' with relevance criteria H/H (assigned independently by two researchers) are included in the draft 'shortlist'. Cases of M/H and H/M are reviewed to reach intercoder agreement. In some cases, M/M papers are also considered for re-classifying as H if the disciplinary background and/or region would otherwise not be adequately represented. Among the H papers, a further selection is made (by three researchers), deciding which papers should be coded 'U-literature' (ultra-high).

In this phase, further criteria for the systematic recording and clustering of the state of research around different TVET contexts and sub-contexts were developed in preparation for Phase 2. Quality assessment also provides the first insight into the research capacity of institutions. However, thoroughly coding and establishing the quality of the research goes beyond the simple concepts noted in the Phase 1 automated screening. We, therefore, also considered the studies' abstracts and main texts. Further topics, perspectives and current debates are explored, and the criteria for systematic recording/clustering are developed further.

Quality criteria

Normally the selection criteria are based on relevance *and* quality. However, we need to bear in mind that this study is not about a literature review comparing, e.g., TVET models with regard to their effectiveness. To make such statements based on a literature review, the underlying papers must be of high quality themselves. Here, we were interested in presenting the state of research itself—including the state of research quality. We, therefore, consider relevant papers of *any* quality so that, for example, statements about necessary professional development for researchers can be made.

We, therefore, set criteria for quality, but generally do not use these to exclude papers (with Chapter 7 as an exception).

We classify papers regarding quality using lower-case letters u / h / m / l as follows:

u ('ultra-high') Indicates a well-referenced publication with good structure, appropriate methodology, a thorough analysis and a clear discussion of conclusive findings;

h ('high) indicates a publication with a good structure and reasonable, evidence-based conclusions; Methods are clearly described (for both primary or secondary research) and implemented (e.g., sample data is clearly specified), and the conclusions are derived from the data;

m ('medium') indicates that the publication has a structure that compromises the clarity of the findings; Methods are clear (primary or secondary research), but the implementation or conclusions raise methodological issues;

l ('low') indicates a publication with a poor structure, which results in reasoning that is difficult to follow; they may be no obvious methods.

This review process also examines the strengths and weaknesses of the study design presented in the documents (target group selection, cohort formation, data collection, and analysis) as well as detailed contexts (see ⭫Haßler, et al., 2015, based on ⭫Gough, 2007; see also ⭫Gough, et al., 2012. For further details, see Chapter 7.

2.3.2. Activity 1b: Literature scoping: online survey 1

Experience shows that information about ongoing projects or initiatives is often not yet available on the internet. We, therefore, use various methods to consult researchers and other stakeholders directly. Our first such consultation takes the form of an e-mail survey (Table 2.3). The survey focuses on unpublished reports and ongoing projects, and on substantive issues according to our research questions. All materials identified in this survey are added to the results of the systematic search in the 'long list'.

Table 2.3. Email questionnaire

1. What are the most important TVET organisations / institutes?

2. Who are the most important TVET researchers?

3. Which key non-formal or formal TVET literature must be considered (including review articles / special issues)?

4. To which of the following major occupational groups (as defined by the ⇡ILO) is TVET applicable?

   a. Managers

   b. Professional

   c. Technicians and associate professionals

   d. Clerical support workers

   e. Service and sales workers

   f. Skilled agricultural, forestry and fishery workers

   g. Craft and related trades workers

   h. Plant and machine operators and assemblers

   i. Elementary occupations

   j. Armed forces occupations

   k. All the above

5. If you consider TVET to be applicable to b, 'professional' occupations, to which of the following sub-groups of professionals is TVET applicable?

   i. Science and engineering professionals

   ii. Health professionals

   iii. Teaching professionals

   iv. Business and administration professionals

   v. Information and communications technology professionals

   vi. Legal, social and cultural professionals

   vii. All the above

6. Which areas of TVET should be researched (including areas that would assist your efforts within the TVET sector)?

We note that some of these occupations (such as managers and armed forces occupations) may not be considered to be part of TVET in all education systems. However, the purpose of providing this list of occupational groups was to explore the range of professions that various national systems consider to be part of TVET or not.

2.3.3. Activity 1c: Literature analysis and synthesis

In Phase 3, we utilised our initial thematic coding and identification of the topics, perspectives and current debates. The U-documents were added to our analysis software (⇡NVIVO), and content analysis was conducted. The content analysis consisted of cycles with deductive and inductive stages.

1. First, a deductive content analysis was undertaken according to the research questions (see Tables 2.5. and 2.6. with research questions, Section 2.6). The analysis included the typology of TVET models. According to the research questions (e.g., RQ7, 10, 11, 12), the following characteristics were also covered:
   - the theoretical approach;
   - the implementation of TVET;
   - the costs;
   - the learning effect;
   - the inclusion and
   - the equity challenges.
2. The main parts of the publications were also coded in Level 1 (RQ4, 5, 6, 9: Objectives of the research projects, substantive questions, research questions, findings and conclusions of the publications considered, see Table 2.1 Research questions, appendix to this chapter, Section 2.6). These main parts were then inductively examined in stage 2 to discern additional topics.
3. Keywords for the topics were catalogued. Through full-text searches, other citations were discovered and coded in the publications.
4. The results were then compared and correlated with the research priorities of ⇡Mulder (2018).

Results of the thematic analysis are presented in Chapter 3.7.

2.4. Interviews, surveys, reviews, focus groups

There are several research questions that cannot be answered through the extensive literature search. Therefore, a set of interviews, a community survey and a structured community review (SCR), as well as focus groups, were utilised to offer additional data to address the research questions.

We note that further information on the community engagement aspects of the research design is available in Appendix 2. A data reference with all quotes and the respective attributions to focus group sessions and interviews is available, see further materials in Appendix 5.

2.4.1. Activity 2a: Interviews

The usual procedures for interview invitation, appointment and analysis were followed. These included providing information on the purpose of the research, making available contact information for answering queries, ensuring participants can consent to the

interview and have the opportunity to approve interview notes and withdraw contributions, and communicating research findings to participants.

We sent interview invitations by email to a total of 94 stakeholders and successfully engaged with 27 stakeholders, which was 29% of invitations submitted. The interviews were carried out by two researchers: one conducted the interview while the other took notes. Once completed, the notes were checked with the interviewer and proofread, then a copy was submitted by email to the participants for their approval. Reminders were sent to those interviewees that had not returned the interview notes with their comments after two weeks. In the end, we received the confirmation of the accuracy of our notes from a total of 12 of the stakeholders that were interviewed. The appendices provide further information on the methodology for these phases (Appendices 3 and 4). Results and analysis of the interviews are included throughout the following chapters. However, Chapters 14 and 15, in particular, are based on the interviews and focus groups.

List of interview questions

The interview questions are divided into six sections:

1. Part A. About the interviewee;
2. Part B. TVET in SSA;
3. Part C. TVET Research in SSA;
4. Part D. The Impact of TVET Research in SSA;
5. Part E. TVET Research networks in SSA;
6. Part F. Relevance of outcomes of the present project.

Part A collects some general demographic details. Part B asked about current topics and debates regarding TVET in SSA, the countries that are leading in TVET implementation and the existence of regional trends. We enquired about the factors influencing the success or failure of TVET projects and asked participants to name any major project they were aware of in SSA. The questions posed in this section also aimed to collect information about businesses, industry and commerce participation in the TVET system and about their influence in policy and curriculum design.

The questions included in Part C intended to map the SSA countries that are leading TVET research and to identify the leading experts and institutions. In this section, we aimed to understand the institutional frameworks in which researchers operate and how they can influence the development of the education systems.

The impact of research currently being carried out in SSA was addressed in Part D, where we enquired about the areas within the TVET system where there is an urgent need for research support. Institutional framework conditions can be challenging and include: institutional embedding, degree of organisation, specialisation, personnel and financial resources, research or university policy framework. Acknowledging institutional framework conditions, we requested that interviewees discuss how these conditions can be influenced with a view to increasing research capacity and performance.

Part E focused on research networks. The literature review carried out in Phase 1 provided very little information on the state of research networks in development. Hence, participants were asked about the possibilities for the expansion of already existing co-operations and the potential for new network formation. We were also interested in identifying the other approaches, apart from networks, that are able to structure fruitful engagement within the research community.

Part F concluded the interviews by asking what interviewees needed to get out of this research project and what opportunities they foresaw for it. We also provided space for any additional comments they might have had, including on topics we did not cover that they thought we should address.

2.4.2. Activity 2b: Online Survey 2

All those that were interested in accessing the literature review report were asked to fill in a five-part questionnaire from which data on the participants' experience, skills and qualifications were collected. The questionnaire was composed of open-ended and multiple-choice questions. Invitations to take part in the structured community review (SCR) and have access to the literature review report were sent to all those we had contacted during the previous stages of this research and to some key institutions that would be able to share the invitations among their members (e.g., KATTI, CITEF, UNEVOC Forum). Fifty-two people registered to join the SCR. Apart from one person who informed us she was representing her organisation, all participants answered the questionnaire indicating they participated in this discussion in a personal capacity.

The SCR considered the origin of the participants (demographic and by organisation), the main research areas, and the reasons for participating in the SCR. The personal information collected included participants' age cohort, their professional identity, their qualifications and research experience, and their familiarity with Zotero and Google Docs (including access to Google Docs via smartphone or tablet). Furthermore, there were open questions about the research priorities of the participants.

Additionally, we requested that participants provide us with a list of relevant publications authored by them or their colleagues. Finally, we asked to be informed of the kind of resources that they might be able to share with others through the SCR. The questionnaire also included language preferences, and asked participants to describe how they might be able to contribute to the review.

Participants' organisations

Stakeholders working with TVET in SSA were given the opportunity to access the first report and to take part in the structured community review. Most participants were affiliated with organisations based in Africa, or at least headquartered there (42 in total, countries listed in the table below). An additional 6 participants worked for organisations with headquarters in Europe (Germany, Norway, Italy and the United Kingdom), and three in Asia (Pakistan, Hong Kong and India).

Table 2.3. African countries with organisations that are represented in the SCR

African countries with organisations that are represented in the SCR		
Cameroon (3) Ghana (3) Ethiopia (5) Kenya (5)	Madagascar (1) Malawi (2) Mozambique (1) Namibia (2)	Nigeria (10) South Africa (11) Tanzania (2) Zambia (1)

South Africa (11), Nigeria (10), Ethiopia (5) and Kenya (5) were the countries most represented in this sample, followed by Cameroon and Ghana with 3 participants each. Organisations in Malawi, Namibia, Tanzania and Uganda each had 2 representatives, and Botswana, Madagascar, Mozambique, Senegal, Sierra Leone, Sudan and Zambia had one each.

The organisations included TVET providers, universities and governmental departments (see Table 3). Other types of organisation included Zizi Afrique (Kenya), Vocational Centre for International Development, Lattanzio KIBS, Education and Development Initiatives Uganda, IIT BSUIR, UNESCO, GIZ and IIPE-Pôle de Dakar. At least 18 participants were from organisations that are UNEVOC Centres (another 15 people did not know, which could slightly increase this number).

Table 2.4. Training providers, universities and government departments represented in the SCR

TVET providers	
Ken Saro-Wiwa Polytechnic (Nigeria) Malawi Polytechnic (Malawi) Eldoret National Polytechnic (Kenya) National Vocational Training Institute (Ghana) Arusha Technical College (Tanzania)	Buffalo City TVET College (South Africa) Ekurhuleni East TVET College (South Africa) South West Gauteng TVET College (South Africa) Port Elizabeth TVET College (South Africa) Yaba College of Technology (Nigeria) Dept of Fine and Applied Arts, College of Education (Nigeria)
Universities	
Durban University of Technology (South Africa) Nelson Mandela University (South Africa) University of Nigeria University of Abuja (Nigeria) Michael Okpara University of Agriculture (Nigeria) University of Eldoret (Kenya) United States International University –Africa (Kenya)	Technische Universität Dresden (Germany) Oslo Metropolitan University (Norway) University of Nottingham (United Kingdom) Pedagogical University of Mozambique University of Malawi Higher Institute of Technology Antsiranana (Madagascar) Jimma University (Ethiopia)

Government departments
National Board for Technical Education (Nigeria) National Commission for Colleges of Education (Nigeria) Namibia Training Authority (Namibia) Ghana Education Service (Ghana) National Vocational Training Institute (Ghana) Ministry of Higher Education (Zambia) TVET Authority (Kenya) Inspectorate of Pedagogy for Industrial Education, Ministry of Secondary Education (Cameroon) Ministry of Professional Education and Employment (Tunisia) Technical Education and Vocational Training Authority (Pakistan)

As can be observed in Table 3, education providers compose the largest group among the organisations in this sample. Thus, it should come as no surprise that most respondents were lecturers, assistant professors, teachers or instructors (18). Many were also in managerial positions, where 4 identified themselves as director, deputy director or executive director; 3 as dean or head of department; and a further 4 respondents stated they were managers or deputy managers. An additional 4 were directors or coordinators of a UNEVOC Centre. Other roles include research assistant, research chair or researcher (4), consultant (3) and subject specialist, curriculum specialist or technical adviser (5).

2.4.3. Activity 2c: Structured Community Review

Apart from the initial survey and literature review, we also conducted a structured community review. This review involved TVET experts from across SSA and beyond. These experts gave reflective, knowledge-based critiques and additional insights into TVET beyond what we could find from the literature review and the initial survey. Specifically, these insights took the form of commentary on a previous version of the present report, such that the present version now benefits from the critical analysis of multiple experts. The SCR was more cost-effective compared to other methods of accessing additional insights from TVET researchers such as country visits, and the online nature of the review allowed researchers from multiple locales to work simultaneously and collaboratively on reviewing the previous version of the report. Such online collaborative work helps ensure that the participants can respond to and build on each others' insights in close to real-time, leading to rigorous, iterative feedback on the report. Details on the insights gained from this process can be read in Appendix 3.

2.4.4. Activity 2d: Focus Groups

Focus groups were another method that we used to further validate the findings of the literature review. These focus groups, like the SCR, were made up of TVET experts. However, unlike the SCR, the focus groups were conducted over WhatsApp, and did not specifically aim to review a previous version of the report, but instead to give additional insights on particular topics. Further details of the focus groups can be found in Appendix 2.

2.5. Further considerations

This short section discusses the project languages used and addresses ethical issues that have arisen from the work on this study.

2.5.1. Project languages

 A variety of project languages were necessary for the literature research, our online survey, interviews and site assessments. Therefore, as explained above, search terms were used in multiple languages. For Phase 2, we used English as the main language for interviews to facilitate the analysis. However, interviews with French-/Portuguese-speaking participants were conducted by researchers who are proficient in these languages, as well as in English. This allowed us to clarify and compare certain terms immediately, ensuring a good balance between non-English-speaking participants expressing themselves easily, and allowing for good linguistic comparability in the analysis. We note that our search included German as a language, as this work was commissioned by the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung).

2.5.2. Ethical issues

All research in this project is governed by the guidelines of the British Education Research Association[6] which include responsibilities to research participants and funders, a responsibility to the community of educational researchers, and accountability to policymakers and the general public. No children participated in this study; nevertheless, we are mindful of the UN Convention on the Rights of the Child[7] and international / national child protection guidelines.

Following these guidelines, all actors participating in this research followed our established consent procedure and were advised that they could withdraw their consent to participate at any time. In addition, the notes and analyses were sent to all individual respondents for validation. Upon completion of the research process, all participants received full-length summaries and reports.

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6 ⇡BERA, Ethics and Guidance, *available at* https://www.bera.ac.uk/resources/all-publications/resources-for-researchers

7 ⇡UN Convention on the Rights of the Child (UNCRC) , *available at* https://www.unicef.org.uk/what-we-do/un-convention-child-rights/

2.6. Chapter appendix

2.6.1. Research questions

We begin by presenting the research questions in Tables 2.5. and 2.6. below. Please note the following:

1. The term 'research question' is abbreviated as RQ.

2. Actual research questions are in square brackets, e.g., [RQ2] or [RQ3.a].

3. Some research questions are grouped, with the actual question referred to being in brackets, e.g., [RQ3.a]. In those cases, the title of the group is not a research question; *'RQ'* is still used, but the number is not put in parentheses such 'RQ3' (without parentheses).

Note that some research questions were added after the literature review for further consideration during the interviews and focus groups. The questions are marked through the use of italics and an explanatory footnote.

Table 2.5. Research questions for the literature review

Part A. About the research, research papers and reports
Overview of Part A. The research questions in Part A are aimed at mapping research, research papers and reports in SSA, including categorisation according to specific criteria, such as their background and focus areas.
RQ1. Overall background to research that is evidenced in publications or evidenced otherwise. **[RQ1.a]** In what **contexts** have studies been / are studies being generated in SSA? For example, what is the institutional setting (e.g., NGO vs. university vs. government vs. industry)? **[RQ1.b]** Are there specific **academic disciplines** that are more pronounced? If so, what are the academic disciplines (economic research vs. social research)? **[RQ1.c]** Are specific **industrial sectors / branches** apparent? If so, what are those industrial sectors (e.g., the electronics sector, construction, tourism)? **[RQ1.d]** Is the **motivation** of researchers or research projects discernable (e.g., in the background provided within research papers)? If so, what is the motivation of the study or researchers?
[RQ2.] Which **definition of TVET** (i.e., TVET, apprenticeship, 'Berufsbildung', 'apprentissage', …) is used? Which (possibly divergent) terms are used? Where are such terms used (geographies) and how?
Part B. Research findings: Themes, perspectives and current debates
Overview of Part B. The research questions in Part B offer both a bird's eye view of the topics, perspectives and current debates, and detailed insight into goals and substantive questions, research designs and TVET models (including designs and cooperation).
RQ3. Topics, perspectives, current debates. **[RQ3.a]** What are the **topics, perspectives and current debates** concerning TVET that can be identified? Are there **special topics** that stand out? (For example: 'informal apprenticeship'?) **[RQ3.b]** Are there **trends and correlations in regions** or groups of countries, or on the topics of advancement opportunities, informal sector and TVET, social inequality, labour market integration of young people, etc.?
[RQ4.] What are the **overall goals of the research project** and the **substantive questions** pursued by researchers? For example: key concerns, overarching research questions or other priorities for the research project. What are the disciplinary priorities?

[RQ5.] What are the **research questions** pursued in the papers? What specific TVET issues or problems are being tackled in the research?

RQ6. Research design and quality of results (in the publications considered).

[RQ6.a] What are the research designs in the publications considered? What are the research methods used?

[RQ6.b] What are the quality of reporting and the quality of results?

RQ7. TVET models that are discernable in the literature; the **main lessons** in designing, developing and delivering TVET models.

[RQ7.a] What **pedagogical or programmatic designs** are researched in the literature? Which models of TVET are used (or planned) in SSA? For example: distance learning, blended learning, in-service, pre-service (college), work-based, school-based, formal vs. informal.

[RQ7.b] What are the **key features** related to designing, developing and delivering TVET models?

[RQ7.c] Is the **formality of TVET education and TVET education programmes** (formality vs. informality) in each context a differentiating feature?

[RQ7.d] What **pedagogical / classroom approaches** are being used to deliver TVET?

[RQ7.e] Are the **practical components** of programmes a factor that make them stand out in any way? (For example: cooperation between college and business as places of learning.) Are there already dual approaches that have been considered? Is the degree of practical components (e.g., cooperation school-enterprise) in each context a differentiator?

RQ8. The participation and role of **industry and commerce** (engagement / relationship of the TVET system in business / industry / commerce).

[RQ8.a] To what **extent are** industry or the commercial sector involved in any kind of TVET?

[RQ8.b] Is this involvement part of **national TVET development and practice?** For example, is this involvement nationally organised? Is it part of public TVET provision?

[RQ8.c] How pronounced is the **willingness of the business/industry/commerce community to participate** in national dialogues for the development of a TVET-focused education system and in its implementation?

[RQ8.d] Differentiating factors: Is the participation in TVET focused on specific areas/professions?

RQ9. Findings and conclusions of publications considered.

[RQ9.a] What are the main **findings** of the publication?

[RQ9.b] What **recommendations for further research** are evidenced (in the publication: articles, web pages, policies)?

[RQ9.c] What **recommendations for education policy** are evidenced (in the publication: articles, web pages, policies)?

[RQ10.] What do publications report about the **impact of TVET programmes** on participants and the wider society (impact / growth / sustainability / Sustainable Development Goals)?

[RQ11.] What are the **relevant infrastructural, technological, socio-cultural, economic and legal factors**? Which contextual (and regional) factors can increase or decrease the impact / growth / sustainability?

[RQ12.] What are the main **inclusion-related challenges** (equal treatment, e.g., gender, disability) in TVET in SSA? What are the successes and failures with respect to inclusion in TVET implementations?

Part C. Research sector mapping and actor analysis

Overview of Part C. Part C offers a sector mapping and actor analysis. Various sectors (business, government, NGOs, etc.) and actors (researchers, institutions, funders, etc.) are considered regarding their role in TVET policy, system decision-making, research, programme delivery and programme evaluation. We undertake a broad analysis across SSA, as well as more detailed analysis for selected countries and regions.

RQ13. Stakeholders in the **research landscape, leading experts and institutions**: The role of research institutions in the TVET actor landscape; institutional research capacities (in TVET, in SSA).

[RQ13.a] Who are the **designated experts** for TVET in SSA? Where are they located (country / institution)?

[RQ13.b] Which **research organisations** in each geographic region / country covered have particular expertise and capacity in TVET education research (in both SSA and internationally)?

[RQ13.c] What **institutional research capacities** exist in TVET research in SSA?

[RQ13.d] In which **institutional frameworks** do individuals and institutions operate, and how does this framework influence the development of the (TVET) education system?

*[RQ22.a] For which **areas within the TVET system** (in specific countries / regions, sectors or organisations) is there an urgent need for research support?* [8]

*[RQ22.b] For which **research questions** is there still the greatest need for research (including RQs on improvement of TVET)?* [9]

RQ14. Analysis of **TVET networks**.

[RQ14.a] What **research networks** on TVET in SSA already exist, and what is the extent of African research institutions' and professionals' contributions / involvement?

[RQ14.b] What **international networks** exist between African and European countries, or networks involving outstanding international research institutions?

*[RQ14.c] Which potentials for **network formation** can be identified?* [10]

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8 *This research question — shown in italics — was added after the literature review, with a view to answering it through the interviews and focus-groups.*

9 *As for previous footnote.*

10 *As for previous footnote.*

RQ15. Institutional framework conditions.

[RQ15.a] Which **institutional framework conditions** in TVET research (institutional connection, degree of organisation, specialisation, personnel and financial resources, research/university policy framework, etc.) influence research performance?

[RQ15.b] *Given institutional framework conditions (institutional connection, degree of organisation, specialisation, personnel and financial resources, research/university policy framework, etc.) and their influence on research capacity and performance: How can those framework conditions be influenced to increase research capacity and performance?* [11]

[RQ15.c] *What potential exists for the **development of institutional TVET research capacities** or what possibilities exist for the expansion of already existing cooperations?* [12]

RQ16. Geographic analysis and geographic distribution.

[RQ16.a] What are the **regions and countries** that can be identified in the literature search (places where research is situated)?

[RQ16.b] Distribution: For which countries are most of the research findings available, and for which countries are there few findings? Which forms of TVET and which professions occur in which locations?

[RQ16.c] Where are the **researchers and institutions** who undertake this research, located?

[RQ16.d] Current TVET projects and their locations. *What are the major TVET projects in SSA? Are there major TVET projects elsewhere that would be worth trialling in SSA?* [13]

[RQ17.] Are any specific **research funders** identified? In other words, who are the funders of TVET research and of TVET projects?

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11 *As for previous footnote.*
12 *As for previous footnote.*
13 *As for previous footnote.*

Part D. National standards and regulations

Overview of Part D. Part D presents national standards and regulations. It undertakes a TVET stakeholder analysis. Furthermore, policy implications regarding TVET programmes are presented with a particular focus on inclusion.

RQ18. National standards and policies.

[RQ18.a] Which countries have **national standards** for TVET? How were they produced and to whom do they apply? E.g., students, educators, educators located at the workplace, pedagogy specialists, institutions.

[RQ18.b] How are national TVET standards **monitored**? To what extent do data collection and policy planning tools exist at national or regional levels?

[RQ18.c] Within these countries, which **state authorities** are involved in TVET?

[RQ18.d] To what extent / how have **national TVET systems been formalised** (i.e., embedded in the formal education or employment system)? To what extent are the described forms of training integrated into the formal system of the respective country? What measures were recommended and possibly implemented in this regard?

RQ19. Actor analysis: **Stakeholders in TVET policy** and education system decision making.

[RQ19.a] Who are the **key players** shaping TVET politics?

[RQ19.b] Which **state authorities** are decisive for TVET and how is the (technical and vocational) education system managed?

[RQ19.c] Is everything in state hands, or if not, what relevance do **private education providers** have within the system?

[RQ19.d] Do **businesses** play a role in TVET and do they influence TVET policy (participation, consultation, design)?

[RQ19.e] Do **trade unions** play a role?

[RQ19.f] Is there an extended, relevant system of (merchants' / artisans') **guilds**? Does it play a role regarding TVET?

[RQ19.g] What role does **TVET research** play in the respective national/regional education policies?

RQ20. State regulation of TVET and impact of policy on TVET programme delivery and evaluation.

[RQ20.a] To what extent are institutions delivering TVET education (e.g., non-governmental organisations, state schools, colleges) **subject to state policies and regulations** (on TVET and otherwise; national infrastructure; economic and legal factors)?

[RQ20.b] How is **policy implementation** evaluated? Who assesses implementation? What are the quality indicators?

[RQ20.c] Are the policies and regulations effective? Is the **impact of policy** discernable (e.g., in the publications examined or within the web search)?

[RQ21.] How do national standards relate to inclusion (equal treatment, e.g., gender, disability) in TVET in SSA?

2.6.2. Research questions for the interviews and focus groups

The following research questions were utilised during the interviews and focus groups. Some of these research questions had already been designed for the literature review, but were not answered conclusively. Therefore, they were used again during the interviews and focus groups. Such questions are shown in italics.

However, a number of questions were added after the literature review and only utilised during the interviews and focus groups. These are non-italic, namely RQ15.b/c, RQ14.c and RQ22.a/b. In the full list above (2.6.1.) all of these questions have been added to Part C (research sector mapping and actor analysis).

Table 2.6. Research questions for the interviews and focus groups

Experts and research capacity
[RQ13.a] Who are the **designated experts** in TVET in SSA? Where are they located?   *[RQ13.c]* What **institutional research capacities** exist in TVET research in SSA? In which institutional frameworks do they operate, and how can they influence the development of education systems?   *[RQ16.d]* **Current TVET projects and their locations.** What are the major TVET projects in SSA? Are there major TVET projects elsewhere that would be worth trialling in SSA?

The role of TVET research and the capacity for TVET research in SSA
[RQ22.a] For which **areas within the TVET system** (in specific countries / regions, sectors / organisations) is there an urgent need for research support?   **[RQ22.b]** For which **research questions** is there still the greatest need for research (including RQs on the improvement of TVET)?   *[RQ13.d]* In which **institutional frameworks** do individuals and institutions operate, and how can they influence the development of the (TVET) education system?   *[RQ15.a]* Which **institutional framework conditions** in TVET research (institutional connection, degree of organisation, specialisation, personnel and financial resources, research/university policy framework, etc.) influence the research performance?   **[RQ15.b]** Given **institutional framework conditions** (institutional connection, degree of organisation, specialisation, personnel and financial resources, research/university policy framework, etc.) and their influence on research capacity and performance: How can those **framework conditions be influenced** to increase research capacity and performance?   **[RQ15.c]** What potential exists for the **development of institutional TVET research capacities** or what possibilities exist for the expansion of already existing cooperations?   **[RQ16.d] Current TVET projects and their locations.** What are the major TVET projects in SSA? Are there major TVET projects elsewhere that would be worth trialling in SSA?

Analysis of TVET networks
RQ14. Analysis of TVET networks.   *[RQ14.a]* What research networks on TVET in Africa already exist, and what is the extent of African research institutions' and professionals' contributions / involvement?   *[RQ14.b]* What **international networks** exist between African and European countries, or networks involving outstanding international research institutions?   **[RQ14.c]** Which potentials for **network formation** can be identified?

2.6.3. Discussion of the research questions

While working on this study, there were frequent discussions about the research questions. Part of this is reflected in the following questions and comments in order to focus on various further aspects of the research questions.

Comments on RQ2

Are there differences that can be traced back to the different (colonial) histories? It may be the case that there are similarities between the current TVET system in a specific country in SSA and its former colonial power. This may also shape aspects of current cooperation between different countries (such as an interest, or not, in Germany's 'dual' system). Similarly, we expect the TVET system to be shaped by other transnational factors, such as donor funding since the end of colonial rule (see also RQ13.d.).

Comments on RQ7

Please note that RQ7, 8 and 19 are linked. The notes on those questions should be read together.

[RQ7.a.] To what extent do the five quality characteristics of German dual TVET appear in research? (See ⬦multilingual GOVET presentations) 'Place-of-learning cooperation' and the 'dual principle' are important, but are likely only found where there are German, Austrian or Swiss influences.

[RQ7.c.] To what extent is the TVET education opportunity (that is considered in the publication) formal or informal? That is to say: formal / informal regarding overall programme structure, or lack thereof. What is the context of the informal / formal model described, i.e., country, rural vs. urban, gender, socio-economic status, background of apprentices, etc.? Within the overall programme, how formal are the practical parts?

[RQ7.e.] Are there any practical components at all? Practical components might involve students going into industry. However, they could also mean going on to be an apprentice in a craft profession. Note that RQ8 and RQ19 are about whether industry / commerce is engaging with TVET, which might include the kind of engagement discussed here (e.g., practical TVET placements), but generally focuses on the wider engagement (e.g., engagement with national policy).

As for RQ2, we consider the extent to which dual approaches are reflected in TVET definitions. This includes 'dual approaches' that are labelled (by the author) but also includes those that are clearly dual in the sense of also having a strong practical off-site component (with significant time allocation). If there are dual approaches, is this a differentiator, e.g., between different degrees (nurse vs. teacher vs. carpenter) or between countries?

Comments on RQ8

This question deals with the interaction with politics, the economy and social partners with regard to, e.g., examination standards, TVET standards, etc. Note that questions about learning in the working process (e.g., company-based TVET) are discussed in RQ7.e., while questions regarding national standards (e.g., TVET standards, chamber certificates, etc.) are considered in RQ19.

Attention must also be paid to the availability of qualified TVET staff (e.g., company-based TVET staff and educators based in companies). We also consider whether commercial entities are involved in research and consulting (e.g., data reports, TVET reports, TVET standards).

Comments on RQ13

[RQ13.a.] There is a TVET research community in Germany, not least because TVET and business education is established as a chair at universities. Elsewhere (for example, in SSA), it is often more general sociologists or educational researchers who focus on TVET as part of their research.

[RQ13.c.] Do they act regionally, nationally or internationally? Why is that? Is it due to development aid (c.f. RQ17)?

[RQ13.d.] Are there differences between francophone, anglophone and lusophone countries? (Cf. also [RQ2] in terms of regional differences in the definition of TVET.)

Comments on RQ15

As framework conditions, the priorities of German development cooperation must also be taken into account (see ⇡Wolf, 2009, on the waves of TVET in development cooperation).

Comments on RQ19

One has to look at three aspects of engagement: the education system itself, the industrial angle and special laboratories that exist in many schools. Training centres in Germany also play an important role as inter-company TVET centres and count towards the industrial aspect. The relevant regulations describe how in the construction industry, for example, certain TVET content should be learned in those special laboratories: for example, the GOVET presentation on the German dual system, which provides an overview of the advantages the dual system offers (⇡GOVET, 2018; the HWK Cologne is an interesting example, ⇡Bildungszentrum Butzweilerhof).

We recall Table 1.1, with the five core elements of TVET in the German dual education system:

1. Cooperation between government and the wider economy (business, trade unions and employers' organisations; e.g., examination committees, TVET standards);

2. Learning as part of the work process (e.g., 70% work-based education and 30% learning in vocational schools or colleges);

3. (System-wide) acceptance of national standards (e.g., TVET standards, guild certificates[14]);

4. Qualified TVET personnel (e.g., company-based TVET staff and TVET teachers);

5. Institutional research and advice (for example, data reports, TVET publications / reports, educational standards).

We note the following regarding the role of institutions: Based on these five core elements, commerce and the wider economy play an important role in Germany; without such cooperation partners, it is impossible to implement 'dual models'. However, the German case is only one such model, and it may be possible that the necessary functions can also be fulfilled in other ways. A key question for SSA is, therefore, which institutions take on specific tasks such as the organisation of examinations, engagement with companies, etc.

Please note again that RQ7, 8 and 19 are linked. The notes to those questions should be read together.

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14 Also, German, 'Handelskammern'.

2.6.4. Research questions and chapters

Table 2.7 below lists the chapters in this report, together with the research questions that are addressed in those chapters.

Table 2.7. Research questions and chapters

Chapter number	Chapter name	Research questions
1	Introduction	N/A
2	Research Design	N/A
3	Overview of the Discovered Publications	N/A
4	The Conception and Practice of TVET in SSA	3.a; 2; 7a
5	TVET Actors	1; 13; 16
6	Themes, Perspectives and Current Debates in TVET Research	3; 4; 5
7	Systematic Review of TVET Research	6; 7; 9; 10; 11; 12
8	Models for Designing, Developing and Delivering TVET	7a–e
9	Inclusion-related Challenges and Policies	12
10	State Authorities for TVET Management	19.a–b
11	Non-state TVET Providers	8, 19.c–f
12	National Standards and Regulations	18 a–d
13	Challenges to Policy Implementation	19g; 20
14	Insights Regarding Institutional Frameworks and Research Capacity	3.a, 13.c, 13.d, 15, 22.a, 22.b
15	Research Networks and Capacity Building	14
16	Perspectives on Future TVET Research	N/A

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This bibliography can be accessed from the entry for this document in our evidence library.

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